
# NAVAL POSTGRADUATE SCHOOL

**MONTEREY, CALIFORNIA**

# THESIS

**ANALYSIS OF PERFORMANCE METRICS USED IN CONTRACTING AGENCIES**

by

Sunshine S. Brubaker, Nicole Dean, and Devin L. Posey

September 2018

Thesis Advisor: E. Cory Yoder
Co-Advisor: Brett M. Schwartz

THIS PAGE INTENTIONALLY LEFT BLANK

| REPORT DOCUMENTATION PAGE | | | *Form Approved OMB No. 0704-0188* |
|---|---|---|---|



| **1. AGENCY USE ONLY** *(Leave blank)* | **2. REPORT DATE** September 2018 | **3. REPORT TYPE AND DATES COVERED** Master's thesis |
|---|---|---|

| **4. TITLE AND SUBTITLE** ANALYSIS OF PERFORMANCE METRICS USED IN CONTRACTING AGENCIES | **5. FUNDING NUMBERS** |
|---|---|
| **6. AUTHOR(S)** Sunshine S. Brubaker, Nicole Dean, and Devin L. Posey | |
| **7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)** Naval Postgraduate School Monterey, CA 93943-5000 | **8. PERFORMING ORGANIZATION REPORT NUMBER** |
| **9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)** N/A | **10. SPONSORING / MONITORING AGENCY REPORT NUMBER** |

**11. SUPPLEMENTARY NOTES** The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

| **12a. DISTRIBUTION / AVAILABILITY STATEMENT** Approved for public release. Distribution is unlimited. | **12b. DISTRIBUTION CODE** A |
|---|---|

**13. ABSTRACT (maximum 200 words)**

The purpose of this research was to determine if current Department of Defense (DoD) contracting agency performance metrics are holistic in nature and have the ability to capture meaningful performance data. The researchers gathered fiscal year 2018 performance metric data from three DoD contracting offices. Each office differed in size, mission, and assigned DoD branch. The researchers performed a review of popular performance management analytical frameworks and completed their analysis of collected performance metric data by developing a hybrid analytical framework model using E.C. Yoder's Three Integrated Pillars of Success, conducting interviews with contracting agency-level leadership, and considering other industry literature and research. The researchers determined that the captured performance metrics did not present a comprehensive picture of the organization's productivity, effectiveness, and efficiency.

| **14. SUBJECT TERMS** performance, matrix, TIPS, effectiveness, efficiency | **15. NUMBER OF PAGES** 125 |
|---|---|
| | **16. PRICE CODE** |

| **17. SECURITY CLASSIFICATION OF REPORT** | **18. SECURITY CLASSIFICATION OF THIS PAGE** | **19. SECURITY CLASSIFICATION OF ABSTRACT** | **20. LIMITATION OF ABSTRACT** |
|---|---|---|---|
| Unclassified | Unclassified | Unclassified | UU |

NSN 7540-01-280-5500 Standard Form 298 (Rev. 2-89) Prescribed by ANSI Std. 239-18

THIS PAGE INTENTIONALLY LEFT BLANK

**Approved for public release. Distribution is unlimited.**

# ANALYSIS OF PERFORMANCE METRICS USED IN CONTRACTING AGENCIES

Sunshine S. Brubaker
Civilian, DLA Land and Maritime
BBA, De Vry Institute of Technology - Columbus, 2004

Nicole Dean
Civilian, Department of the Air Force
BS, Florida State University, 2008

Devin L. Posey
Civilian, Department of the Army
BS, University of Alabama Huntsville, 2007

Submitted in partial fulfillment of the
requirements for the degree of

**MASTER OF SCIENCE IN CONTRACT MANAGEMENT**

from the

**NAVAL POSTGRADUATE SCHOOL**
**September 2018**

Approved by: E. Cory Yoder
Advisor

Brett M. Schwartz
Co-Advisor

Timothy J. Winn
Academic Associate
Graduate School of Business and Public Policy

THIS PAGE INTENTIONALLY LEFT BLANK

# ABSTRACT

The purpose of this research was to determine if current Department of Defense (DoD) contracting agency performance metrics are holistic in nature and have the ability to capture meaningful performance data. The researchers gathered fiscal year 2018 performance metric data from three DoD contracting offices. Each office differed in size, mission, and assigned DoD branch. The researchers performed a review of popular performance management analytical frameworks and completed their analysis of collected performance metric data by developing a hybrid analytical framework model using E.C. Yoder's Three Integrated Pillars of Success, conducting interviews with contracting agency-level leadership, and considering other industry literature and research. The researchers determined that the captured performance metrics did not present a comprehensive picture of the organization's productivity, effectiveness, and efficiency.

THIS PAGE INTENTIONALLY LEFT BLANK

# TABLE OF CONTENTS

THIS PAGE INTENTIONALLY LEFT BLANK

# LIST OF FIGURES

THIS PAGE INTENTIONALLY LEFT BLANK

# LIST OF TABLES

THIS PAGE INTENTIONALLY LEFT BLANK

# LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ALT | Acquisition Lead Time |
| CAP | Cross Agency Priority |
| CRP | Contract Requirement Package |
| DAWIA | The Defense Acquisition Workforce Improvement Act |
| DLA | Defense Logistics Agency |
| DoD | Department of Defense |
| DFARS | Defense Federal Acquisition Regulations |
| EEP | Efficiency Effectiveness and Process |
| FAR | Federal Acquisition Regulations |
| FPDS-NG | Federal Procurement Data System - Next Generation |
| FY | Fiscal Year |
| GAO | Government Accountability Office |
| KPI | Key Performance Indicators |
| LTC | Long Term Contract |
| IDIQ | Indefinite Delivery Indefinite Quantity |
| ISO | International Organization for Standardization |
| IT | Information Technology |
| NIIN | National Item Identification Number |
| NPS | Naval Postgraduate School |
| PALT | Procurement Action Lead Time |
| PD | Position Description |
| PD2 | Procurement Desktop-Defense |
| PMA | President's Management Agenda |

| | |
|---|---|
| PQDR | Product Quality Deficiency Report |
| RFI | Request for Information |
| RFP | Request for Proposal |
| RFQ | Request for Quote |
| ROI | Return on Investment |
| SAT | Simplified Acquisition Threshold |
| SIPOC | Suppliers, Inputs, Processes, Outputs, and Customers |
| TIPS | Three Integrated Pillars of Success |
| USAF | United States Air Force |
| VOIP | Voice Over Internet Protocol |

# I. INTRODUCTION

> You get what you measure. Measure the wrong thing and you get the wrong behaviors.
>
> —John H. Lingle, Consultant
> (Kingston, 2015, p. 142)

In FY 2017, the United States Department of Defense (DoD) spent $821.6 billion to purchase goods and services. The FY 2018 DoD budget is set to spend $574.5 billion (Cantrell, 2017).

> The Government Accountability Office (GAO), however—as well as other accountability organizations, inspectors general, and the agencies themselves—continue to identify systemic weaknesses in key areas of acquisition. In fact, the acquisition function at several agencies has been on GAO's high-risk list, which identifies areas in the federal government with greater vulnerability to fraud, waste, abuse, and mismanagement. In January 2005, we added interagency contracting to this list. (GAO, 2005, p. i)

To avoid unnecessary risks and the waste of our limited resources, DoD contracts must be awarded and administered efficiently and effectively, while also ensuring contract performance is monitored and enforced. The contracting offices responsible for awarding these contracts must operate as efficiently and effectively as possible. The performance of these agencies should be monitored to ensure the integrity of the DoD acquisition system is upheld.

Using a hybrid of Yoder's "Three Integrated Pillars of Success (TIPS)" analytical framework model, the researchers reviewed and analyzed current agency-level performance metrics of three DoD contracting organizations. The analysis determines if these existing metrics provides leadership with a complete holistic overview of the health and performance of their agency or if current metrics are failing to provide vital information, thereby negatively affecting productivity, efficiency, and effectiveness. Based on this analysis, interviews with contracting agency leaders, and a performance management literature review, the researchers provided recommendations for additional performance management considerations for DoD.

## A. BACKGROUND

Contracting organizations are ultimately production shops, which transform raw data inputs into defined outputs. Contracting production shops receive these inputs from various customers in the form of requirement packages, including detailed statement of works, performance work statements, and statements of objectives and/or technical specifications. The defined outputs, or products, produced by the contracting shop include contract awards and contract modifications. The contracts produced must be of the proper type, clearly state the customer's or end user's requirements, be appropriately funded, and meet all statutory and regulatory requirements (Yoder, 2018). To ensure contracting shops are providing a product that meets the needs of its customers and other stakeholders, their performance must be measured using clear, visible, and objective metrics, monitored by key leaders on a continuous basis (Yoder, 2018).

## B. WHAT ARE HOLISTIC METRICS AND WHY DO WE NEED THEM?

Merriam Webster defines the term 'holistic' as "relating to or concerned with wholes or with complete systems rather than with the analysis of, treatment of, or dissection into parts" ("Holistic," n.d.). Therefore, holistic metrics are indicators that can provide an overall view of an organization's health and performance. These metrics should work together to show leadership the complete picture within the organization. Given the different missions and buying behavior of the various agencies within the DoD, what constitutes an efficient and effective performance metric is subject to interpretation. In the world of metrics, if provided enough time and incentive, one could find adverse or unintended consequences in any metric. In order to counter any unintended behaviors or consequences of one metric, a delicate balance of the various functions within the organization need to be considered and measured. The metrics can then work together to balance out and negate any adverse behaviors resulting from conflicting metrics.

Within government contracting, there is often a trade-off between efficiency and effectiveness. For example, if time is of the essence and a contract is completed in record speeds, it is often awarded at the cost of quality. A common metric used among almost all DoD contracting agencies is the Procurement Action Lead Time (PALT). PALT times are

tracked by the automated systems used in a particular acquisition agency. The time is calculated as the difference between when an approved requirements document is received by the contracting agency and when the contract is awarded against the requirements. Agencies would measure the PALT and also a counterbalance metric to measure the quality of the contract award, such as an 85 percent yearly contract quality review rate to determine if a metric was holistic.

Holistic metrics should provide an entire overview of how the organization is performing. They should have the ability to indicate if there is a problem within the agency and the potential causes of the problem. Holistic metrics should be able to provide leadership with insight into long-term and short-term measures of agency performance. Finally, holistic metrics should have the ability to show leadership significant ongoing issues rather than small or one-time situations that may lead to overreaction and cause detrimental results.

## C. OBJECTIVE

Three DoD contracting agencies were researched in this study. The three agencies differ in size, mission, and branch of service. The purpose of this research was to determine if the current performance metrics of the three agencies are holistic in nature and have the ability to measure their true performance. The researchers investigated if existing metrics accurately measures the agency's processes under each of the mandatory pillars of Yoder's TIPS framework and also focused on each agency's efficiency and effectiveness as a means of accomplishing this objective. Common industry performance management processes were reviewed to determine if industry's performance metrics can be applied within the DoD. Finally, the researchers determined if standardization of metrics should occur across the three agencies and ultimately the DoD.

## D. RESEARCH QUESTIONS

This research answered the following research questions:

### 1. Primary Research Question

Why do we need Holistic Performance Metrics using a Systematic Approach for Contracting Activities?

### 2. Secondary Research Questions

***a. What analytical framework do we need to insure we get an acceptable holistic view of an agency's performance?***

***b. What performance measurement practices from private industry can be adapted for DoD's use in regard to performance analysis?***

***c. Do the existing metrics accurately measures the agency's processes under each of the mandatory pillars of Yoder's TIPS framework?***

***d. Should standardization of performance metrics occur across the DoD contracting shops?***

***e. What conclusions and recommendations generate from the analysis of existing and recommended holistic performance metrics?***

## E. SCOPE, LIMITATIONS, AND METHODOLOGY

### 1. Definition of Our Scope across the Agencies

Effective performance metrics are imperative to success. The researchers hypothesized DoD lacks a current set of performance metrics that would allow a holistic overview of an agency's health, or its productivity, efficiency and effectiveness. The researchers explored if current DoD metrics, within the three agencies studied, provides data holistic in nature and easily collectible from current automated electronic platforms. Performance metrics should provide agencies with insightful information that is concise and understandable, but also detailed enough to identify issues and root causes. The current agency performance metric data was examined to determine if it provides leadership with clear, valuable and actionable information. The intent was to determine if a comprehensive set of quantifiable metrics can be methodically utilized across (all or the three) DoD contracting agencies. Ideally, these metrics are easily collected from electronic data sources without the need for human manipulation to interpret the data.

## 2. Methodology

The following research steps were taken to meet the objectives of determining if current DoD contracting agency performance metrics are providing data that is holistic in nature and has the ability to measure the efficiency and effectiveness, and therefore true performance of each agency. The researchers defined efficiency and effectiveness to provide a baseline for the analytical framework. Research began by the researchers collecting current performance metrics and objectives used by each of the three agencies. The existing metrics were then measured against the hybrid Three Integrated Pillars of Success-Efficiency Effectiveness and Process (TIPS-EEP) analytical framework to determine if they provide meaningful data. This allowed the researchers to identify weaknesses and data gaps in existing agency metrics. A comparison of performance metrics among agencies was explored for opportunities for cross utilization of performance metrics. The researchers conducted a literature review of existing DoD policies and performance management frameworks. Finally, interviews were conducted with senior leadership within each of the three agencies. These interviews provided the researchers with valuable information used to help examine the efficiency and effectiveness of their existing performance metrics. Also, these interviews were utilized to provide data for further research considerations. All interview questions were formally vetted through the Internal Review Board (IRB). The IRB determined no formal protocols were required prior to conducting interviews. The analysis of existing agency performance metrics against the analytical framework analysis, industry research and interview information will be the basis of any recommendations of performance metrics to utilize across the DoD contracting agencies.

## 3. Efficiency and Effectiveness

One of our objectives was to determine the efficiency and effectiveness of the performance metrics used across our agencies. We first defined efficiency and effectiveness as it relates to performance management. When addressing the process of performance management, *The Responsible Contract Manager, Protecting the Public Interest in an Outsourced World,* defines "efficiency as inputs and outputs," and

"effectiveness as outcomes" (Cohen & Eimicke, 2008). These definitions were utilized to help determine within the TIPS model if the metrics within each category are efficient (inputs/outputs) and effective (outcomes) (Cohen & Eimicke, 2008).

During the research phase of this process, DoD leadership was able to confirm that while efficiency and effectiveness is pursued, some processes do not remain efficient. The private sector is able to cut out products and services that become unprofitable. DoD agencies have an imperatively different mission when it comes to mission readiness and completion goals or tasks 'at all costs.' What is considered efficient in the private sector can vary in comparison to the government as the two have conflicting goals and missions. DoD is subject to hundreds of regulations governing every step of the acquisition process. These regulations cannot be reasonably eliminated even when they negatively affect the efficiency of the process. The definition of desired inputs, outputs, and outcomes however allowed the researchers to determine if current metrics are looking at effectiveness and efficiency using a methodical, systematic approach.

### 4. Performance Metrics

The researchers acquired FY 2018 performance metrics shared within their respective agency. While some of the performance metrics did overlap, many are different due to the variability in the mission and size of the contracting agencies being researched. Two of the agencies procure items for their own military service. The other one supports weapon systems and service needs of warfighters across DoD, requiring a broader scope of performance metrics to provide an overall picture of organizational health.

While government contracting agencies tend to have overall missions that are similar in nature, the scope of contracting among the agencies, and the various jobs filled within each agency reveal the vast differences of the mission each agency carries out. Some agencies only procure services, supplies, or construction while others procure all three. Some agencies are large, multifaceted organizations that strategically source supplies and services for all of DoD, while others are significantly smaller and procure supplies on an as-needed basis. Some agencies are large and complex; they have entire departments dedicated to the collection and analysis of agency performance metric data. Each

contracting agency within DoD is a separate organization with a different purpose and mission that affects their strategic plan and the performance metrics used to determine their efficiency and help obtain those goals.

## 5. Limitations

Research was limited to three agencies within the DoD. The classification of each agencies performance metrics against the TIPS-EEP analytical framework is subject to a certain unavoidable amount of subjective interpretation within the definition of each pillar. Many of the metrics analyzed can reasonably be categorized under more than one pillar.

### *a. Research Limitations*

A search of internet-based publications and academic libraries revealed very little research has been accomplished in the area of DoD contracting performance metrics. At the same time, there have been numerous studies performed and scores of documents written about how to manage contracts and contractors after a contract has been awarded.

### *b. Industry Research Limitations*

The researchers attempted to acquire specific industry metrics from several large companies that consistently enter into contract with DoD. From the companies surveyed, the researchers were not able to obtain any specific corporate performance metrics. The specific private industry metrics requested were found to be confidential and proprietary in nature and did not allow research to go in that direction. There is precedence for companies working within the government acquisition industry not sharing their performance metrics. The GAO ran into a similar issue, stating the researchers "were limited in our ability to obtain and present some relevant data that companies considered proprietary in nature" (GAO, 2002, p. 24). Therefore, information found on industry metrics is not specialized to the industry of government acquisition due to the confidential limitations. The industry research presented in Chapter II will focus on general industry performance management measures rather than detailed metrics specific only to specific companies.

### 6. Anonymized Agency Data

Compilation of performance metrics across the agencies occurred to determine an overall analysis of the data, using methods appropriate for the information found. The results for individual agencies are anonymous. Therefore, agencies Alpha, Bravo, and Charlie are referred to within the analysis.

## F. ORGANIZATION OF THESIS

The remainder of this thesis is organized as follows: Chapter II explores existing literature on the analytical framework and performance management within the DoD and commercial industry. In addition, Chapter II explains research information for industry's performance management practices. Chapter III presents the analytical framework used to analyze performance metric data and the resulting gap analysis. Chapter IV provides recommendations based on the collection and analysis of data. Finally, Chapter V summarizes the research and offers conclusions.

## G. SUMMARY

Within this chapter, we discussed our research objectives to determine if current performance metrics are holistic in nature and have the ability to capture meaningful performance data. The scope, limitations, and research questions are addressed as well. In the next chapter, we address the literature review. We will cover previous research, performance management models and frameworks, as well as laws and policies that affect current performance metrics within DoD contracting agencies.

# II. LITERATURE REVIEW

> I believe there is no secret to what it takes to achieve good results in defense acquisition. The short form of this is to: (1) set reasonable requirements, (2) put professionals in charge, (3) give them the resources that they need, and (4) provide strong incentives for success.
>
> —Frank Kendall, Under Secretary of Defense for Acquisitions, Technology, and Logistics (Defense Acquisition, 2016)

## A. INTRODUCTION

The literature review will include four primary sections. In the first section, the researchers will define well-known and commonly used performance management frameworks including different types of performance management metrics. The second section will focus on private industry and the third and fourth sections will address the DoD. Specifically, the DoD background will address policies affecting performance metrics. This chapter will also introduce the frameworks used to create the hybrid TIPS-EEP model used for analysis.

## B. PERFORMANCE MANAGEMENT LITERATURE RESEARCH

In this literature research section, several performance management frameworks, tools, and/or theories will be presented and examined. These frameworks are used to analyze organizations and their operations to determine what measures (or metrics) of performance are the best indicators for success and potential issues. There are multiple synonymous terms for performance metrics including but not limited to: performance measures, process outcomes, results, and Key Performance Indicators (KPI).

> The challenge for managers is how to create a set of measures that is comprehensive and still limited enough to focus the organization on what is most important. In the case of government performance management, politics is often about which program goals are most important. Also, while most of the work of government resembles private organizations, some of the work of government is unique. In these instances, innovation and customer needs may very well be less important than accountability and

> transparency. In these cases, appropriate performance measurement is deliberately skewed and unbalanced. (Cohen & Eimicke, 2008, p. 155)

In the book *Performance Metrics, the Levers for Process Management*, the authors offer that the foundation for performance management is process management. Process management is the series of activities an organization performs to use its resources to convert inputs into outputs. Therefore, performance metrics are the measures that should evaluate an organization's processes to ensure they are aligned with the organization's strategic goals and objectives while also taking into consideration the various stakeholders.

The research team found several types of analytical frameworks within industry and the government. We will look at the metric types the various frameworks consider.

### 1. SIPOC

The SIPOC framework is based on the idea of performance management as process management. It consists of metrics based on the following areas within an organization: Suppliers, Inputs, Processes, Outputs, and Customers (SIPOC). The SIPOC process is commonly utilized in Six Sigma. The basic SIPOC analysis and diagram, consisting of these five categories, serves to provide a high-level overview of the organizations processes. "Understanding how each process operates and the impacts of the interrelationships between those processes is vital for effectively managing an organization" (Okes, 2013, p. 7).

Table 1. SIPOC Diagram for a DoD Contracting Agency

| Supplier | Inputs | Processes | Outputs | Customers |
|---|---|---|---|---|
| Warfighter/ End User | Defined requirements in the form of statements of work, performance work statements, statements of objectives and/or technical specifications | Acquisition Process: DOD Seven Step Services Acquisition Process, DOD Major Defense Acquisition Program, Simplified Acquisition Procedures, commercial item procedures, etc. | Contract Awards | Warfighter/ End User |

Table 1 is a basic SIPOC diagram for a DoD contracting agency or "contracting production shop." The diagram shows the relationship between the suppliers who provide the inputs, which are then processed by the organization into outputs to be used by the customers. Associated metrics may be developed by utilizing the points along the production process. These metrics can then be used to measure the agencies performance in each of these areas (Okes, 2013).

The diagram highlights one unique way the DoD differs from many private industries. The stakeholders who represent the customers are also the suppliers. The group of suppliers who provide the contracting production shop with its inputs are also the customers who consume the outputs. The contracting production shop is directly dependent on its customers to provide the inputs necessary to produce a product that will ultimately meet those same customer's needs. Although this relationship can also be found in private industry, it is far less common. Later in this chapter, we will address other functions of the DoD that prevent us from making direct comparisons to private industry.

### 2. Key Performance Indicators (KPI)

KPI's are typically used as higher-level, organizational outcome metrics. In this section, we will discuss the four common KPIs among private industry.

### *a. Definition*

Key Performance Indicators (KPIs) are another way of identifying which metrics will be used to measure performance within a company or in a part of a company (i.e., a specific division, a locality) using quantifiable measures over time. Organizations use KPIs to measure how successful they are against established criteria. A KPI may contain many metrics. Metrics are simply some established number that can be used to measure performance, progress as well as determine success, or failure (Bibey, 2017). Measurements of industry metrics can be similar and have a stark contrast to the way the Government measures performance.

### *b. Four Categories of KPIs*

Many industries use a similar breakdown of their KPI metrics into four general categories, financial, customer, process, and people metrics. The first is Financial, which is used to measure performance such as revenue and profit margins. This measurement can be as broad as the entire company for the year or as specific as the sales for one day in a certain region. The second category is Customer Metrics. Most industries that contract for goods and services use some form of customer metrics to determine the future of their company, such as the number of customers or the effectiveness of marketing campaigns. Process metrics would be the third category. Industry process metrics track customer support, product defects, and efficiency of a plant in a manufacturing industry, down to the hour. The fourth would be the People Metric. Examples of this metric would include the turnover rate of the company's employees, the level of satisfaction of the employees, or the level of qualified people applying for any open positions.

Within the government, the term Key Performance Indicator is rare. When it is understood that a performance metric is one specific element within a KPI, the two terms, as used within government acquisitions, are interchangeable. Both industry and the government agree that continuous improvement processes and measurements of these processes are important. There are many possible KPIs across private industry. A few examples of these KPIs are shown in Table 2.

Table 2. Examples of Common Industry Metrics. Adapted from Spiderstrategies (2018).

| | | |
|---|---|---|
| Asset utilization | Number of production assignments completed in time | Planned work to total work ratio |
| Availability | On-time orders | Predictive maintenance monitoring |
| Avoided cost | On-time shipping | Process capability |
| Capacity utilization | Open orders | Productivity |
| Comparative analytics | Overall equipment effectiveness | Quality improvement (first-pass yield) |
| Compliance rates (for govnerment regs, etc.) | Overtime as a percentage of total hours | Quality tracking-six sigma |
| Customer complaints | Percentage decrease in inventory carrying costs | Reduced time to productivity |
| Customer satisfaction | Percentage decrease in production-to-market lead-time | Reduction in penalties |
| Cycle time | Percentage decrease in scrap and rework costs | Savings in inventory carrying costs |
| Demand forecasting | Percentage decrease in standard production hours | Scheduled production |
| Downtime | Percentage increase in productivity | Spend analytics |
| Forecasts of production | Percentage increase in revenues | Supplier trending |
| Industry benchmark performance | Percentage material cost reduction | Time from order to shipment |
| Labor as a percentage of cost | Percentage reduction in defect rates | Time on floor to be packed |
| Labor usage, costs-direct and indirect | Percentage reduction in downtime | Unplanned capacity expenditure |
| Machine modules reuse | Percentage reduction in inventory levels | Unused capacity expenditures |
| Maintenance cost per unit | Percentage savings in costs | Utilization |
| Manufacturing cost per unit | Percentage savings in inventory costs | Waste ration reduction |
| Material costing, usage | Percentage savings in labor costs | Work-in-process (WIP) |
| Mean time between failure (MTBF) | Percentage savings in transportation costs | Workforce turnover rate |

## 3. Balanced Scorecard

The Balanced Scorecard model measures the actual performance of key indicators within an organization. For a contracting office, key indicators may be: number of contracts awarded each week/month/quarter, number of contracts awarded per man hours total or specialist performance.

Using the Balanced Scorecard model focuses on a small number of strategic metrics. With the Balanced Scorecard, an organization would define the metric, define the optimal output for that metric, and measure the actual output against the optimal output. By selecting a few key indicators, an organization can get an accurate view of the strategic performance as measured against their strategic goals. Keeping in mind that an organization's short-term goals may not be the same as their long-term goals.

The Balanced Scorecard approach translates and distributes the strategic objectives of an agency into performance indicators across four perspectives: financial, customer, internal business processes, and learning and growth. This approach seeks to measure current agency performance and efforts to improve processes (Cohen & Eimicke, 2008).

### *a. Financial Perspective*

Private industry financial objectives focus on profits. The government has no interest in earning a profit. Government organizations are mission oriented. One of their primary goals is to accomplish their assigned mission as efficiently and effectively as possible. One measure of the government uses to measure how efficient they are operating is the cost-to-spend ratio. This ratio takes into consideration administrative costs and dollars awarded.

### *b. Customer Perspective*

This perspective focuses on the agency's ability to provide quality goods and services and meet the needs of its customers and other stakeholders. It focuses on overall customer service and satisfaction (Cohen & Eimicke, 2008).

### *c. Internal Business Process Perspective*

An agency, to be successful, must be able to identify the most critical processes affecting financial and customer satisfaction (Cohen & Eimicke, 2008). This is a measure of the quality of the process, how well is the agency conducting the acquisition process. DoD cannot run like the private sector. The Federal Acquisition Regulation and its agencies supplements govern the DoD acquisition process. Therefore, measuring public policies and

regulations such as socio-economic goals, public posting requirements, and competition mandates may not allow for significant improvement in the internal business process.

### *d. Learning and Innovation/Growth Perspective*

This perspective measures how effective and efficient an agency's employees perform their duties and the value information systems add to the process. It looks at the organizational alignment in relation to the organizational goals. Agencies can succeed only when they have properly educated and trained staff, where they are needed, when they are needed, with all the information they need. These perspectives are often displayed as a strategy map demonstrating how each perspective influences the other, as seen in Figure 1.

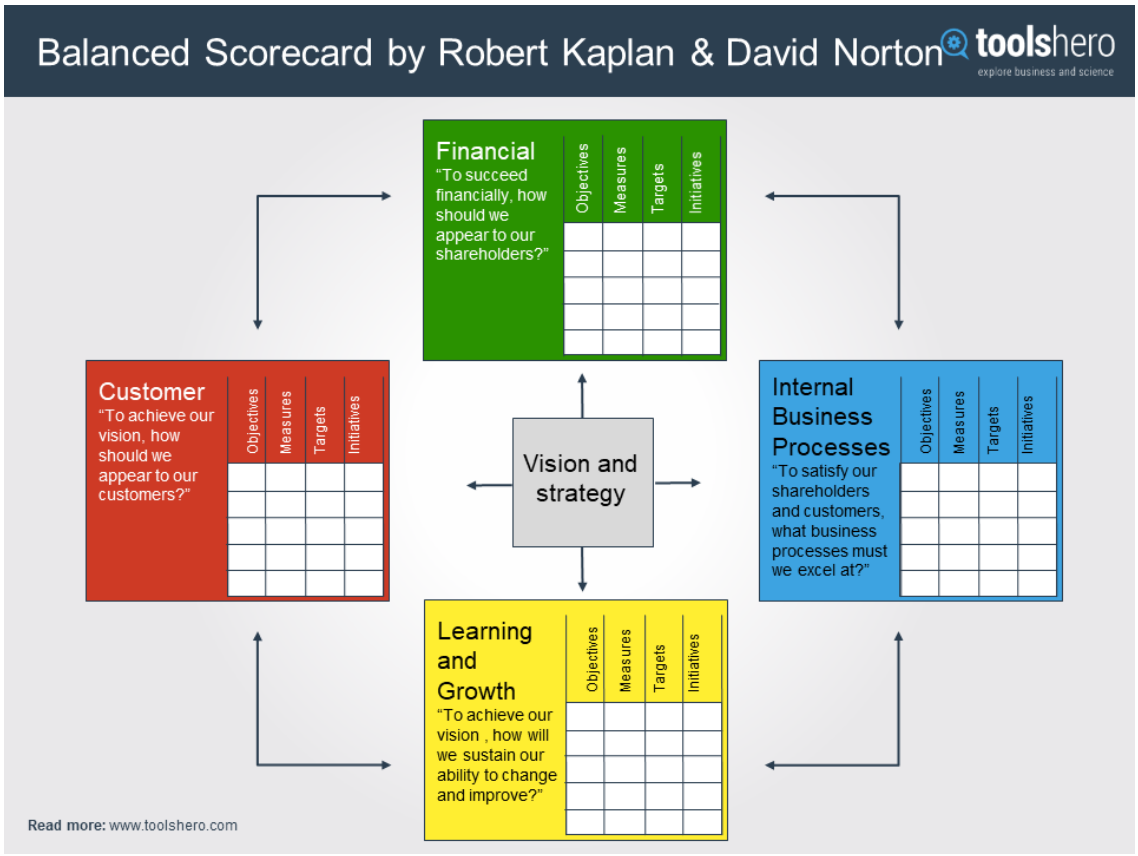


Figure 1. Balanced Scorecard. Source: Vliet (2018).

### 4. Procurement Measurement Action Team

The article, "The Balanced Scorecard for Managing Procurement Performance," discusses the Balanced Scorecard model and performance measurement as it related to DOD. The article addresses the Procurement Executive Association (PEA) stating that it "is an informal association of civilian procurement executives" (Cavanagh et al. 1999). The PEA created the Procurement Measurement Action Team (PMAT) in 1993, with the task of evaluating performance management processes within the federal acquisition system and exploring new performance management techniques (Cavanagh et al. 1999). The team developed the performance measurement approach known as the PMAT model, based on the balance scorecard model, "through research and site visits to leaders in performance measurement" (Cavanagh et al. 1999). Using information extracted from various sources including key personnel surveys and statistical procurement data from the Federal Procurement Data System, the PMAT model sought to measure the performance of the acquisition agency, and the agency's ability to meet their strategic performance goals (Cavanagh et al. 1999). Published in 1998, the PEA Guide to a Balanced Scorecard Performance Management Methodology built on the PMAT model. This guide is informational and not regulatory. The guide stresses that performance measures should link outcomes to strategic organizational goals, objectives and vision (Cavanagh et al. 1999). The guide also aligned the principles of the Federal Acquisition Regulation with the Balanced Scorecard core objectives and measures of customer perspective, financial perspective, internal business perspectives, and learning and growth perspective. The PEA team identified several performance objectives coinciding with these guiding principles that are also common among both public and private purchasing systems.

### 5. President's Management Agenda: Results for the Department of Defense

> MID 901, *Establishing Performance Outcomes and Tracking Performance Results for the Department of Defense*, approved December 2002 encouraged defense agencies to implement the Balanced Scorecard in order to provide a consistent framework for developing agency performance targets and tracking results. (Chu, 2004, p. B-23)

### 6. Continuous Process Improvement (CPI)

Institute of Quality Assurance defined continuous improvement

> as a gradual never-ending change which is focused on increasing the effectiveness and/or efficiency of an organization to fulfill its policy and objectives. It is not limited to quality initiatives. Improvement in business strategy, business results, customer, employee and supplier relationships can be subject to continual improvement. Put simply, it means "getting better all the time." (MGMT 565, 2018)

Dr. W. Edward Deming preferred the term Continual Process Improvement. He thought the broader term better represented the process. Deming felt all business processes should analyze and measure to identify deviations from the norm. ISO Technical Committee 176 adopted the term continual over continuous for the ISO

Deming used a circle divided into four sections with the words: Plan, Do, Check, and Act, as shown in Figure 2.

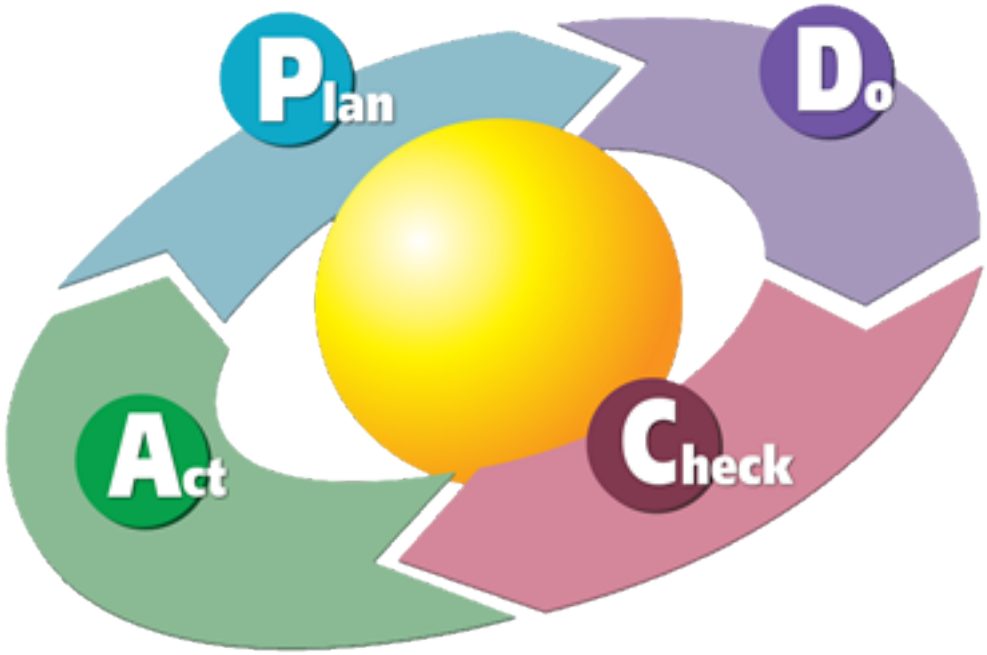


Figure 2. Plan, Do, Check, and Act. Source: Vasić et al. (2015).

### *a. Plan*

Identify the end goal the evaluated process should achieve. Define what metrics should be tracked and what would constitute a successful outcome and what would constitute an unsuccessful outcome.

### *b. Do*

Implement the plan on as small a scale as possible to prove or disprove its validity.

### *c. Check*

Monitor and measure the outcomes at selected checkpoints in the process. Identify and collect data on potential problem areas.

### *d. Act*

Take what was learned under Check and alter the Plan accordingly. Start the cycle over again. Continuous Process Improvement is an integral part of Six Sigma, Lean, and Total Quality Management (Deming Institute, 2018).

## 7. Total Quality Management (TQM)

There is not a universal agreed upon set of standards or courses of action defined for Total Quality Management. Consensus show customer's requirements define quality. Management at every level has a responsibility in improving a process. CPI's cycle of Plan-Do-Check-Act is the heart of Total Quality Management.

## 8. Lean Process Improvement

The Lean Enterprise Institute (2018) says, "Simply, lean means creating more value for customers with fewer resources. It is not a tactic or a cost reduction program, but a way of thinking and acting for an entire organization."

It seems no two organizations have the same definition for the steps used when implementing a lean process. A simplified definition of the steps is:

1. Let the customer tell you what level of quality he is willing to pay for.

2. Map the steps your organization takes to produce the desired level of quality.

3. Eliminate any steps that do not add value.

4. Evaluate the process every time.

The two tools used to provide an organization with a Lean action plan are Kanban and Work-in-Process.

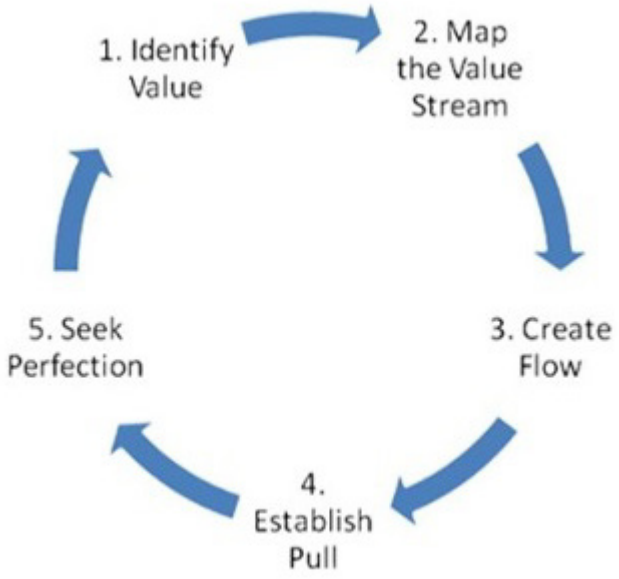


Figure 3. Lean Process. Source: Lean Enterprise Institute (2018).

The Lean process works well combined with Six Sigma, explained below.

**9. Six Sigma**

Six Sigma is a process improvement strategy that uses statistics to pinpoint potential defects. Six Sigma uses two built-on methodologies; DMAIC and DMADV.

- DMAIC is an acronym for: Define, Measure, Analyze, Improve, and Control.

- DMADV is an acronym for: Define, Measure, Analyze, Design, and Verify.

Six Sigma has five levels of certification: White belt, Yellow belt, Green belt, Black belt, and Master Black Belts.

Guidelines suggest DMAIC be used when evaluating an existing process and DMADV should be used if an existing process requires more than incremental improvement. Six Sigma requires execution by trained Six Sigma Green Belts and Six Sigma Black Belts.

### 10. Contract Management Maturity Model (CMMM)

Management can use the Contract Management Maturity Model (CMMM) to determine how well the organization is performing. CMMM evaluates the acquisition by having experienced personnel, DAWIA Level II certified and above, answer sixty-two questions covering six key process areas with the acquisition process. Rating occur at one of five levels of maturity in each area.

#### *a. The Six Key Process Areas*

The CMMM provides organizations with the means for them to assess and determine if the organization is operating efficiently.

(1) Procurement Planning

Within this stage, the organization is provided the need from the customer or is looking at the fore-casted demand and determining the contract vehicle needed to proceed.

(2) Solicitation Planning

This is the stage where an organization makes a make or buy decision. When the decision is to buy the product or service outside the organization, the acquisition team will perform several functions. They will refine the requirements, perform market research, perform risk analysis, determine a contract type, establish a budget, and develop preliminary documentation, such as statements of work or performance work statement.

(3) Solicitation

During this stage, the organization advertises their requirements, accept bids, and create and maintain a list of qualified bidders.

(4) Source Selection

At this stage, the bids are evaluated and a vendor is selected.

(5) Contract Administration

The functions performed at this stage depend on the contract type, statement of work and the contract period of performance. As a minimum, the organization should monitor the contractor's performance.

(6) Contract Closeout

When a contract is complete, the organization will accept the final delivery of products or services, make the final payment, and document the final contractor performance report (Rendon, 2006).

***b. The CMMM Five Levels of Maturity***

The analysis of the key process areas will identify which of the five maturity levels an organization is operating for that specific metric

(1) Level 1 – Ad Hoc

This is the lowest level an organization can be within any of the key process areas, in which there are not established processes. Any documentation that exists is informal and no one within the organization is held accountable for complying with established standards.

(2) Level 2 – Basic

According to Rendon (2009), "The organization at this initial level of process maturity acknowledges that contract management processes exist and that these processes are accepted and practiced" (p. 302). Usually, these processes are used only on complex

contracts, contracts that exceed a given dollar amount, or for contracts for a specific customer. There will be some formal documentation outlining the processes.

(3) Level 3 – Structured

This is the lowest level where an organization has an established and documented set of formal contract management processes. These processes are required to be followed throughout the organization. At the structured level, management provides guidance and direction on process strategies.

(4) Level 4 – Integrated

Organizations operating at Level 4 are functioning near the top. Their other functional offices such as legal, finance, and the customer are considered team members in the acquisition process. At Level 4, management uses metrics to measure acquisition processes.

(5) Level 5 – Optimized

This is the highest level an organization can reach. "At this level, continuous process improvement efforts are also implemented to improve the contract management processes" (Rendon, 2009, p. 303). Organizations at the *optimized* level constantly have evaluations take place on best practices, lesson learned and existing documentation (Rendon, 2009).

### 11. Malcolm Baldrige National Quality Award

As stated on the National Institute of Standards and Technology, U.S. Department of Commerce web page, "The Malcolm Baldrige National Quality Award is the highest level of national recognition for performance excellence that a U.S. organization can receive" (Eastman, 2017). The award is not based on specific products or services, but rather continuous overall organizational performance improvement (Eastman, 2017).

The award and its framework focus on results performance in five key areas. Those areas, as defined in *Performance Metrics the Levers for Process Management,* are as follows:

- Product and process outcomes - This includes measures of product/service performance (number of returns/rejects, reliability) and of process performance (waste, efficiency, cycle or lead times).

- Customer focused outcomes - Includes issues such as customer satisfaction, retention, and customer complaints and loss.

- Workforce outcomes - Includes turnover as well as employee development and engagement.

- Leadership and governance outcomes - These measures focus on "how well senior management has considered other stakeholders, such as legal and regulatory issues which may be indicated by audit findings or fines.

- Financial and market outcomes - These measures are typically the "classical indicators that companies tend to focus on, such as revenue, profitability, and market share growth. (Okes, 1999, p. 35).

### 12. Summary of Performance Measures

As shown in this literature review there are many popular frameworks or models used to measure performance. Although there are similar characteristics between all of these frameworks, each is unique. Each model provides valuable insight into the measurement of agency performance. A commonality between these frameworks is the emphasis on tailoring performance measures to focus on the individual strategic goals of the organization. As stated in *Performance Metrics the Levers for Process Management*, when determining if a metric will be useful, it must focus on one or more strategic objectives. Regardless of the level at which metrics exist, there must be a logical connection to higher-level metrics that eventually roll up to a strategic priority. The authors of "The Balanced Scorecard for Managing Procurement Performance" also state, "the evolution of all performance measurement should begin with an organization's strategic plan and flow through other associated plans and processes.'' In this section of the literature review, we will focus on the summary of the metric types, as summarized in Table 3, that will be utilized as part of the hybrid TIPS-EEP analytical framework.

Table 3. Summary of the Metric Types

| Measures of Performance "The Responsible Contract Manager" | KPI | SIPOC "Performance Metrics" | Baldrige Award "Performance Metrics" | Balanced Scorecard "Performance Metrics" |
|---|---|---|---|---|
| Input | Financial | Suppliers | Product/Process Outcomes | Financial |
| Process | Customer | Inputs | Customer Focused Outcomes | Internal Business Operations |
| Output | Process | Process | Financial/Market Outcomes | Innovation/Learning |
| Outcome | People | Outputs | Workforce Outcomes | Customers |
| | | Customer | Leadership / Governance Outcomes | |

*The Responsible Contract Manager*, *Protecting the Public Interest in an Outsourced World*, defines "performance measurement as the regular collection and reporting of information about the efficiency (inputs/outputs), quality, and effectiveness (outcomes) of programs" (Cohen & Eimicke, 2008, p. 147). In this definition, efficiency is the measure of an organization's inputs and outputs and effectiveness is defined by outcomes of an organization's programs. The authors also summarize the measures of the most common performance management systems into four broad categories of metrics. In addition to the aforementioned measures of efficiency (inputs/outputs) and effectiveness (outcomes), they add process measures. Hence, the four common performance measures or metrics include inputs, process, outputs, and outcomes. It is with this definition of efficiency and effectiveness and these four basic performance metrics, this studies' hybrid TIPS-EEP analytical framework was created. This hybrid framework will be further discussed in Chapter III.

Below are the definitions, benefits, and potential drawbacks of inputs, process, outputs, and outcomes focused metrics.

### *a. Inputs*

Input metrics measure the "resources that are available to address the priority problems faced by the organization" (Cohen & Eimicke, 2008, p. 152). Inputs are the resources and raw materials that convert into outputs through the organization's production process (Cohen & Eimicke, 2008). Measures of inputs allow the organization to know whether suppliers are effectively meeting their performance requirements and can signal variations in supplier performance. Input metrics can also be considered control metrics, which are those metrics used to adjust or stabilize performance of the process (Okes, 2013). These metrics are usually relatively easy to collect and identify compared to other metrics. They can show the amount of resources available or measure the commitment of an organization in reaching its objectives (Cohen & Eimicke, 2008). They are measures of efficiency and can quantify the quality, availability, and usage of an organization's resources. They gauge the scope of an organization's activities, present and future demands on resources, and indicate organizational priorities and customer preferences (Cohen & Eimicke, 2008). The largest online retailer, Amazon, provides an interesting perspective on the importance of input metrics. The importance of input metrics was highlighted in an article written by Amazon senior manager Alfons Staerk. In the article, "Focus on the Inputs," Staerk (2016) argues that input metrics are more essential to monitor than output or outcome metrics, stating that "at Amazon we focus on input metrics first and foremost." According to Staerk, input metrics are early warning signs, and because they are controllable, they are more actionable that output metrics. Input metrics are measures of the things that needs to go right in order to generate positive output and outcome metrics. Output or outcome metrics are lagging indicators that indicate a problem after it has already occurred.

Input metrics have also received criticism when addressed in *The Responsible Contract Manager*, *Protecting the Public Interest in an Outsourced World* because they indicate very little about how well an organization is doing in reaching its objectives. They

measure resources and efforts much better than evaluating actual results or performance (Cohen & Eimicke, 2008).

### *b. Processes*

These metrics focus on the measurements of the processes used to produce goods and services. Process metrics should define and measure the specific steps taken throughout a process (Cohen & Eimicke, 2008). They can have the ability to predict future potential issues or indicators of success; however, they cannot show the results or impacts of the production process.

### *c. Outputs*

Output metrics measure the product or service produced by the organization. These metrics seek to quantify the amount of work accomplished with the inputs or resources available. They can seek to measure quantity, quality, or both. They gauge the volume of activity, or productivity, generated by inputs (Cohen & Eimicke, 2008). "Outputs can be broadly defined as anything that a system produces" (Martin & Kettner, 2010, p. 40). Normally, output focused performance metrics capture data about the type and amount of outputs generated by a system or process. (Cohen & Eimicke, 2008). These metrics are essential because they measure the actual product produced by an organization. Output based metric systems tend to measure and reward work accomplished on a milestone basis (Cohen & Eimicke, 2008). They focus on work achieved based on predetermined goals or targets. They do not measure the actual outcome of the process in terms of meeting the overall strategic goals of the organization.

### *d. Outcomes*

Outcome metrics focus on the results of the process. Outcome metrics seek to identify the relationship between input and output metrics and tie them together. They seek to measure program impacts and organizational goal achievement. These metrics measure the organization process in terms of meaningful impacts and overall goal achievement. They do not measure if a process was completed; rather they measure the quality and success of the process. Limitations on these metrics occur due to subjective interpretation,

difficulty collecting the data, and likelihood for it to be the most expensive to collect (Cohen & Eimicke, 2008). Table 4 provides a visual representation of several simple examples of important functions within contracting production shops in terms of inputs, processes, outputs, and outcomes. Once identification of these functions occurs, an agency can develop meaningful metrics to measure these areas.

The diagram below provides a visual representation of several simple examples of important functions within contracting production shops in terms of inputs, processes, outputs, and outcomes. Once identification of these functions occurs, an agency can develop meaningful metrics to measure these areas.

Table 4. Examples of Important Functions within Contracting Production Shops

| Inputs | Process | Outputs | Outcomes |
|---|---|---|---|
| Defined requirements in the form of statements of work, performance work statements, statements of objectives and/or technical specifications | Acquisition Process: DOD Seven Step Services Acquisition Process, DOD Major Defense Acquisition Program, Simplified Acquisition Procedures, Commercial Item Procedures, etc. | Contract awards | Mission requirements fulfilled and satisfied customers |
| Acquisition workforce | Organizational training and development program | Qualified personnel | Equal and even workload distribution |
| Contract awards and qualified contract auditors/inspectors | Organizational compliance assessment/ audits | Contract deficiency or assessment reports | Overall reduction in the occurrence of findings for regulatory noncompliance |

After analysis, it becomes evident that the categorization of contracting functions within these four measures is relative to the situation and the exact measured process. What constitutes an output for one process may be an input in another separate but related process.

Metric data must be able to measure multiple dimensions of agency functions in order to provide a holistic overview of performance. The four general types of metrics (input, output, process, outcome) when used together, are broad enough to apply to any organization yet specific enough to ensure agencies will be provided with meaningful and actionable data.

## C. PRIVATE INDUSTRY BACKGROUND

This section highlights the differences between government agencies and commercial organizations. The government is mission driven, while commercial organizations are driven by a profit motive.

### 1. Industry Definition

DoD contracting agencies operate within a unique industry, due to strict regulations. Hundreds of laws, policies, and procedures that do not typically apply to private organizations dictates every move a DoD contracting agency makes. Research has shown that the large contractors selling their noncommercial products and services to DoD are the closest to that industry. For example, these companies are subject to DoD unique regulations in the form of cost accounting standards, mandatory small business subcontracting plans, and trade agreement regulations, to name a few.

### 2. Results of Industry Research

Company specific performance metrics were difficult to obtain within the large contractors operating similarly to DoD acquisition agencies as defined above. The companies surveyed deemed their data confidential in nature and were unwilling to share the information. Therefore, the decision was made to review general, overall, well-known performance management measurements and metrics.

### 3. Industry Motives

Different forces drive commercial organizations and the DoD, affecting their strategic goals and associated metrics. DoD is driven by the needs of the warfighter, maintaining transparency, upholding fair and ethical standards, and efficient use of taxpayer dollars. The DoD is accountable to the public, whereas private companies are accountable to their shareholders. Motivation within the commercial industry comes from the pursuit of competitive advantage, profit, cash flow, and their return on equity, defined as “a measure of profitability that calculates how many dollars of profit a company generates with each dollar of shareholders' equity” ("Return on Equity (ROE)", 2018).

Considering these facts, it becomes evident that while industry performance management processes can relatively apply to DoD, the DoD cannot duplicate company specific performance metrics for use.

This fact was addressed In the GAO report, *Goals and Associated Metrics Needed to Assess Progress in Improving Service Acquisition*. This report addresses the need for the DoD to establish standardized metrics to measure the progress achieved towards reaching the various acquisition initiatives beginning in the early 2000's. In the report it states,

> Officials have acknowledged the need to establish department wide metrics but explained that developing such metrics has proven challenging. They further indicated that metrics used by leading commercial companies, which often focus on reducing spending for services to improve a company's financial position, may not be appropriate for DoD. (GAO, 2013, p. 17)

Private industry exists solely to not only earn but also increase profit and maintain cash flow. Neither one of these factors are a driving force for the DoD. When addressing the difficulties of developing metrics to measure strategic sourcing initiatives, the GAO report goes on to highlight the difference between commercial industry budgets and the DoD's budget stating,

> USD (AT&L) officials noted that DoD's budget is based on an assessment of its missions and the resources needed to achieve its objective. These officials noted that while DoD is continuously looking for ways to improve its efficiency, it is difficult to set goals and measure actual reductions in spending as savings or cost avoidances tend to then go towards other unfunded or high priority activities. Furthermore, USD (AT&L) officials noted that since DoD's budget is appropriated by Congress rather than derived from the sale of goods and services, changes in its resources are often outside its direct control. (GAO, 2013, p. 17)

## D. DOD PERFORMANCE MANAGEMENT FRAMEWORK BACKGROUND

The researchers reviewed eight reports focusing on DoD acquisition organizations. These prior studies highlighted the following: you need the right people, not just the right number of people; accurate PALT data is necessary; the cost-per-dollar-obligated is the best ratio evaluation; the organization's strategic vision should be communicated to the entire workforce; and the importance of a properly educated, trained, and certified workforce.

### 1. Reed, 2011, Determining the Appropriate Size of the Contracting Workforce: Yes We Can!

In this paper, the author points out two important aspects of the acquisition domain. First, there is a difference between acquisition research and acquisition practice. It is up to the acquisition practitioner to remain current on acquisition research to improve their part of the acquisition domain when practicable. The second point the author makes is that having every slot on an organizational manning chart filled is no guarantee of success. Insuring success requires the correct skill-sets to be in the right place at the right time. This applies to manufacturing, training, cooking and contracting. The author questioned the validity of using organizational manning charts established in the 1990s in today's more complex acquisition domain where spending levels have increased and the purchase pendulum has swung strongly to the services side.

The author opined that while 11 of the 20 variables tracked by The Center for Advanced Purchasing Studies (CAPS) were applicable to both industry and government, three were of particular interest to DoD.

> 1. The total dollars spent by a procurement organization as a percent of total firm budget (how much of an organization's needs are acquired via contract, and what is procurement's relative impact/importance to the total organization);
>
> 2. Supply management operating expense as a percent of total spend (how much does it cost to spend each dollar of supplies or services that the organization procures);
>
> 3. Total spend per supply management employee (contract dollars awarded by the average procurement specialist). (Reed, 2011, p. 103)
>
> While the applicability and usefulness of these benchmarks will vary among organizations, the first three benchmarks should be of particular interest to all DoD contracting organizations. Item 1 allows leaders to convey contracting contribution to the Service's mission; Item 2 allows a comparison to other organizations on the efficiency of the unit; and Item 3 identifies the size of the portfolio that the average buyer can execute. These ratios can provide insight into workload execution and actionable information for contracting leaders. (Reed, 2011, p.103)

The author concluded that workload management within DoD is inconsistent or not performed at all.

### 2. Reed, 2011, Measuring Contracting Organization Workload and Performance

In this document, Reed (2011) reiterates many of the same points he made in *Determining the Appropriate Size of the Contracting Workforce: Yes We Can!* For example, he noted how important it is for a contracting organization to have the right number of employees with the right skill sets. Reed again questions the validity of staffing to an organizational chart developed over a decade ago, contending that today's contracting environment is vastly different than it was just a few years ago.

He lists three options management can use to evaluate workforce performance: Use a Ratio, Build a Process-Action Contracting Workload Model, and Don't Forget to Measure the Value of Your Output.

Although the data is readily available in most automated systems in use today and the calculations are relatively simple. Dr. Reed points out the difficulty in analyzing a government contracting organization using any of the ratio methods due to their not considering the quality of work produced.

In Option Two Dr. Reed restates the same workload models he made in *Determining the Appropriate Size of the Contracting Workforce: Yes We Can!*

Herein, Dr. Reed presents his Six Steps for Contracting Leaders. He states that ratio-based evaluations are overly broad and do not answer the critical question of: "How much work do we or will we need to do?" He points out that workload models and ratios can provide useful information the results should not be the single factor to assess the organization.

### 3. Reed, Keller, Fallon, 2016, Organization Analytics: Taking Cost-per-Dollar-Obligated (CPDO) Measures to the Next Level in Defense Contracting

The authors studied nine contracting organizations for three fiscal years. The authors discussed the superiority of the Cost per Dollar Obligated method of measuring an

organization's efficiency over the other ratio-based calculations. CPDO takes the weighted annual salary of the workers in an organization and compares that to the total of the obligated and de-obligated dollars. De-obligated dollars are given their absolute value as a way to offset the zero-dollar obligations made. They stressed the importance of accurate PALT data. Accurate PALT data along with the number of protests received and sustained provides managements with insight into an organization's relationship between cost efficiency, quality, and timeliness.

The author's research showed the following: As the percentage of warranted contracting officers in relation to the number of acquisition specialists rises the CPDO decreases. Organizations with a higher percentage of military personnel assigned has a higher CPDO. The higher the number of actions below the simplified acquisition threshold the lower an organization's CPDO.

#### 4. Reed, 2012, Army Contracting Command Workforce Model Analysis

In a report titled *Army Contracting Command Workforce Model Analysis*, Reed presents his analysis of several acquisition workforce analysis models. As a result, the author presents an examination three-ratio model: First, is the total dollars spent as a portion of the total spent by the agency or DoD, second is the Cost-per-dollar-obligated model, and third is total dollars spent per acquisition specialist. The author contends that the contracts-awarded-per-buyer method is superior to the orders/actions-per-buyer method because the number of orders or actions can easily be manipulated.

The study also extends a previous study conducted by the author in 2010. He reiterates the importance of having the right number of people with the right skill sets available where and when they are needed.

#### 5. GAO-05-218G, Framework for Assessing the Acquisition Function at Federal Agencies

Recognizing the importance of evaluating the performance of contracting agencies, the GAO has created its own framework for assessing acquisition functions. As stated on its webpage, *Best Practices and Leading Practices in Acquisition Management*, the GAO recommends, as a best practice, that agencies "establish and communicate to all levels of

their organizations a strategic vision for the acquisition function, including goals and metrics related to acquisition efficiency, effectiveness, and achieving mission results" (GAO, 2013).

The framework outlined in this document provides high-level methods with which acquisitions agencies can evaluate and identify areas within their organizations that could be improved. This framework is comprised of four interrelated cornerstones that the GAO believes will "promote an efficient, effective, and accountable acquisition function: (1) organizational alignment and leadership, (2) policies and processes, (3) human capital, and (4) knowledge and information management" (GAO, 2005, p. vii). The framework is not "a tool to evaluate specific acquisition actions, contracts, or compliance with contracting laws and regulations" (GAO, 2005, p. vii).

### 6. The Yoder Three-Tier Model for Optimal Planning and Execution of Contingency Contracting

In the research report, *The Yoder Three-tier Model for Optimal Planning and Execution of Contingency Contracting*, Commander (Ret) Yoder presents his vision of how the military acquisition system operating in a contingency environment would benefit from better planning and the implementation of a properly educated, trained, and certified three-tiered personnel system. The Yoder Three-Tier model is also presented in the report *Phase Zero Contracting Operations (PZCO)—Strategic and Integrative Planning for Contingency and Expeditionary Operations*.

Tier One is where the contracting officers and acquisition specialists work. Since this is where the majority of contracts will be signed, the importance of standardized training is emphasized. This training should include proper contracting protocols, ethical conduct, contract management, and control and oversight of the contractor once the contract is awarded.

Tier Two personnel would operate at a level above the contracting offices and acquisition specialists. They would have more responsibility, have increased credentials, and more experience.

Tier Three is an integrated planner and executor. This person should be a senior civilian or a flag officer. These individuals would work at the service branch and Joint Chiefs of Staff level.

### 7. Phase Zero Contracting Operations (PZCO)—Strategic and Integrative Planning for Contingency and Expeditionary Operations

In this research report, the authors present Yoder's Three-Tier Model. The details of this model were discussed in The *Yoder Three-Tier Model for Optimal Planning and Execution of Contingency Contracting* above.

In addition to Yoder's Three-Tier Model this report also presented Yoder's "Mandatory Pillars for Integrative Success" (Yoder, 2004, p. 28). This model is also known as "The Three Pillars of Integrated Success (TIPS) Model."

As the name implies the TIPS model has three pillars–Personnel, Platforms and Protocols. The Personnel Pillar includes Yoder's Three-Tier Model and other personnel. The Platform Pillar consists of the systems used by acquisition personnel. The Protocols Pillar is the rules and regulations under which the acquisition workforce operates.

The three pillars that comprise the model for Integrative Success are Personnel, Platforms, and Protocols. Each of the pillars are defined below:

#### *a. Pillar One—Personnel*

The first pillar would address the Human Resources of an organization. The qualifications and experience levels for each person are determined and then compared against the job completed. This would show where employees are over-qualified or under-qualified. A close examination of Yoder's TIPS model may further clarify this determination.

#### *b. Pillar Two—Platforms*

To fulfill the Platforms Pillar an organization must ensure that contracting is incorporated into every phase of military operations, from planning to execution. In

addition, it must be a part of any complementary platforms, such as the Time Phased Force and Deployment Data system.

### *c. Pillar Three—Protocols*

Pillar Three is the FARs, DFARs, DoD Instructions or guidelines, used by the acquisition workforce. Figure 4 depicts how successful organizations are supported by the three pillars, Personnel, Platforms, and Protocols, of Yoder's TIPS model.


Figure 4. Three Pillars of Integrative Success (TIPS).
Source: Yoder (2013).

## 8. GAO-04-919, 2004, Tools for Measuring and Managing Defense Agency Performance Could be Strengthened

In this report, the GAO assess the effectiveness of defense agency level performance plans. The GAO concluded that DoD's agency level performance management and performance measurement procedures have been improved through the use of outcome related measures included in agency level performance plans and Balanced Scorecards (GAO, 2004).

The GAO (2004) provided five recommendations "to make performance plans and scorecards more informative and useful for decision making and strengthen these tools' potential for measuring and managing defense agency performance" (p. 36).

The list of recommendations include:

> identify individuals accountable for achieving results at lower organizational levels; include measures that are clearly defined and include trend data for at least the past fiscal year's performance to help assess progress; identify resources needed to achieve performance goals and inform budget decisions; discuss data quality, including the reliability, validity, and limitations of performance measures as well as data sources; provide contextual information to better understand how performance measures support the agency's mission (p. 36).

In this report's final recommendation, the GAO highlighted the importance of aligning performance measures with organizational strategic goals. This same concept was seen throughout the performance management framework review.

## E. CURRENT PERFORMANCE MANAGEMENT LEGISLATION AND POLICIES

This section provides an overview of the legislation and policies directing the implementation of performance management within DOD.

### 1. Prior to 1993

Prior to 1993, there were multiple efforts to measure performance of government agencies.

> From the Hoover Commission of 1949, which proposed "performance budgeting," to the efforts of President Johnson in the mid-1960s to implements a Program Planning Budgeting System, to the Carter administration's attempts to employ a Zero-Based Budgeting System, there have been several efforts to better define government program objectives and link program results to the means of achieving them (Cavanagh et al. 1999).

The efforts of Presidents Hoover, Johnson, and Carter provided a framework to encourage contracting agencies to develop performance strategies within their agencies:

however, they did not provide a way to narrow in on performance metrics (Cavanagh et al. 1999).

### 2. Government Performance and Results Act of 1993 (GPRA)

The 31 U. S. Code § 1115, requires each agency to develop performance plans that tie performance levels and goals to the agency's strategic plan. "Such plan shall (1) establish performance goals to define the level of performance to be achieved during the year in which the plan is submitted and the next fiscal year; (2) express such goals in an objective, quantifiable, and measurable form" (31 U. S. Code § 1115, 2018).

> The GPRA, sought to promote greater efficiency, effectiveness, and accountability in federal spending by establishing a new framework for performance management and budgeting in federal agencies. GPRA establishes three types of ongoing planning, evaluation, and reporting requirements for executive branch agencies: strategic plans (covering six years but to be revised at least every three years), annual performance plans, and annual reports on program performance. In complying with GPRA, agencies must set goals, devise performance measures, and then assess results achieved. (McMurtry, 2005)

### 3. Federal Acquisition Streamlining Act of 1994 (FASA) and the Clinger-Cohen Act of 1996

The following post 1993 legislation including

> the Federal Acquisition Streamlining Act of 1994, The Government Management Reform Act of 1994, and the Information Technology Management Act of 1996 requires federal agencies to strategically plan how they will meet the needs of their customers and also measure their programs performance (Cavanagh et al. 1999, p.13).

### 4. GPRA Modernization Act of 2010 Public Law 111–352—Jan. 4, 201,1 and 31 U. S. Code 1115

Federal government and agency performance plans: Section 1115(a)(1) of Public Law 111-352 directs the agencies to "define the level of performance to be achieved during the year in which the plan is submitted and the next fiscal year for each of the Federal Government priority goals required." Agencies are to provide a strategic plan and performance goals that help the agency contribute to the defined strategic plan. While these

laws require agencies to have a strategic plan in place that defines performance goals, it does not provide a holistic or systematic approach for performance metrics.

### 5. President Trump's Policy for Metrics

The President's Management Agenda (PMA), released March 20, 2018, identifies Cross Agency Priority (CAP) goals that fall within one of three key drivers of transformation identified: Information Technology (IT) modernization, a modern workforce, and data transparency and accountability.

This report identifies several areas that contribute to inefficient operations. Burdensome regulations were identified as being a prime obstacle to good government. According to this report, these regulations are often outdated and unnecessary. The lack of coordination between offices, departments, and agencies was identified as another factor that increases the cost of mission accomplishment. It stated that managers were often not making decisions based upon available data. It stated that many of today's federal employees are working outdated skillsets.

The best results for taxpayers will be when Congress, senior military leaders, and all managers in the acquisition chain of command have the data they need, readily available, for them to make informed decisions. In terms of the capabilities and competencies, President Trump's PMA states "one study found that the Department of Veterans Affairs (VA) spent more than 150 million hours on documenting and recording information, and the Department of Homeland Security (DHS) could save 800,000 hours annually by increasing automation of compliance with standards" (Presidents Management Agenda – whitehouse.gov, p. 4).

## F. DOD POLICIES DRIVING CONTRACT LEVEL METRICS

A search of internet-based publications for policies or research conducted on the measurement of DoD contracting agency performance and the use of agency level performance metrics will reveal that very little has been accomplished in this area. At the same time, there have been numerous studies performed and scores of documents and regulations written about how to manage contract and contractor performance. DoD

agencies are mandated to monitor their performance under the GPRA, however, research shows there is a lack of DoD standard instructions to help guide agencies in the creation of performance metrics.

Although not an exhaustive list, below are some of the DoD policies that mandate the use of metrics to monitor acquisition progress and contract level performance. These metrics do not measure the performance or health of the contracting agency itself. Current agency level, or contracting production shop, performance metrics have typically resulted from the adaptation of these mandated contract level metrics. Therefore, contracting shop performance metrics have become primarily extensions of metrics already mandated at the contract level instead of meaningful measures of agency level performance.

### 1. DoDI 5000.74, Defense Acquisition of Services

DoDI 5000.74, January 5, 2016, directs the use of metrics to document trends, leverage best business practices, support strategic management decisions, and monitor the cost and performance of contracted services. The use of performance metrics as outlined in DoDI 5000.74 is intended to "signal areas of potential risk (e.g., performance, cost, schedule, fraud) to the DoD." The metrics discussed in DoDI 5000.74 does not address the use of metrics to document or manage the performance and health of the actual agencies responsible for awarding and administering these service programs. In other terms, these are not contracting production shop metrics.

### 2. DoDI 5000.02, Operation of the Defense Acquisition System

DoDI 5000.02 requires the development and monitoring of metrics throughout the lifecycle of the acquisition process. Again, these metrics are not directed towards monitoring the performance of the contracting production shop. The intent of these metrics is to monitor the progress of the acquisition through the milestones of the Defense acquisition process.

### 3. Weapon Systems Acquisition Reform Act of 2009

This act requires the evaluation "of performance metrics used to measure the cost, schedule, and performance of major defense acquisition programs" in order to determine

the utility of such metrics to make "recommendations to the Secretary of Defense, as the official considers appropriate, to improve such metrics" (Public Law 111 - 23, 2009).

## G. SUMMARY

During review of the available literature, the researchers looked at two separate, but related, categories: literature about common industry performance management techniques and the literature within DoD, which has shaped current performance metrics requirements. While the DoD has many rules and regulations regarding contract quality and performance standards, it does not provide clear guidance in terms of what performance metrics, goals, and accomplishments make a contracting production shop successful.

The researchers examined how private industry and DoD do not operate under the same rules or guidelines. Nor, do they have similar goals. Agencies within DoD have a specific mission to perform. Private industry companies exist to make a profit. Although private companies considered the most comparable to DoD contracting agencies were unwilling to provide their performance metrics, the team was able to find an abundance of broad performance management literature.

In the next chapter, we will take a deeper dive into the hybrid TIPS-EEP model, analyze the agency performance metrics, determine if those performance metrics are holistic in nature, and identify gaps within agency performance standards.

# III. COLLECTED DATA

In this chapter, the hybrid TIPS-EEP analytical framework is defined, agency senior management interviews are discussed, and the methodology used in analyzing the collected data is discussed.

## A. INTRODUCTION

To determine if the three organizations within this study are utilizing metrics that accurately capture information necessary for a balanced and holistic agency performance and health overview, a framework was developed to analyze these agencies current performance metrics. This chapter further defines the hybrid TIPS-EEP analytical framework used to analyze performance metric data. This chapter will then present the evaluation of each agency's metrics, revealing if existing metrics accurately measure EEP aspects within each of the mandatory pillars of Yoder's TIPS model. We will present the results of the agency leadership interviews. Finally, discussion of the resulting gap analysis will take place, identifying issues revealed from the performance metric TIPS-EEP analysis, leadership interviews, and research conducted on common performance management frameworks and models.

## B. METHODOLOGY

The researchers tailored the "Mandatory Pillars for Integrative Success (TIPS)" analytical framework to analyze existing agency performance metrics. The researchers created a hybrid TIPS-EEP table by dividing the metrics that fall within each of the three pillars into Efficiency (input/output), Effectiveness (outcome) and Process (EEP) type metrics as defined in Chapter II. The framework will ensure leadership receives precise and streamlined data without being overly complicated or burdensome.

The TIPS model presents three essential pillars of an organization including personnel, platforms, and protocols. These three pillars must all work together if the organization expects to meet its stated objectives and have successful integration of its processes. In his research working paper "Phase zero operations for contingency and

expeditionary contracting-keys to fully integrating contracting into operational planning and execution," Commander (Ret) Yoder explains that "without all three pillars working in harmony, the contracting, planning, and associated support provided to the warfighter will be sub optimized" (Yoder, 2010, p. 42). Furthermore, "Sub-optimization will result in lost efficiencies and effectiveness and, at worst, may act to subvert the Unified Combatant Command objectives" (Yoder, 2010, p. 42). Although this paper applied the TIPS model to the contingency contracting environment, the same sub-optimized results can be expected in contracting agencies stateside if the organization is not balanced among the three pillars.

TIPS has been used as an analytical tool in several prior Naval Postgraduate School Joint Applied Projects and within DoD to provide a gap analysis for agencies and to evaluate policy implementation. The proven model provides the framework for any organization to determine if it is looking at the overall health of the organization and helps to identify gaps in measurements.

The addition of the four performance measurement types (inputs, outputs, process, and outcomes) to the TIPS model will provide insight to determine if metric data is measuring agency efficiency and effectiveness. Agencies need to be able to identify the type of measured data and how data fits into agency processes and overall strategic goals to ensure their metric data is holistic in nature. Agencies also need to ensure collected data is balanced enough to show the many dimensions of the organization. The TIPS-EEP model will provide agencies with the tool necessary to analyze performance metric data and ensure that it is providing a holistic agency overview.

### 1. Definition and Design of Analytical Framework Pillars

Phase Zero Operations for Contingency and Expeditionary Contracting-Keys to Fully Integrating Contracting into Operational Planning and Execution defines the pillars of TIPS model as such:

### *a. Personnel*

The "critical link between personnel rank, position, credential, and capability—in other words, having the right people with the right skill sets in the right positions within the organizational framework" (Yoder, 2010, p.42). Personnel refers to having the appropriate level of trained, qualified, and experienced personnel at all stages of the acquisition process. Personnel includes those individuals involved in pre and post award contracting activities. It includes not only the contracting officer, but also the requirements generators, quality assurance personnel and other stakeholders in the acquisition. This pillar ensures personnel at all levels are qualified, trained and have the appropriate experience to perform their assigned duties.

### *b. Platforms*

"Those hardware and tangible software systems that provide the mechanisms for analysis, decision-making, and communication" (Yoder, 2010, p.42). Examples include the common contract writing system Procurement Desktop (PD2), the Standard Procurement System, FPDS-NG and others. These electronic platforms must be operational and inter-operable to ensure smooth operation within the contracting organization.

### *c. Protocols*

"Defined as the rules, decision-making framework, and business models employed—are the complex set of logic-based systems that allow business operations to follow sound practices" (Yoder, 2010, p.42). The FAR, DFARS, other various agency supplements, procedures, regulations, operating instructions that guide the organizational policies fall within this pillar. Metrics falling within this pillar are primarily measuring compliance with laws, procedures, or rules.

## 2. Most Common Performance Management Systems

The authors of *The Responsible Contract Manager Protecting the Public Interest in an Outsourced World* summarize the measures of the most common performance management systems into four categories of metrics:

### *a. Input*

Resources utilized to allow an organization to accomplish its purpose are categorized as an input metric. Inputs are control metrics in which the variation may directly affect various activities and production goals.

### *b. Process*

Process focuses on metrics that analyze the ability of the organization to complete a process. The trends of a process over extended periods of time can allow for the process metrics to provide adequate, actionable data.

### *c. Output*

The product or service resulting from the agencies process and input of resources is categorized as an output metric.

### *d. Outcome*

Outcome metrics focus on the results at the end of the process. They are long-term metrics in which the trends of the end results, or consequences of prior agency actions reveal the overall effectiveness.

## 3. Hybrid TIPS-EEP Analytical Framework Table Design

Using all of the aforementioned elements, the analytical framework shown in Table 5 was used to measure each organization represented within our research is provided below.

Table 5. Analytical Framework

| EEP | | TIPS | | |
|---|---|---|---|---|
| | | Personnel | Platforms | Protocols |
| Efficiency | Input | | | |
| | Output | | | |
| Effectiveness | Outcome | | | |
| Process | | | | |

### 4. Evaluation Factors for Gap Analysis

Each agency's metrics were categorized in the TIPS-EEP framework as defined above to complete the evaluation. Every individual agency performance metric was classified within this framework by first considering what type of information this metric provides under the three TIPS pillars of personnel, platform, and protocols. Does the information provided or collected by the metric measure some aspect of agency personnel, electronic platforms, or protocols? Then the metrics were further sorted based upon their classification under the EEP type metrics of input, process, output, or outcome.

The Performance Metrics may be assigned to or categorized under more than one TIPS pillar and also to one or more EEP metric type. The performance metrics are categorized into the following categories as shown in Table 6:

Table 6. Performance Metric Categories

| | | |
|---|---|---|
| Personnel / Input | Platforms / Input | Protocols / Input |
| Personnel / Output | Platforms / Output | Protocols / Output |
| Personnel / Outcome | Platforms / Outcome | Protocols / Outcome |
| Personnel / Process | Platforms / Process | Protocols / Process |

Each of the 12 categories will be ranked as Green, Yellow, or Red based on the definitions below:

- Green = Two or more performance metrics assigned in a category. This indicates an acceptable level of metrics within the category. The presence of a green rating simply means that the organization utilizes a metric that, in some way, measures the given pillar within the assigned metric type; but not necessarily that the metric itself is adequate.

- Yellow = One performance metric assigned in a category. Yellow indicates there is a need to improve the overall ability of the organization to identify and analyze its health in that category of the organization.

- Red = Zero performance metrics assigned in a category. A ranking of red indicates the inability of decision makers to see what is going on within the organization and make adequately informed, efficient and effective decisions based on actual circumstances.

## C. TIPS-EEP INDIVIDUAL AGENCY GAP ANALYSIS RESULTS

This section will outline the individual agency results of the TIPS-EEP metrics analysis. For each individual agency, results are organized and presented under each of the three mandatory pillars of success of the TIPS model. An individual overall gap analysis is also provided for each agency.

### 1. Current Agency Metrics

A full list describing each of the specific agency metrics analyzed will not be provided within this report to ensure that the individual agencies reviewed remain anonymous. The list below provides a sample of the types of metrics analyzed. When reviewing the various metrics held within the three agencies, the researchers found the following metrics applied to two or more agencies: small business goals and competition goals.

The following metrics are tracked by two or more of the evaluated agencies; however, they are not recognized as an FY18 Performance Metric for two or more agencies: contract compliance inspection p program, material availability, and PALT.

### 2. Analysis of Current Individual Agency Metrics Utilizing TIPS-EEP

Using the analytical framework as defined above, each organization's FY 2018 Performance Metrics were analyzed. Each individual metric was scrutinized by considering what type of agency information it collects and measures. Based on this evaluation, every metric was categorized under one of the three critical pillars, personnel, platform, or protocol. Once an agency metric was categorized under a pillar, it was further examined to determine if it would be defined as an input, output, outcome or process focused metric.

The results of the agency performance metric gap analysis are presented as follows.

### *a. Alpha Analysis*

Agency Alpha had 21 total performance metrics measured against the hybrid analytical framework. The results of the analysis are shown in Table 7.

Table 7. Organization Alpha Performance Metric Gap Analysis

| | | Personnel | Platforms | Protocols |
|---|---|---|---|---|
| Efficiency | Input | | | |
| | Output | | | |
| Effectiveness | Outcome | | | |
| Process | | | | |

(1) Personnel

Seven total metrics were assigned to the personnel pillar. Four of those metrics were dedicated solely to this pillar. The other three metrics was assigned under both the personnel pillar and the protocol pillar.

- Input

Two of the seven personnel metrics were considered to be input type metrics.

- Output

There were no output type metrics.

- Outcome

Four of the seven total personnel metrics were considered to be outcome type metrics. Of those four metrics; three were assigned solely to the personnel pillar and one was assigned under both the personnel and protocol pillar. Of the three metrics assigned solely under the personnel pillar, one was considered to be an outcome and process type metric.

- Process

Two of the seven total personnel metrics were considered to be process type metrics. Of those two metrics, one was assigned solely to the personnel pillar and the other one was assigned to both the personnel and protocol pillar. The metric assigned solely to the personnel pillar was considered to be an outcome and process type metric. The metric assigned to both the personnel and protocol pillar was considered to be a process metric.

(2) Platform

There were no metrics assigned under the platform pillar.

(3) Protocols

Seventeen total metrics were assigned to the protocol pillar. Fourteen of those metrics were dedicated solely to this pillar. The other three metrics was assigned under both the personnel pillar and the protocol pillar

- Input

There were no input type metrics.

- Output

Two of the 17 total protocol metrics were considered to be output type metrics.

- Outcome

Thirteen of the 17 total protocol metrics were considered to be outcome type metrics. Of those 13 metrics, 11 were assigned solely to the protocol pillar and the other two were assigned to both the personnel and protocol pillar.

- Process

Two of the 17 total protocol metrics were considered to be process type metrics. Of those two metrics, one was assigned solely to the process pillar and the other was assigned to both the personnel and protocol pillar.

(4) Overall Alpha Gap

Agency Alpha contained a sufficient number of overall metrics to measure both agency personnel and protocols. Within the metric type breakdown under personnel and protocol, Alpha contains a sufficient number of metrics to measure processes. Alpha also contains a sufficient number of metrics to measure effectiveness (outcome measures) under both the personnel and protocol pillar.

Regarding efficiency (input and output measures), Alpha is lacking equally under both of these pillars. Alpha's heavy use of effectiveness or outcome metrics and lack of efficiency or output and input metrics creates an unbalanced view of the organization. Measuring effectiveness without also equally measuring efficiency does not provide a holistic overview of the organizations performance. When measuring effectiveness, an organization must know if that effectiveness is gained at the expense of efficiency. While outcome metrics are critical for identifying organizational performance end results; they can be subjective and do not have the ability to show potential root causes of performance issues identified. Without efficiency metrics, an organization cannot measure the cause and effect relationship within agency. Monitoring the outcome without understanding what inputs and outputs effected it, increases the risk of an agency focusing too much on long-term results without taking into consideration short-term impacts.

Alpha did not have any performance metrics to measure the platforms within the agency. This indicates that Alpha does not measure the stability, interoperability, or reliability of the electronic platforms used every day within the organization.

***b. Bravo Analysis***

Agency Bravo had 13 total performance metrics measured against the hybrid framework. The results of the analysis are shown in Table 8.

Table 8. Organization Bravo Performance Metric Gap Analysis

| | | Personnel | Platforms | Protocols |
|---|---|---|---|---|
| Efficiency | Input | | | |
| | Output | | | |
| Effectiveness | Outcome | | | |
| Process | | | | |

(1) Personnel

Four total metrics were assigned to the personnel pillar. Two of those metrics were dedicated solely to this pillar. The other two metrics was assigned under both the personnel pillar and the protocol pillar.

- Input

Two of the four personnel metrics were considered to be input type metrics.

- Output

One of the four personnel metrics were considered to be output type metrics.

- Outcome

There were no outcome type metrics.

- Process

One of the four personnel metrics were considered to be process type metrics.

(2) Platform

- Input

There were no input type metrics.

- Output

There were no output type metrics.

- Outcome

One of the three platform metrics were considered to be outcome type metrics.

- Process

Two of the three platform metrics were considered to be process type metrics.

(3) Protocols

- Input

Two of the nine protocols metrics were considered to be input type metrics.

- Output

Two of the nine protocols metrics were considered to be output type metrics.

- Outcome

Two of the nine protocols metrics were considered to be outcome type metrics.

- Process

Three of the nine protocols metrics were considered to be process type metrics.

(4) Overall Bravo Gap

Bravo is strong in the pillar of protocols in regard to efficiency, effectiveness and processes. The organization is not looking at personnel or platforms as closely as is necessary for a holistic view of the agency. Bravo's metrics consider the inputs of personnel with little consideration of personnel's output and process. This hinders management's ability to know the effectiveness and efficiency of the organization and possible cause and effect relationships within the personnel pillar. The second issue that reveals itself within the TIPS-EEP analysis is the lack of metrics within the platforms pillar. Efficiency and effectiveness of personnel is only useful if the platforms are reliable and working during business hours. Without having metrics to track and hold the platforms piece accountable, the organization risks a decrease in productivity.

### *c. Charlie Analysis*

Agency Charlie had 15 total performance metrics measured against the hybrid framework. Charlie's analysis resulted in four green categories, four yellow categories, and four red categories. The results of the analysis are shown in Table 9.

Table 9. Organization Charlie Performance Metric Gap Analysis

| | | Personnel | Platforms | Protocols |
|---|---|---|---|---|
| Efficiency | Input | | | |
| | Output | | | |
| Effectiveness | Outcome | | | |
| Process | | | | |

(1) Personnel

Six total metrics were assigned to the personnel pillar. Five of the metrics were assigned under both the personnel and protocol pillar. While agency Charlie had metrics assigned solely under the protocol pillar, it had only one metric assigned solely under the personnel pillar.

- Input

There were no input type metrics.

- Output

Five of the nine personnel metrics were considered to be output type metrics.

- Outcome

One of the nine personnel metrics were considered to be outcome type metrics.

- Process

Three of the nine personnel metrics were considered to be process type metrics. Also, all three are considered output metrics.

(2) Platform

- Input

There were no input type metrics.

- Output

There were no output type metrics.

- Outcome

There were no outcome type metrics.

- Process

There was one metric assigned.

(3) Protocols

- Input

One of the 13 protocols metrics were considered to be input type metrics.

- Output

Six of the 13 protocols metrics were considered to be output type metrics.

- Outcome

Five of the 13 protocols metrics were considered to be outcome type metrics.

- Process

One of the 13 protocols metrics were considered to be process type metrics.

(4) Overall Charlie Gap

Results of the analysis reveal that when it comes to efficiency, the organization is only looking at the outputs. Charlie fails to measure inputs that tie into the outputs. Management needs to add input metrics across the personnel, platform and protocols pillars to consider moving the organization toward the future. The effectiveness of the

organization is being considered within terms of protocols. Agency Charlie is weak in effectiveness as it lacks outcome metrics in the personnel and platforms pillars. This provides a large gap in ability to determine if current decisions are effective and what changes should occur to improve performance and outcome. The process metrics were light in both the platforms and protocols pillars. A significant finding is the lack of platform metrics within the agencies' performance metrics.

## D. COMBINED AGENCY TIPS-EEP GAP ANALYSIS RESULTS

This section will outline the combined agency results of the TIPS-EEP metrics analysis. Results are organized and presented under each of the three mandatory pillars of success of the TIPS model. Each pillar section will address both strengths and weaknesses identified in the analysis.

### 1. Personnel

In this section, we will first identify the strengths associated with the agencies studied as they relate to the personnel pillar. Then we will provide the gap analysis for all agencies under the personnel pillar.

#### *a. Strengths within Contracting Agencies*

Two of the three agencies studied had an adequate number of existing performance metrics to measure the personnel pillar overall. No agency was green in all four metric type categories under the pillar. Only one agency (Alpha) contained metrics solely classified under the personnel pillar. Those personnel metrics were associated with the measurement of a trained and qualified workforce. The other two agencies did not address these within their own metrics. Agency Alpha utilizes specific personnel metrics related to the staffing of the agency such as the contracting officer warrant board pass-rate, number of warrants in the agency, and the experience level of acquisition personnel in the organization.

#### *b. Personnel Gap Analysis*

Bravo's and Charlie's personnel metrics failed to adequately address the competence of its workforce. They failed to have any metrics dedicated solely to the

collection of data that provides leadership with the full picture of workforce potential and current abilities. The metrics assigned in the personnel pillar for these two agencies were also assigned to the protocol pillar. These metrics assigned to both pillars were more focused on measuring award output and compliance. The rationale for assigning metrics under the personnel pillar as well as the protocol pillar being the agency workforce must be operating at a minimally competent level to meet these award compliance metrics. Although these agencies measured the output of employees, they failed to look at the overall production of the workforce in a valuable way that allows management to define adequate strengths and weaknesses of overall production and analyze the trends of various aspects within personnel.

While agencies Bravo and Charlie are showing as green in some personnel categories, they lack true dedicated personnel performance metrics. They lack the ability to have an overall view of their contracting personnel's experience within their metrics. At the same time, all three agencies lacked the variety of metric types required to be considered efficient and effective.

Two of the three agencies are lacking in the category of personnel outcome. Inability to view long-term trends in personnel trends is risky in an already unstable government workforce. Agencies can make better training and hiring decisions if they are fully aware of the resources they have within the personnel pillar. All agencies were found to a have an imbalance in the type of metrics used to collect personnel data.

### 2. Platform

In this section, we will first identify the strengths associated with the agencies studied as they relate to the platform pillar. Then we will provide the gap analysis for all agencies under the platform pillar.

#### *a. Platform Strengths within Contracting Agencies*

Bravo was found to be green in the category of platform process. The metric is looking at one of many systems and does not fully address the platforms used by the agency. There are no other strengths to be found within the platform pillar when analyzing

the FY18 Performance Metrics of each contracting shop. Interviews did reveal that one of the three agencies (Charlie) has a dashboard closely monitored, allowing upper management to view the self-reported performance requirements of the various platforms.

#### *b. Platform Gap Analysis*

As evident by the analysis, each of the organizations lack meaningful metrics to track the stability of the electronic platforms that are so vital in day-to-day operations. The fact that the platform pillar was the weakest of all pillars for all three organizations indicates a systemic issue within the government. Leadership is not able to see accurate information needed to make informed, efficient, and effective decisions based on actual circumstances. Although platform metrics are not collected as a performance metric by any of the agencies, one agency does separately monitor platforms. The contractors responsible for ensuring these platforms run smoothly have separate required performance rates that must be met. There is an increased risk of skewed data when the honor system is used to have the contractor report on themselves.

### 3. Protocol

In this section, we will first identify the strengths associated with the agencies studied as they relate to the protocol pillar. Then we will provide the gap analysis for all agencies under the protocol pillar.

#### *a. Protocol Strengths within Contracting Agencies*

Each of the three agencies had an adequate number of overall metrics that address the ability of the agency to meet the appropriate laws, regulations, guidance, and procedures. The agencies are in tune with what is needed for their performance in terms of protocol. Two of the three agencies are more balanced between the different type of metrics (input, output, outcome, process) utilized to capture protocol data. Each agency was found to be strong within a different type of metric. Alpha has the most protocol outcome metrics, Bravo has the most protocol process metrics, and Charlie has the most output protocol metrics.

### *b. Protocol Gap Analysis*

Each of the agencies were relatively weak within input type metrics under protocol. Alpha was the weakest with no metrics to measure agency inputs within protocol. All agencies were found to a have an imbalance in the type of metrics used to collect protocol data.

## E. SUMMARY OF TIPS-EEP GAP ANALYSIS/DEFICIENCIES

This section will provide a summary of the main issues identified from the metrics TIPS-EEP framework analysis. These issues will be the basis of the recommendations presented in Chapter IV.

### 1. TIPS-EEP Issue # 1: Lack of True Personnel Metrics

Two of the three agencies examined lacked meaningful metrics dedicated solely to the collection of personnel data within the agency. Without metrics to measure the experience, qualifications, and workload of the personnel within the contracting production shop, the agency cannot determine if it is operating efficiently or effectively. If there is too much work per employee, the risk for reduced production may increase. Therefore, it will slow the effectiveness in employee production, and will negatively impact planning in terms of anticipated completions of mission work. Based on the analysis for these two aforementioned agencies, the only metrics that were categorized under the personnel pillar were also categorized under the protocol pillar.

### 2. TIPS-EEP Issue # 2: Lack of Platform Oversight

All three agencies lack meaningful metrics to track the stability of the electronic platforms. This indicated a systemic issue within the government. Platforms are a significant part of any agency and should be addressed as properly working systems have a direct impact on production, morale, and ability for an agency to complete simple goals and missions on an ongoing basis.

### 3. TIPS-EEP Issue # 3: Unbalanced Metric (EEP)

All three agencies were unbalanced within the four types of metrics; or the EEP portion of the TIPS-EEP model. Analysis shows each agency leaned toward one type of metric over the others. Alpha relies heavily on outcome metrics, Charlie relies on output metrics, and Bravo focuses on process metrics. An equal and balanced amount of input, output, outcome, and process metrics must be collected to measure an agency in terms of efficiency and effectiveness.

### 4. TIPS-EEP Issue # 4: Unbalanced Pillars (TIPS)

Analysis reveals that all three agencies were unbalanced within the three organizational pillars; or the TIPS portion of the TIPS -EEP model. All three agencies had significantly more metrics assigned to protocols when compared to the other two pillars, especially platforms. One agency in particular, Alpha, did not contain any metrics to measure platforms. Each of the pillars of the TIPS model represent a critical function of the agency and therefore, each pillar should be measured equally.

Overall, contracting agencies find themselves primarily graded based on award quality and compliance, which directly correlates with government protocols.

## F. INTERVIEWS: QUESTIONS AND RESPONSES

Those at the deputy director / director and senior leadership level for each agency were interviewed. Every interviewee was required to be at least DAWIA Level II certified in their career field. They were shown the completed analytical framework for their own organization. This allowed the interviewers to verify the performance metrics were sorted into the correct pillars and identify if there are other metrics elsewhere to rectify the obvious metric gaps within a pillar. The following is a summary of the questions asked and the key takeaways from each agency:

### 1. What Metrics Capture the Health of Our Contracting Agencies in Terms of Efficiency and Effectiveness?

#### *a. Alpha Response*

Each of the interviewees identified self-assessment program metrics as the most valuable agency performance metrics. These metrics include self-inspections of the contract files. Interviewees cited these metrics because they show more than just "cold numbers." The actual content of the contracts files must be reviewed to report these metrics. Limitations include the technical experience level, capability, and workload of the inspector. Individuals qualified to perform the inspections do not have the time to do so. Only parts of a file are inspected which provide more of a snapshot of an agency rather than a true holistic overview of the procurement process. Furthermore, the mandated self-inspection checklist is not tailored to the unique acquisitions of the organization.

#### *b. Bravo Response*

All interviewees identified PALT as capturing the health of the organization.

#### *c. Charlie Response*

All of those interviewed identified Material Availability and Backorders, with two-thirds of them also identifying PALT as being able to capture the health of the agency in terms of efficiency and effectiveness.

#### *d. Key Themes*

Leadership of the organizations identify self-assessment program metrics to include PALT as having the ability to show the health, efficiency and effectiveness of their agency.

Broad overarching metrics that take a snapshot of one moment in time such as Material Availability and Back-orders also provide valuable information that reveal how well the agency is meeting customer demands.

### 2. What Metrics Capture Sound Actionable Management Information?

#### *a. Alpha Response*

Small business goals technically provide actionable management information. They provide a complete and true picture of the number of awards made to small businesses. The goals are assigned without consideration of the individual agency procurement requirements. In other words, small business goals do not take into consideration the type of services or supplies the agency routinely procures. It does not take into consideration what contract vehicles are available or mandated for use by the agency.

Self-inspection is the best to gauge internal process that can be immediately resolved. Again, the checklist used is so generalized it does not hit compliance areas that are specific to the agency contract types.

#### *b. Bravo Response*

PALT data, Dollars, and Dollars competed provide actionable information.

#### *c. Charlie Response*

The majority response was the metrics captured a bird's eye view of the organization and indicated that there is a problem, not what the problem is. The performance metrics require management to dig into data to find and determine the root cause and therefore identify actionable management information.

#### *d. Key Themes*

While there are actionable metrics, many of them are too captured late to be usable to rectify the problems, as they have already occurred. For instance, the actions that can be taken to improve PALT may affect the future success but not necessarily the current health of the agency.

While some leadership identified small business competition, and dollars competed as actionable, others found them to cause bad decision-making as items are then set aside when they were unlikely to remain as a set aside due to the significant influx of cost.

Actionable metrics are able to be utilized once the overall metric points to an issue that allows leadership to identify the main cause and move forward adequate decision-making determinations.

### 3. Do existing Performance Metrics Capture Health Adequately? If No, What Additional Metrics or Changes Will?

#### *a. Alpha Response*

There were mixed results of no and partially. No, because they do not show the entire story behind the metric or consider unique circumstances about the agency.

Partially as existing metrics capture parts of the agency's health, but not the entirety. Interviewee's recommended the results of the annual agency climate/culture assessment survey should be considered in order to accurately gauge the health of an agency.

#### *b. Bravo Response*

No because they do not provide a holistic view of the agency. Tracking the Contract Requirements Packages would help, as well as better tracking of Other than Full and Open Justification Approvals.

#### *c. Charlie Response*

Yes, but not alone. Readiness measures and buyer productivity outside PALT were both indicated to be possible metrics to consider in capturing organizational health.

#### *d. Key Themes*

Leadership within the agencies have the understanding that current performance goals alone are not allowing them to adequately see the overall health of their unit or organization. There are checks and balances and often outliers that cannot and should not fit within the agency goals and metrics.

### 4. Do Existing Performance Metrics Measure Effectiveness and Efficiency?

#### *a. Alpha Response*

Yes, however only certain metrics (see question 1)

#### *b. Bravo Response*

Not really. While the PALT is measured, it can and has been manipulated to reflect what 'looks good' rather than the actual time.

#### *c. Charlie Response*

The resounding response was the goals are effective, not efficient, with the exception of Material Availability. Management has also experienced a hard time tying the performance metrics to the performance standards.

While each of the three organizations can be efficient, the requirement of "at all cost" when supporting the warfighter comes into play; efficiency is often one of the costs.

#### *d. Key Themes*

Leadership within the agencies stated their systems pull significantly more data than is showing up on their FY18 Performance Metrics scorecard. They use the various data in addition to current performance goals in order to see trends. The metrics are able to show overall trends of effectiveness and efficiency in some areas, but not the agencies as a whole. In addition, when an agency sees a metric heading in the wrong direction, it can take a significant amount of time and resources to analyze the data within the metric to identify the root cause.

There are metrics that show if the organization is trending in the right direction towards efficiency and effectiveness, however not all metrics have that capability.

### 5. Is Performance and Metric Information Acquired in Existing Automated Systems?

#### *a. Alpha Response*

No, agency health metrics are not tracked by the current automated systems. Metrics are manually reported by an individual as an alternate duty. Self-inspection raw data (findings) are collected on Excel spreadsheets. Only spend data (where money is spent) is acquired automatically but, spend data is not part of the agency health metrics.

#### *b. Bravo Response*

Yes, some performance and metric information can be pulled from one of the systems.

#### *c. Charlie Response*

The interviewees' answers split 50/50 for YES/NO on this question. It was identified the system tracks the raw data, but analytical employees turn it into usable information. In addition, there are still some metrics for individual employees that cannot be tracked within the automated system.

#### *d. Key Themes*

While some metrics are able to be pulled from the system, there are still metrics that require manual tracking and compilation of information until the systems are either updated or replaced. The platforms may have a pending change that may eventually make it possible for the system to pull the data

### 6. Does the Data Acquired Require an Employee to Compile, Interpret or Manipulate the Information?

#### *a. Alpha Response*

Yes

#### *b. Bravo Response*

Yes

### *c. Charlie Response*

Yes

### *d. Key Themes*

All three agencies require someone to compile, interpret or manipulate data to make it make sense and develop actionable information. Current systems lack the ability to provide the polished information management needs.

## 7. Which Metrics Incentivize the Effective and Efficient Behavior of the Organization?

### *a. Alpha Response*

Metrics could be tied to positive feedback for individuals as a means of incentivizing personnel in an organization.

### *b. Bravo Response*

While no individual metrics were identified, it was indicated that the goal of the current metrics is to encourage effective and efficient behavior.

### *c. Charlie Response*

Half or more identified Material Availability, PALT, and Backorders. Auto Award Percentage, award related, Delinquency, LTCs, On Time Delivery, parts to customer, Performance Standards, PQDR, and Production were suggested by less than half the population.

### *d. Key Themes*

Leadership from two of the three agencies were unable to define which of their metrics are tied to effective and efficient behavior. This could indicate that while organizations are following trends to help determine what direction to focus on, the metrics themselves are not always pointing out the issues affecting the efficient and effective behavior. Material availability, backorders and PALT are seen to incentivize the right behavior.

### 8. Which Metrics Cause Performance Problems or Issues and Inhibit Timely Completion of Requirements for the Customer?

#### *a. Alpha Response*

Construction Time on Target, as this target date is established before the receipt of a complete requirement package.

#### *b. Bravo Response*

Both PALT and the completion of the CRP package can and have caused performance problems.

#### *c. Charlie Response*

PALT was identified by all interviewees and able to cause performance problems as it can be easily manipulated and causing contracting personnel to make choices that will make the organization look good. This manipulation slows the overall effort in meeting customer requirements.

Half of interviewees identified competition goals and small business goals as a problem. Encouraging procurements to go through high-risk set-asides causes the agency to cancel the solicitation and create a new one when the set-aside fails. This increases the time it takes to get the service or part on contract. These set-asides are not actually changing the amount awarded to a small business overall, other than slowing down when an award is going to a large business. Long-term contract goals currently can incentivize awarding NIINs not needed on contract, material availability can incentivize the supply planners to buy 5 years of stock on hand, hurting the available obligated funds. On-time delivery can cause post award personnel to cancel contracts rather than working to help the customer get their parts.

#### *d. Key Themes*

While there was little to say about metrics incentivizing the right behaviors within the agencies, management is keener to the performance issues caused by some of the metrics they hold employees accountable to.

PALT drives good and bad behavior in terms of working towards efficient and effective behavior. Within this question, we learned many variations to PALT calculations exist across the agencies. The incentive for employees may be to cancel and regenerate something in order to ensure their PALT looks good, however that may cause unnecessary delays for the customer. Agencies need a way to remove reasonable outliers from the measurement or include an additional measurement that allows good business sense to counter PALT.

### 9. Are There Any Other Metric Generation or Utilization Issues to Add to the Research?

#### *a. Alpha Response*

Metrics to track the quality of the requirements packages received by the contracting office. Metrics with the ability to show the time or man hours spent by the contracting office reviewing and providing guidance and feedback to the requirement generating community.

Advantages of a new contracting writing system.

#### *b. Bravo Response*

Report on Program Quad Charts

Active Procurement Management Review /Audit Status/Progress

#### *c. Charlie Response*

- The following were suggested to look into for future Performance Metrics and research:
- Number of awards per hours worked
- Receipting in inventory
- Cost Recovery Rate
- Create a balance between Material Availability and Operational Readiness

- Annual Demand Coverage
- NIINs on contract
- NIIN coverage
- Return on Investment
- Effectiveness of LTC (% of Obligations)
- Improve goal setting process
- Improve communication of goals
- Crisp escalation process
- Reduce readiness driver PALT

#### *d. Key Themes*

Leadership across the agencies found the research to be necessary and timely. The researchers found at least two of the agencies are working on updating their performance goals to be able to view not just the health of the organization, but also how to be able to identify the issues the agency is facing faster. The significant number of responses above reveals that leadership has not come to an agreement on what will fix the metrics but are unanimous in agreeing there is a need to reform in contracting metrics across the agencies.

## G. SUMMARY INTERVIEW GAP ANALYSIS / DEFICIENCIES

A gap analysis of the three contracting offices revealed the following shortcomings in the current metrics captured during the interview process:

In completing interviews, leadership was asked thought provoking questions. The questions were asked in reference to the FY 2018 performance metrics the corresponding agency provided to the researchers.

It was discovered there are many other metrics looked at within upper management and command in at least one of the agencies. A document provided by one agency

containing 130 pages of FY 2017 metric definitions for the agency goes to show there are significantly more metrics that get some attention but maybe not the attention needed to achieve the desired results.

### 1. Interview Issue # 1: Quality of Requirements Received

During interviews with Agency Alpha issues concerning customer data inputs were addressed. The quality of the requirements, or inputs, received by the contracting shop from its customers are not recorded in any fashion. These documents will ultimately be transformed into contract awards, or agency outputs. There is no measurement of the completeness or accuracy of these documents. Poorly defined requirements result in significant acquisition timeline delays. They negatively affect the efficiency of the acquisition process as well as the final outcome, customer satisfaction and mission accomplishment. Furthermore, they present an administrative burden. There is no metric to document the man hours and resources expended by the contracting agency while working with the customer to help define and complete the requirement package.

### 2. Interview Issue # 2: Metrics Require Significant Manual Data Analysis

Responses from interviews revealed that all three agencies require manual collection of metric data in some form. Automated systems do not capture all the metrics needed to perform an analysis of the organizations on a regular basis. Captured data requires interpretation by an experienced analyst before presenting it to management. This pulls resources away from the focus of each contracting agency, which is to award and manage contracts for mission purposes. This also introduced the risk of data manipulation.

### 3. Interview Issue # 3: PALT and Readiness

PALT is a metric used by many contracting shops, including two within this study. Agency Charlie uses those goals to plan when to create and release large procurements by utilizing the PALT metric as the estimated time for award time period. This causes actual award to occur significantly later at times, by up to 100 days due to personnel's inability to meet the PALT goals. Management is given these performance metrics and does what

they can to meet them. One management chain eventually told employees they knew the numbers were not quite "realistic," however, improve as much as possible. Some improvement occurred on the pre-award side in the category of time. This did not help the agency in terms of avoiding back-orders.

PALT goals incentivize work to be done quickly. The cost of doing things quickly, is the quality that comes from taking time to go through the process and ensure accuracy and effectiveness of the contracts. As timeliness are shortened, quality decreases, thus increasing problems after award. Failure to plan on time effects the quality of the contract placed. It also causes the government to pay significantly more. By paying a premium on one contract, agencies open the door for other similar service contracts to cost just as much. The increase could cause a chain reaction of service contracts increasing because the market research becomes flawed if those performing it did not do their due diligence to discover why the price was higher. Starting out in arrears causes contracting officers and other personnel to rush through the process causing significant delays on the post award side, significant changes to cost and scope of the contract, and possibly having to cancel contracts altogether.

PALT does not address Readiness issues. If the item is causing a line stoppage, waiting on the recommended PALT is not an option. Current metrics fail to tie in the readiness component, focusing solely on PALT initiatives.

### 4. Interview Issue # 4: Agency Climate

During interviews within Alpha agency, there was a recommendation to include measures of employee satisfaction with performance metrics in order to gauge the health of an agency. The interviewee recommended the results of the annual agency climate/culture assessment survey be included to provide a true picture of the health of the agency including the general morale/well-being of the workforce, military and civilian. This type of employee satisfaction measurement would fall into a personnel outcome metric.

## H. SUMMARY OF DEFICIENCIES NOTED FROM PERFORMANCE LITERATURE REVIEW

There are three considerations addressed in this section. The first and third deficiencies are based on information the researchers discovered during the literature review. The second issue addressed regarding standardization is one of secondary research questions presented in Chapter I.

### 1. Research Results Issue # 1: Lack of DoD Standard Instruction for Structuring Contracting Agency Performance Metrics

The literary research stage revealed that while there is the Government Performance and Results Act of 1993 requiring agencies to develop performance plans and goals each year, there is not a DoD standard instruction to help in the development of contracting agency yearly performance metrics. Industry research has made it clear the federal government is unique in many aspects and a direct comparison between private industry and government cannot be made in terms of performance management. Private industries most closely related to the federal government contracting shop are not willing to provide the information necessary for the government to have key takeaways in developing effective and efficient performance standards. There is not currently a repository of information from which to pull previous knowledge, successes and failures within the agencies in regard to performance metrics. The uniqueness of our industry, the mass amount of data our agencies collect, and the complexity of developing efficient, effective, and actionable metrics for contracting agencies creates a large project each year for DoD leadership to conquer in addition to maintaining other duties.

### 2. Research Results Issue # 2: Metric Standardization across Agencies Inhibits Strategic Goals

Chapter I identified the secondary research question, should the standardization of performance metrics occur across DoD contracting shops. The researchers have considered the idea of metrics standardization across the federal government's contracting agencies. Standardization of metrics would prevent performance metrics from reflecting the unique and true organizational strategic goals of the agency. In the event the implementation of standardized metrics was used across all 26 agencies, the metrics would have to be generic

in nature and require a second set of metrics to allow DoD leadership and Congress the ability to see the effectiveness and efficiencies of the agencies. The uniqueness of mission and capabilities in each contracting agency reveals a standardization of metrics would complicate and hinder the effectiveness of contracting agencies in the long run. It could benefit Congress and other DoD leadership to be able to compare agency productivity across the board on a level playing field.

### 3. Research Results Issue # 3: Lack of Customer Satisfaction Metric

Performance management research shows a common core metric among popular frameworks is customer satisfaction. Customer satisfaction or mission fulfillment is the ultimate goal or outcome of the contracting production shop. Yet, there are no customer satisfaction metrics within any of the FY18 agency performance metrics.

## I. SUMMARY OF ALL GAPS/DEFICIENCIES IDENTIFIED

This research analyzed three separate areas in order to identify weaknesses and deficiencies within DoD contracting agency level performance management including TIPS-EEP performance metric analysis, agency level leadership interviews, and performance management framework literature review. Table 10 provides a summary outline of all issues or deficiencies identified within Chapter III. Proposed recommendations, for DoD consideration, will be provided for each of these issues/deficiencies in Chapter IV.

Table 10. GAP Summary Table

| GAP Summary Table | |
|---|---|
| **Issue Number** | **Issue Name** |
| TIPS-EEP Issue # 1 | True Personnel Metrics |
| TIPS-EEP Issue # 2 | Lack of Platform Oversight |
| TIPS-EEP Issue # 3 | Unbalanced Metrics (EEP) |
| TIPS-EEP Issue # 4 | Unbalanced Pillars (TIPS) |
| Interview Issue # 1 | Quality of Requirements Received |
| Interview Issue # 2 | Systems Unable to Fully Calculate Metrics |
| Interview Issue # 3 | PALT and Readiness |
| Interview Issue # 4 | Lack of Agency Climate/Culture |
| Research Results Issue # 1 | Lack of DOD Standard Instruction |
| Research Results Issue # 2 | Analysis of Metric Standardization across Agencies |
| Research Results Issue # 3 | Lack of Customer Satisfaction Metric |

## J. SUMMARY

Within this chapter, we defined the methodology of our hybrid analytical framework (TIPS-EEP), to include the three organizational pillars of personnel, platforms, and protocols, and the subcategories of input, output, outcome and process focused measurements. Then we measured existing FY2018 agency performance metrics against this framework to determine if DoD contracting agencies are utilizing metrics that provide a holistic overview of agency performance. We identified the strengths and gaps of each individual agency framework. A summary of the overall framework gap analysis identified the four core TIPS-EEP deficiencies resulting from our analysis. We then discussed the interviews that took place within the agencies and identified the resulting four core issues identified through the interviews. Finally, we discussed the three core issues identified from the performance management framework literature review conducted in Chapter II. A summary table of the 11 underlying issues identified during the research and analysis of this thesis was provided. In Chapter IV, the 11 issues identified within the Gap Summary Table will be presented with recommendations, including whether standardization of performance metrics should occur across DoD contracting shops. The researchers will provide a summary of all issues identified and the corresponding recommendations along with further considerations for additional research.

THIS PAGE INTENTIONALLY LEFT BLANK

# IV. RECOMMENDATIONS

One accurate measurement is worth more than a thousand expert opinions.

—Admiral Grace Hopper, USN
(Cavanagh et al., 1999, p. 13)

## A. INTRODUCTION

This chapter will provide recommendations based on the 11 issues identified in Chapter III. This chapter will divide the recommendations into three sections. The first section will address issues identified for current DoD contracting agency performance metrics based on the TIPS-EEP analysis conducted in Chapter III. The second section will provide recommendations for issues identified by leadership during individual agency interviews. The third section will provide recommendations based on the literature review of performance management frameworks. A summary of the recommendations will follow the explanation of recommendations. We will provide examples of metrics that may be considered for categories of TIPS or EEP, depending on where a particular agency is weak.

## B. RECOMMENDATIONS BASED ON TIPS-EEP ANALYSIS

This section will outline each of the recommendations proposed to address the issues identified during each agency TIPS-EEP analysis.

### 1. Recommendations on TIPS-EEP Analysis Issue # 1

Lack of True Personnel Metrics Proposed Personnel Metrics Based on Strategic Goals of Agency: According to the analysis, Alpha was the only agency considered strong under the personnel pillar. Alpha has twice the metrics as the other two agencies, measuring the organization's personnel. Although agencies Bravo and Charlie contained enough metrics assigned under the personnel pillar to rank as green or acceptable, they lacked any metrics dedicated solely to the measurement of a trained, qualified, and experienced workforce. Each of the agency metrics assigned under the personnel pillar was also under the protocol pillar. The justification for assigning metrics under both the protocol and

personnel pillar is that in order for an agency to meet standards set under the primarily protocol metric, that agency must also have had enough qualified personnel to meet the standard. Each of the TIPS pillars are critical to agency success and therefore must be represented with metrics that measure the intent of that pillar. The importance of measuring the workforce was also evident during the performance management framework literature review. Whether it's "people" metrics under KPIs, "learning or growth measures" under the Balanced Scorecard, or "workforce outcomes" under the Baldrige Award framework, it is clear that a core concept in performance management is the measurement of organizational personnel.

Two of the three DoD agencies analyzed did not have any true dedicated personnel metrics. Therefore, we recommend that every agency include metrics to measure the quality and experience of the workforce. Examples of the recommended personnel metrics applicable to all contracting agencies include the following:

- Warrant levels in organization (number of CO's and warrant authority)
- Training level (DAU cert and types of procurement capabilities, i.e., SAT, Large procurements, and IDIQs)
- Experience level (years within current contracting complexity)
- Performance Rate (output per employee per hour)
- Amount of work on hand (calculation of overall work divided by the performance rate)
- Number of additional duties assigned to personnel outside the assigned position description

### 2. Recommendations on TIPS-EEP Analysis Issue # 2

Lack of Platform Metrics Proposed Platform Metrics Based on Strategic Goals of Agency: All agencies are deficient in the platforms pillar during a time in which the

efficiency and effectiveness of platforms is more vital than ever in an agency's ability to complete its mission for the war-fighters.

All DoD contracting agencies are highly dependent upon the operation of the DoD's acquisition electronic systems or "platforms." Almost all communication within the government and industry is accomplished using electronic mail, including file sharing and transfer.

Electronic systems are used by contracting agencies and their customers for the following processes:

- Market Research Including Electronic Repositories of Market and Contract Historical Data
- Announcement of Acquisition Requirements (Posting of RFI's, RFQ's, and RFP's)
- Clearance Reviews
- Contract Awards
- Contract Administration
- Storage of Contract files
- Contractor Invoices
- Purchase Requests, Requirements from Customers
- Payments
- Contract Surveillance
- Contractor Performance Assessment Survey
- Appropriations
- Authorizations

- Obligated Funds and Certification of Funds
- Compliance with Competition Regulations and Small Business Goal Validated

The systems used to create, store, transfer, and approve contract actions must be reliable and maintain interoperability in order for the acquisition process to be successful. When the DoD network is off-line and unavailable it brings contracting agencies to a complete work stoppage. With the publication of DoDI 8100.04 requiring a DoD-wide deployment of voice and video over internet protocol services, even the ability to use a DoD phone is now dependent on the stability of the DoD network. In the event of network connectivity issues agencies are unable to complete any tasks, from checking emails to making telephone calls.

Each of the agencies analyzed were deficient in metrics to report if these systems go down or measure how long they are down. There is no data available to show the loss of productivity that occurs if one of these aforementioned systems fails. Measuring the reliability and capabilities of the daily electronic systems plays a vital role in providing a holistic overview of an agencies' performance and health. Again, it is critical to agency success that each of the TIPS pillars are represented.

It is imperative the contracting agencies rectify this by ensuring the following issues are addressed:

- An automated software system is needed to track the performance of the various acquisition systems, particularly those that inhibit employee functions to perform daily tasks, thereby impeding not only work but employee morale.
- Automated systemic data pulls that provide meaningful, actionable data that would no longer require significant personnel manipulation to determine performance metric results.

- The metrics created for the systems need to be extractable through a system, as there is a conflict of interest for a contractor to self-report when the system is not meeting the requirements of its contract.

The researchers also recommend the following metrics be considered within the contracting agencies:

- Employees have full access to all systems at least 95 percent of the time within the standard business hours for the designated place of work (or another reasonable percentage as determined by the agency).
- Make sure systems are interoperable

### 3. Recommendations on TIPS-EEP Analysis Issue # 3

Unbalanced Metrics (EEP) Balance Metric Type: As identified in the Chapter III gap analysis, none of the agencies has an equal distribution of EEP metric types. Each agency is focusing heavily on one type of metric. We recommend that agencies ensure at least one of each EEP metric type is collected per TIPS pillar. In order to be efficient and effective based on our framework, agencies must have a balance of input, process, output, and outcome metrics. A balance in metric types is also important to show cause and effect relationship.

### 4. Recommendations on TIPS-EEP Analysis Issue # 4

Unbalanced Pillars (TIPS) Balance Pillar Metrics: As identified in the Chapter III gap analysis, none of the agencies has an equal distribution of metrics among the TIPS pillars. We recommend there be at least four metrics (input, process, output, and outcome) measuring each pillar (personnel, platform, protocol). To consider metrics holistic within the TIPS-EEP framework, they must show a balance of information collected from all three pillars. In the event that one pillar is looking at two to three times as many metrics than the other two pillars, it is likely the organization is placing too much emphasis in one area while neglecting the others. Narrowing in on just one area causes unintended consequences if tunnel visual ensues for too long. For example, it pulls resources that would normally be

working on ensuring the health of the other two pillars over to focus on the one that is more than covered. The actions taken to rectify metric 'a' under the personnel metric could cause metric 'c' of the protocol metric to have an adverse effect. Likewise, if consideration of the relationship between various metrics does not occur, it makes it difficult for leadership to have a full understanding of what does and does not work within their agency.

## C. RECOMMENDATIONS BASED ON AGENCY INTERVIEWS

This section will outline each of the recommendations proposed to address the issues identified during each agency interview.

### 1. Recommendations on Interview Issue # 1

Compliance of Contract Awards is Measured and Monitored but the Quality of Requirements Received is Not Measured

#### *a. Recommendation: Requirement Package Quality Metric*

The researchers recommend a metric to measure the quality of requirement packages received from customers. This will provide a measurement of the inputs the contracting agency receives. This proposed metric will measure the completeness of requirement packages as well as customer responsiveness. None of the contracting agencies analyzed had a metric dedicated to the measurement of the accuracy, quality or completeness of the requirement packages received from its customers and other stakeholders. Each of the agencies studied had many metrics to measure the quality and compliance of the outputs (contract awards) produced by contracting, but no metrics to measure the quality of the inputs received by the contracting production shops (requirements). To consider metrics holistic, they must have the ability to capture the performance of the contracting agencies major stakeholders, including the requirement generators or customers. Metrics must have the ability to show a cause and effect relationship in order to be consider efficient and effective. As evident by the literature review, monitoring supplier inputs is one of the core factors for several performance management frameworks. In DoD contracting, the customer is also the supplier. Failure of the customer to supply a timely, well defined, and complete requirement significantly

increases the acquisition lead-time for the contracting agency and exposes DoD to unnecessary risk and waste limited resources.

The GAO has issued many reports citing the prevalence of poorly defined requirements and their correlation to negative impacts on the acquisition process. Below are a few of the excerpts from these reports highlighting the recurring issues created from poorly defined requirements:

*Tailored Approach Needed to Improve Service Acquisition Outcomes*:

> Our work found that officials need to ensure that individual service transactions have valid and well-defined requirements, have appropriate business arrangements, and that performance is being managed—again, while minimizing related risks and maximizing efficiency. A comprehensive approach would use the strategic and transactional factors in a complementary manner to tailor management activity to ensure preferred outcomes. Without this management attention, risks exist within each level that can impair an organization's ability to get desired service acquisition outcomes. (GAO, 2006, p. 9)

*Actions Needed to Ensure Value for Service Contracts*:

> Poorly defined or changing requirements have contributed to increased costs, as well as services that did not meet the department's needs. The absence of well-defined requirements and clearly understood objectives complicates efforts to hold DOD and contractors accountable for poor acquisition outcomes. (GAO, 2009, p. 4)

*Military Service Chiefs Concern Reflect Need to Better Define Requirements before Programs Start* (GAO, 2015): Poor requirement definition leads to cost growth when programs fail to deliver operational capabilities within expected resources and expected time-frame. The so called "requirements creep" changes the scope and capabilities beyond the original approved requirement when new requirements are frequently added or changed.

Understandably, developing a metric to define an area as subjective as quality is very difficult, but is also very necessary. The recommendation for a metric to measure the quality of the requirement package requires a comprehensive tracking plan. The plan should track the number of days from receipt of a draft requirement until acceptance of the complete package. Tracking would also include the number of times a requirement passes

between the customer and agency for correction. It is imperative agencies monitor the average response time for customer correction. Finally, this metric will measure the number of days from receipt of a complete requirement by contracting to the time supplies and services are ultimately needed in place. Ideally, a platform will capture the data within existing automated purchase request systems. Identifying customers with the longest response times and highest rate of requirement returns will show which organizations utilize most of the contracting agencies time and valuable resources.

#### *b. Recommendation: Propose Revise PALT to Begin at Time of Notification of Requirement*

PALT measures the length of the acquisition process from the time a complete requirement package is received and accepted by the contracting agency to contract award. It fails to measure the amount of time and subsequently the amount of contracting resources that are expended assisting the customer with competing their requirement packages. By revising PALT to begin when the customer notifies the contracting shop of its need, it allows there to be a true time-line that is not as easy to manipulate. Tracking from conception allows the agency to see the entire picture, including communication issues. Looking at the entire process will hold both the contracting office and the customer accountable towards meeting mission requirements.

### 2. Recommendations on Interview Issue # 2: Systems Unable to Fully Collect and Calculate Metrics

Each agency studied required an employee to compile, interpret, or manipulate its performance metric data. Even if the performance information is ultimately reported to higher-level headquarters through an electronic database, personnel within the agency initially collect the information manually. This self-reported data can be subject to multiple factors affecting its accuracy and validity. Differences in definitions and interpretation and of the metric itself can lead to inconsistent reporting. Self-reporting can provide a negative incentive to manipulate data in order to avoid higher-level scrutiny and additional oversight. Finally, the accuracy of the data reported can be at the mercy of the amount of time the reporting individual has available. Often metric data collection is completed as an

additional duty to the responsible individuals' workload. As addressed within the recommendations for Platform metrics within TIPS-EEP Issue number two, the researchers recommend developing and utilizing an automated systematic collection of metrics. Agencies are capable of pulling significant amounts of data, if they can find a way to have the data automatically pulled and translated without the need for analysis first, it would provide the ability for real-time data, increase the likelihood of actionable information, and decrease the risk of unreliable data.

### 3. Recommendations on Interview Issue # 3: PALT and Readiness (or Readiness Drivers)

Two major components need to be addressed to rectify the issues with PALT and Readiness. Better define "Readiness" within the DoD and develop different targets for those particular needs.

As stated above, if there is a service or item that is mission critical and/or a line stopper, waiting the normal or target PALT is not an option the warfighter can afford. By better defining readiness, it allows each agency to better assess priorities and success in terms of what the customer needs now versus later. Replace PALT goals with a metric that measures the percentage of procurements within ALT.

The researchers recommend using the prior ALT for individual goals to determine the anticipated PALT for current timeframes to better plan for complex service contracts or items with significant historical administrative issues. We recommend agencies replace PALT goals with a metric that measures the percentage of procurements within ALT. This metric can allow an agency to strive for the best overall PALT while ensuring the outlier procurements are handled with the care and detail needed to complete the mission adequately.

### 4. Recommendations on Interview Issue # 4: Lack of Agency Climate/Culture Considerations

Recommend an employee satisfaction performance metric: During the interviews it was identified that although employee morale information is collected through mandated agency climate/culture assessment surveys, that information is not taken into consideration

with the performance metrics. Performance Management research shows a common core metric among popular frameworks is employee satisfaction. When evaluating agency performance, it is also important to include measures of employee satisfaction. This is evident in private industry, as demonstrated by the fact that employee satisfaction is a common KPI across all industries.

In the book *Essentials of Organizational Behavior*, a review of 300 studies suggests there is a strong correlation between employee job satisfaction and productivity. The authors find that "organizations with more satisfied employees tend to be more effective than organizations with fewer satisfied employees" (Robbins & Judge, 2015, p. 44). Employee job satisfaction results in lower rates of absenteeism and turnover within the organization. Job satisfaction levels can also be a determinant of counterproductive employee behavior and workplace withdrawal. Furthermore, job satisfaction links to increased customer satisfaction in fields with employees that interact often with customers (Robbins & Judge, 2015). Contracting is one of those fields, as it is essentially a customer service organization. Most importantly, contracting personnel are business advisors to their customers. They are responsible for helping the warfighter meet their needs by providing responsive contract solutions.

Since employee satisfaction is so highly correlated to job performance, the general morale of an organization must be considered when defining the holistic score of an organization's health and performance. Employee satisfaction surveys will allow agency personnel to provide measurable feedback with Likert scale responses and provide leadership with insight into the overall morale of the agency. It is important to consider agency performance and culture/employee satisfaction together, instead of analyzing each separately in a vacuum.

## D. RECOMMENDATIONS BASED ON RESEARCH RESULTS

This section will outline each of the recommendations proposed to address the issues identified during the industry and performance management research.

### 1. Recommendations on Research Results Issue # 1: Lack of DoD Standard Instruction for Creation of Contracting Agency-Level Performance Metrics

Recommend implementation of DoD Instruction for guidance on metric formulation for contracting agencies based on individual agency strategic goals and analysis with TIPS-EEP framework: The researchers recommend each contracting agency considered their strategic goals and analyze their current performance metrics against the TIPS-EEP analytical framework described in Chapter III. This will allow agencies to determine if current metrics are providing leadership with useful information under each of the three critical pillars required for any successful agency. It will also allow agencies the ability to determine which organizational pillars their metrics may be failing to measure. This framework will also ensure that agencies have a balance number of metric types in order to be efficient and effective.

### 2. Recommendations on Research Results Issue # 2: Analysis of Metric Standardization across Agencies

Minimal standardization as performance management research shows that metrics should be based on the strategic goals of the agency. As addressed in *Performance Metrics the Levers for Process Management,*

> a question often comes up about how many metrics an organization should have. A specific answer is, of course, impossible, as it will depend on size and complexity of the organization, the number and types of stakeholders, and management philosophy (e.g., the culture of the organization and the degree to which people are empowered to use data to manage the business). (Okes, 2013, p. 29)

Based on the unique mission and strategic objectives of each agency we do not recommend a standard set of holistic performance metrics for use across the DoD. The researchers do recommend that each agency consider the proposed metrics and considerations presented in this chapter, in addition to metrics tailored to their unique mission, strategic plan, and agency goals. Performance management research clearly shows that all metrics should be based on organizational strategic goals and objectives. Therefore, agencies need the ability to tailor the performance standards based on their own mission, vision, and strategic goals. While there are metrics that may be useful to the

majority of contracting operations, the recommendation is minimal standardization across the different DoD agencies. Using a standard set of generic metrics will cause agencies to waste valuable time and resources on information that does not apply to the efficiency and effectiveness of its individual organization.

### 3. Recommendations on Research Results Issue # 3: Lack of Customer Satisfaction Metric

Recommend implementation of customer satisfaction metric: Performance management research shows a common core metric among popular frameworks is customer satisfaction.

The majority of specific private industry metrics examined are not applicable to the DoD. The differences in the private sector are significant. The drive of private sector's industry varies significantly from that of the government. This includes but is not limited to profit, cash flow, return on investment, the ability to combine many goals and desires, and procurements into a single agreement, and other deals with strings attached the government has no ability to take advantage of. Private industry is not subject to the same level of regulations or socioeconomic goals (i.e., SB set aside/ competition goals, etc.) as the DoD. Private industry does not have to maintain the same level of transparency as the DoD.

One thing industry and the government have in common that could and should be considered is the need to please its customer to remain competent and continue receiving business. Customer satisfaction is a core concept among all of the performance management frameworks reviewed. When considering holistic performance, determining if the contracting agency was able to meet the needs of its customer is just as important as ensuring personnel follow regulations and policies. To measure the contracting agencies customer support, contracting can issue a survey to its customers using a Likert scale to measure satisfaction in the following areas: contract performance/schedule/cost, contracting responsiveness to customer, acquisition time-line, and overall satisfaction.

As an added benefit, responses from customer satisfaction surveys can be compared to the requirement package quality metric. Contracting can then correlate any negative

customer feedback to the quality of the requirement package submitted by that individual customer. This will allow contracting and its customer to see if a potential root cause of a poor acquisition outcome traces back to the quality of the requirement package itself.

## E. RECOMMENDATIONS SUMMARY

The sections in this chapter covered recommendations for TIPS-EEP analysis issues number one through four, interview issues number one through four, and research results number one through three. Table 11 shows the identified gaps with the corresponding recommendations.

Table 11. GAP / Recommendations Summary

| GAP / Recommendations Summary Table | | |
|---|---|---|
| **Issue Number** | **Issue Name** | **Recommendation (R)** |
| TIPS-EEP Analysis Issue # 1 | Lack of True Personnel Metrics | Proposed Personnel Metrics Based on Strategic Goals of Agency |
| TIPS-EEP Analysis Issue # 2 | Lack of Platform Metrics | Proposed Platform Metrics Based on Strategic Goals of Agency |
| TIPS-EEP Analysis Issue # 3 | Unbalanced Metrics (EEP) | In order to be efficient and effective based on our framework agencies must have a balance of input, process, output, and outcome metrics |
| TIPS-EEP Analysis Issue # 4 | Unbalanced Pillars (TIPS) | In order for metrics to be considered holistic based on our framework they must show a balance of information collected from all three pillars |
| Interview Issue # 1 | Compliance of Contract Awards is Measured and Monitored but the Quality of Requirements Received is Not Measured | R1: Requirement Package Quality Metric |
| | | R2: Propose Revise PALT to Begin at Time of Notification of Requirement |
| Interview Issue # 2 | Systems Unable to Fully Calculate Metrics: Every Agency Surveyed Relied on Manual Manipulation of Metric Information. | Recommend automated systematic collection of metrics |
| Interview Issue # 3 | PALT and Readiness | R1 : Better define 'readiness' R2: Look at prior ALT for individual goals and use metric of % within ALT |
| Interview Issue # 4 | Agency Climate/Culture. Performance Management Research also Shows a Common Core Metric Among Popular Frameworks is Employee Satisfaction. | The DOD is mandated to collect information about employee satisfaction through climate/culture assessment surveys. However this information is not consider with performance metrics. |
| Research Results Issue # 1 | Lack of DOD Standard Instruction for Creation of Performance Metrics | Recommend implementation of DOD Instruction for guidance on metric formulation based on Individual Agency Analysis with TIPS-EEP framework |
| Research Results Issue # 2 | Analysis of Metric Standardization across Agencies | Minimal Standardization (Performance Management Research Shows that Metrics Should be based on the Strategic Goals of agency) |
| Research Results Issue # 3 | Lack of Customer Satisfaction Metric | Implement Customer Satisfaction Metric (based on a Survey with Likert Scale Responses) |

## F. EXAMPLES OF RECOMMENDED PERFORMANCE METRICS

Table 12 shows recommended TIPS metrics examples for each pillar.

Table 12. TIPS Example Metrics

| TIPS EXAMPLE METRICS | |
|---|---|
| PERSONNEL | Warrant levels in organization<br>Training level<br>Experience level (to include contracting complexity)<br>Amount of work on hand<br>Number of additional duties assigned to personnel outside assigned position description (PD) |
| PLATFORMS | Stability or system down time |
| | System interoperability |
| PROTOCOLS | Compliance inspection results |
| | Competition goals |
| | Small business goals |

Table 13 depicts some recommended examples under the EEP framework.

Table 13. EEP Metric Examples

| EEP METRIC EXAMPLES | |
|---|---|
| Input | # of Warranted Contracting Officers<br># of Contracting Officer Representative (CORs)<br>Forecasted Actions<br>Workload Distribution Metrics |
| Process | PALT<br>COR training<br>Award Time on Target % |
| Output | # of CORs Assigned<br>Actions Awarded<br>Dollars Awarded<br>Regulation Compliance |
| Outcome | Customer Satisfaction<br>Mission Fulfillment<br>Material Availability<br>Backorders<br>Reduction in Bridge Contracts<br>protest results |

## G. SUMMARY

In Chapter IV, we addressed the three sets of issues, individually providing recommendations for each identified deficiency. Recommendations were provided for: TIPS Personnel Metrics; TIPS Platform Metrics; A Balance Input, Process, Output, and Outcome Metrics; A Balance of Metrics within all Three TIPS Pillars; Requirement Package Quality Metric; Automated Systematic Collection of Metrics; PALT and Readiness Metrics; and Agency Climate/Culture. These recommendations are based on the TIPS-EEP framework results of the individual agencies and are to be used as applicable. The research team recommends each agency complete an individual analysis using the TIPS-EEP framework to identify weaknesses in current metrics. The researchers believe that a regular, systematic evaluation of these metrics will provide the information necessary for an effective and efficient agency. The chapter also identified possible metrics to consider if an organization is lacking in a particular category.

THIS PAGE INTENTIONALLY LEFT BLANK

# V. CONCLUSIONS AND RECOMMENDATIONS

This final chapter will conclude our research by summarizing our methodology, processes, findings, and recommendations.

## A. INTRODUCTION

The pendulum of purchases by the Department of Defense has swung from hardware to complex services and major systems acquisitions. The DoD workforce is being asked to "do more with less." Getting the warfighters what they need, where they need it, when they need it, means the acquisition workforce must operate efficiently and effectively.

Acquisition management must have a set of comprehensive performance metrics with the ability to reflect the organization's performance health. The metrics should inform leadership if personnel, platforms and protocols are operating in an efficient and effective manner. These metrics must be readily available from currently in use automated systems to allow the ability to impact current issues. Metrics must be relatively easy to calculate with verifiable accuracy.

## B. RESEARCH PROCESS

The researchers reviewed three DoD acquisition agencies to determine if FY 2018 performance metrics within the agencies provide holistic performance data that can measure the agencies true health. The three agencies studied are from different branches of service, with different missions and strategic objectives. These agencies are identified as Alpha, Bravo, and Charlie in the report to provide anonymity.

The researchers performed a literature review of performance management models and theories, as well as previous acquisition performance research and regulations. The literature review covered performance management literature, private industry practices and motives, and DoD legislation and policy. The research provided information that helped in the development of the hybrid analytical framework used on the FY18 performance metrics provided by each organization.

The researchers conducted their analysis by creating a hybrid analytical framework of E. C. Yoder's Three Integrated Pillars of Success (TIPS) and Efficiency, Effectiveness, and Process (EEP) metrics. The hybrid model, TIPS-EEP, measures existing metrics to determine if they provide data that is holistic, meaningful, efficient, and effective.

E. C. Yoder's TIPS analytical framework measures the three critical areas of any organization, personnel, platforms, and protocols. The personnel pillar addresses the Human Resources of an organization. When the personnel pillar has been properly accounted for, acquisition management can be assured, that when the mission demands it, there will be fully qualified personnel available to meet the requirements. The platform pillar addresses the automated systems (hardware and software) and the computers on which they reside. These systems are not limited to just acquisition systems, but may include financial systems, spreadsheets, document management systems, version control systems, and any other automated tool or system that may be used to support analysis and the decision-making process. The protocols pillar addresses the rules and regulations under which the acquisition workforce must operate. A balanced set of metrics measuring each of these pillars will provide leadership with insight into each of the critical areas of their agency. The metric types of input, process, output, and outcome are elements of the most widely used performance management frameworks. They ensure that data collected will measure agency efficiency and effectiveness. A balanced set of these metrics will provide leadership with data showing a cause and effect relationship.

Each individual performance metric was first scrutinized by considering the type of information it collects and measures. Based on this evaluation, every metric was categorized under one of the three critical pillars: personnel, platform, or protocol. Once an agency metric was categorized under a pillar, it was further examined to determine if it would be defined as a input, output, outcome or process focused metric.

In addition to analyzing each organizations' metrics utilizing the TIPS-EEP framework, researchers conducted interviews with contracting agency level leadership. The interviews provided valuable understanding of the differences in the agencies, the mission goals, and how the metrics affect leadership decision making within the agencies.

The interviews also revealed the effectiveness and efficiency of the FY18 performance metrics.

## C. CONCLUSIONS AND RECOMMENDATIONS

Based on their analysis of the available metrics the researchers have arrived at the following conclusions:

### 1. TIPS-EEP Issue #1

Two of the three agencies examined lacked meaningful metrics dedicated solely to the collection of personnel data.

Recommendation: Proposed personnel metrics based on strategic goals of agency.

### 2. TIPS-EEP Issue #2

All three agencies lack meaningful metrics to track the stability of the electronic platforms used in daily operations.

Recommendation: Proposed platform metrics based on strategic goals of agency.

### 3. TIPS-EEP Issue #3

All three agencies contained an unbalanced number of the four types of metrics; or the EEP portion of the TIPS-EEP model.

Recommendation: Balance input, process, output, and outcome metrics.

### 4. TIPS-EEP Issue #4

All three agencies contained and unbalanced number of metrics within the three organizational pillars; or the TIPS portion of the TIPS -EEP model.

Recommendation: Balance metrics within all three pillars.

### 5. Interview Issue #1

Poorly defined requirements result in significant acquisition time-line delays. The quality of the requirements, or inputs, received by the contracting shop from its customers are not recorded in any fashion.

Recommendations:

- Requirement package quality metric
- Propose revise PALT to begin at time of notification of requirement

### 6. Interview Issue #2

Every agency examined relied on the manual collection, reporting or manipulation of metric data.

Recommendation: Automated systematic collection of metrics

### 7. Interview Issue #3

PALT goals result in reduced quality and poor decision-making, ultimately causing a negative impact on the customer. Current metrics fail to tie in the readiness component, focusing solely on PALT initiatives.

Recommendations:

- Better Define 'Readiness'
- Look at Prior Acquisition Lead Time (ALT) for Individual Goals and Use Metric of % within ALT

### 8. Interview Issue #4

Current performance metrics fail to measure agency climate or satisfaction and morale of the workforce.

Recommendation: Include climate/culture survey results in performance metrics.

### 9. Research Results Issue #1

Literature review revealed the lack of a standard DoD guidance or instruction aimed at the creation of contracting agency level performance metrics.

Recommendation: Implementation of DoD instruction for guidance on contracting agency level metric formulation based on individual agency analysis with TIPS-EEP framework.

### 10. Research Results Issue #2

To be meaningful, performance metrics must show data that is crucial to the individual strategic mission of the agency.

Recommendation: Minimal standardization of performance metrics across DoD agencies

### 11. Research Results Issue #3

There are no customer satisfaction metrics within any of the FY18 agency performance metrics.

Recommendation: Implement customer satisfaction metric.

## D. SUMMARY OF RESEARCH QUESTIONS

Performance metrics should provide management with information that is insightful, concise, understandable, and sufficiently detailed to identify issues and their root causes. The following research questions were developed and investigated as a way to provide management with this information:

- Why do we need Holistic Performance Metrics using a Systematic Approach for Contracting Activities?
- What analytical framework do we need to insure we get an acceptable holistic view of an agency's performance?

- What performance measurement practices from private industry can be adapted for DOD's use in regard to performance analysis?
- Do the existing metrics accurately measures the agency's processes under each of the mandatory pillars of Yoder's TIPS framework?
- Should standardization of performance metrics occur across the DOD contracting shops?
- What conclusions and recommendations generate from the analysis of existing and recommended holistic performance metrics?

## E. FINAL CONCLUSION

The overall takeaway from the research and analysis is that none of the agencies studied are utilizing performance metrics that have the ability to provide a complete holistic overview of agency performance and health. Research shows that while there is an abundance of literature, policies, regulations, etc. published on the use of metrics to measure contract performance; there is a lack of DoD guidance focused specifically on implementing metrics to measure contracting agency performance. This research and its hybrid TIPS-EPP model seek to fill that void. We have revealed the comprehensive picture of the organization's productivity, effectiveness and efficiency in the TIPS-EEP chart created for each organization. The researchers have concluded there is a universal need for the implementation of holistic performance metrics across all DoD contracting agencies. Significant variations within the missions of DoD's contracting agencies does not allow for the complete standardization of metrics. This research has provided agencies with a tool to analyze their performance metrics. Evaluation of metrics against the TIPS-EEP framework will ensure that metrics are meaningful and provide data directly related to the success of the agency.

# LIST OF REFERENCES


31 U. S. Code § 1115 - Federal Government and agency performance plans. (2011, January 4). Retrieved April 16, 2018, from https://www.law.cornell.edu/uscode/text/31/1115

About U. S. Army Contracting Command. (n.d.). Retrieved April 16, 2018, from http://acc.army.mil/about/

Arnold, R. J. (2005). Performance metrics for the Program Executive Office for Integrated Warfare Systems 1.0 and 2.0 (Unpublished master's thesis, 2005).

Bibey, C. (2017, March 13). KPIs vs. metrics: Know the difference. Retrieved April 15, 2018, from http://blog.dasheroo.com/kpis-vs-metrics-know-difference

Blanchard, K., & Blanchard, S. (2013, May 31). Doing more with less: 4 ways to cope (and even succeed) in a downsized world. Retrieved April 16, 2018, from https://www.fastcompany.com/3010400/doing-more-with-less-4-ways-to-cope-and-even-succeed-in-a-downsized-world

Bur, J. (2018, March 20). Trump management agenda to focus on multiagency goals. Retrieved April 15, 2018, from https://www.federaltimes.com/management/2018/03/20/trump-management-agenda-to-focus-on-multi-agency-goals/

Cantrell, C. (2017). US Federal Budget Analyst. Retrieved April, 2018, from https://www.usgovernmentspending.com/federal_budget_estimate_vs_actual_2017_XXbs2n_30#usgs302

Cavanagh, J. J., Lloyd, R., Logan, S., Sade, M., Sochon, G., & Wheeler, E. (1999, February). The Balanced Scorecard for Managing Procurement Performance. Contract Management, 12-16.

Chu, D. S. (2004, August 9). President's management agenda: results for the Department of Defense. Retrieved from https://books.google.com/books?id=0b19DhhnfgoC&printsec=frontcover#v=onepage&q&f=false

Clinger-Cohen Act. (n.d.). Retrieved April, 2018, from http://acqnotes.com/acqnote/careerfields/clinger-cohen-actinformation-technology

Coca-Cola HBC – 2015 Integrated Annual Report. (2015). Retrieved April 9, 2018, from https://coca-colahellenic.com/media/2597/strategy-and-kpis.pdf

Cohen, S., & Eimicke, W. B. (2008). The responsible contract manager protecting the public interest in an outsourced world. Georgetown University Press.

Courtis-Pond, J. (2018, January 25). Using the contract management maturity model to reduce risks in your business. Retrieved April 03, 2018, from http://home.anydatasolutions.com/blog/contract-management-maturity-model

Defense Acquisition. (2016, October 24). Performance of the defense acquisition system: 2016 annual report. Retrieved from https://medium.com/@DAUNow/performance-of-the-defense-acquisition-system-2016-annual-report-3e1a7097f02a

Delivering for customers and investing in the business. (2011). Retrieved April 16, 2018, from http://ar.rolls-royce.com/2011/business/chiefexec.html

Deming Institute, W. E. (2018). PDSA cycle. Retrieved April, 2018, from https://deming.org/explore/p-d-s-a

Determining the appropriate size of the contracting workforce: Yes we can! (2011). Excerpt from the Proceedings of the Eight Annual Acquisition Research Symposium (Vol. II, NPS-AM-11-C8P17R01-060). Retrieved May, 2018, from http://www.dtic.mil/dtic/tr/fulltext/u2/a544182.pdf

DFARS 237. (n.d.). Retrieved from http://farsite.hill.af.mil/reghtml/regs/far2afmcfars/fardfars/dfars/dfars237.htm#P362_23150

Dmaic: The 5 phases of lean six Sigma. (2012). Retrieved April 13, 2018, from https://goleansixsigma.com/wp-content/uploads/2012/02/DMAIC-The-5-Phases-of-Lean-Six-Sigma-www.GoLeanSixSigma.com_.pdf

Dobriansky, J. (2009, April). Improve your acquisition processes with lean six sigma, part 3. Retrieved April 14, 2018, from https://www.ncmahq.org/docs/default-source/default-document-library/articles/cm0409---60-67

DoD Releases Fiscal Year 2018 Budget Proposal [Press release]. (2018). Retrieved 2018, from http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2018/fy2018_Press_Release.pdf

DoDaro, G. L. (1998). Executive guide: Measuring performance and demonstrating results of information technology investments (AIMD-98-89) (United States., General Accounting Office., Accounting and Information Management Division). Washington, D.C.: The Office.

Duncan, R. D. (n.d.). Doing more with less: avoid fake work. Retrieved April 14, 2018, from https://www.forbes.com/forbes/welcome/?toURL=https://www.forbes.com/sites/rodgerdeanduncan/2014/12/04/doing-more-with-less-avoid-fake-work/&refURL=&referrer=#53a40b376c1e

Eastman, M. (2017, November 07). Malcolm Baldrige National Quality Award. Retrieved from https://www.nist.gov/baldrige/baldrige-award

Example KPIs for the manufacturing industry, updated for 2018. (2018). Retrieved April 14, 2018, from https://kpidashboards.com/kpi/industry/manufacturing/

Federal Acquisition Streamlining Act - FASA I. (n.d.). Retrieved May, 2018, from https://www.dol.gov/oasam/regs/statutes/fasa1.htm

GAO-05-218G Framework for assessing the acquisition function at federal agencies. (2005, September 01). Retrieved from https://www.gao.gov/products/GAO-05-218G

GAO-09-643t Actions needed to ensure value for service contracts. (2009, April 23). Retrieved April 16, 2018, from https://www.gao.gov/new.items/d09643t.pdf

GAO-13-634. (2013, June 27). Defense Acquisitions: Goals and Associated Metrics Needed to Assess Progress in Improving Service Acquisition. Retrieved 2018, from https://www.gao.gov/products/GAO-13-634

GAO-15-469 Military service chiefs' concerns reflect need to better define requirements before programs start. (2015, June). Retrieved April 16, 2018, from https://www.gao.gov/assets/680/670761.pdf

GAO-16-15 Defining and tracking bridge contracts would help agencies manage their use. (2015, October). Retrieved April 16, 2018, from https://www.gao.gov/assets/680/673110.pdf

GAO. (n.d.). Key Issues: Best Practices and Leading Practices in Acquisition Management. Retrieved from https://www.gao.gov/key_issues/leading_practices_acquisition_management/issue_summary#t=0

GAO. (2005). Framework for assessing the acquisition function at federal agencies. Washington, DC: U.S. Government Accountability Office.

GPRA Modernization Act of 2010. (2011, January 4). Retrieved April 16, 2018, from https://www.gpo.gov/fdsys/pkg/PLAW-111publ352/html/PLAW-111publ352.htm

Guide to key performance indicators (p. 6, Publication). (2007). PricewaterhouseCoopers LLP. Retrieved April 2018, from https://www.pwc.com/corporatereporting

Jackson, T. (2018, April 10). 18 Key Performance Indicator (KPI) examples defined. Retrieved April 16, 2018, from https://www.clearpointstrategy.com/18-key-performance-indicators/

Kaplan, F. (2017, July 07). Defense Secretary tries to get around the Pentagon bureaucracy in a quest for innovation. Retrieved April 15, 2018, from https://www.technologyreview.com/s/603084/the-pentagons-innovation-experiment/

Key Performance Indicators - KPI. Retrieved April 16, 2018, from https://www.investopedia.com/terms/k/kpi.asp

Key Performance Indicators in project management – Florida Tech Online. (2018, January 23). Retrieved April 16, 2018, from https://www.floridatechonline.com/blog/business/key-performance-indicators-in-project-management/

Kingston, K. (2015). A higher bid: How to transform special event fundraising with strategic auctions. Hoboken, NJ: Jossey-Bass. Retrieved from www.books.google.com/books.

Lean Enterprise Institute. (2018). What is lean? Retrieved from https://www.lean.org/WhatsLean/

Martin, L. L., & Kettner, P. M. (2010). Measuring the performance of human service programs. Thousand Oaks: SAGE.

Maucione, S. (2017, July 20). DIUx going broke, but that might not be bad. Retrieved April 15, 2018, from https://federalnewsradio.com/defense-main/2017/07/diux-going-broke-but-that-might-not-be-bad/

McMurtry, V. A. (2005). Performance management and budgeting in the federal government: brief history and recent developments (rep. No. RL32164). Congressional Research Service - The Library of Congress. Retrieved from http://www.dtic.mil/dtic/tr/fulltext/u2/a436206.pdf

MGMT 565 Info Systems Exam 1. (n.d.). Retrieved from https://quizlet.com/152095341/mgmt-565-info-systems-exam-1-flash-cards/

Office, U. G. (2007, May 10). Defense acquisitions: improved management and oversight needed to better control DoD's acquisition of services. Retrieved April 17, 2018, from https://www.gao.gov/products/GAO-07-832T

Office, U. G. (2006, November 09). Defense acquisitions: tailored approach needed to improve service acquisition outcomes. Retrieved April 17, 2018, from https://www.gao.gov/products/GAO-07-20

Office, U. G. (2005, September 01). Framework for assessing the acquisition function at federal agencies. Retrieved from https://www.gao.gov/products/GAO-05-218G

Office, U. G. (2004, September 13). Defense management: tools for measuring and managing defense agency performance could be strengthened. Retrieved May, 2018, from https://www.gao.gov/products/GAO-04-919

Office, U. G. (2002, January 18). Best practices: taking a strategic approach could improve DoD's acquisition of services. Retrieved April 16, 2018, from https://www.gao.gov/products/GAO-02-230

Okes, D. (2013). Performance metrics: The levers for process management. Milwaukee, WI: ASQ Quality Press.

PDSA Cycle. (2018). Retrieved April 16, 2018, from https://deming.org/explore/p-d-s-a

Pearson, S. (2017, December 16). Definition - What is a Service Level Agreement or SLA? Retrieved April 16, 2018, from https://tallyfy.com/service-level-agreement-sla/

President's management agenda. (n.d.). Retrieved April 16, 2018, from https://www.whitehouse.gov/wp-content/uploads/2018/03/The-Presidents-Management-Agenda.pdf

Principles of lean. (n.d.). Retrieved from https://www.lean.org/WhatsLean/Principles.cfm

Public Law 111 - 23 - Weapon Systems Acquisition Reform Act of 2009. (n.d.). Retrieved May, 2018, from https://www.gpo.gov/fdsys/pkg/PLAW-111publ23/content-detail.html

Public Law 111 - 352 - GPRA Modernization Act of 2010. (n.d.). Retrieved May, 2018, from https://www.gpo.gov/fdsys/pkg/PLAW-111publ352/content-detail.html

R: Holistic. (n.d.). In Merriam-Webster. Retrieved April 4, 2018, from Caution-https://www.merriam-webster.com/dictionary/holistic

Reed, T. S. (2011). Measuring contracting organization workload and performance. Contract management. Retrieved from https://www.ncmahq.org/docs/default-source/default-document-library/articles/cm1011---18-29.

Reed, T. (2010). Army contracting command workforce model analysis. Naval Postgraduate School. Retrieved May 2018 from https://calhoun.nps.edu/bitstream/handle/10945/24418/NPS-GSBPP-10-020.pdf?sequence=1.

Reed, T., Keller, J., & Fallon, J. (2016). Organization analytics: taking cost-per-dollar-obligated (CPDO) measures to the next level in defense contracting. *Proceedings Of the Thirteenth Annual Acquisition Research Symposium* (vol. II). Retrieved May 2018, from http://www.dtic.mil/dtic/tr/fulltext/u2/1016810.pdf

Rendon, D. G. (2009). Contract management process maturity: Analysis of recent organizational assessments. Naval postgraduate school.

Rendon, R. G. (2009, April 01). Contract management process maturity: Analysis of recent organizational assessments. Retrieved April 15, 2018, from https://calhoun.nps.edu/handle/10945/33394

Rendon, R. G. (2006). Measuring contract management process maturity: A tool for enhancing the value chain.

Renspandy, R. (2013, August 31). Balanced scorecard (Case study: Disney). Retrieved April 16, 2018, from https://www.slideshare.net/renspandy/balanced-scorecard-case-study-disney

Return on Equity (ROE). (n.d.). Retrieved April 15, 2018, from http://www.investinganswers.com/financial-dictionary/financial-statement-analysis/return-equity-roe-916

Richman, L., PMP. (2006). Improving your project management skills. Retrieved April 15, 2018, from https://books.google.com/books?id=oCCcvCukp3QC&pg=PA65#v=onepage&q&f=false

Robbins, S. P., & Judge, T. (2015). Essentials of organizational behavior. Singapore: Pearson Education South Asia Pte.

Sisk, R. (2018, February 27). Raj Shah is leaving. No, not that one. Retrieved April 15, 2018, from https://www.military.com/DoDbuzz/2018/02/27/raj-shah-leaving-no-not-one.html

Smith, L., Wilson, R., & Burke, T. (2008, March/April). Enlisting lean six Sigma in the Army acquisition process. Retrieved April 13, 2018, from http://www.dtic.mil/dtic/tr/fulltext/u2/1016322.pdf

Spiderstrategies. (n.d.). Example KPIs for the manufacturing industry. Retrieved 2018, from https://kpidashboards.com/kpi/industry/manufacturing/

Staerk, A. (2016, February 17). Focus on the inputs. Retrieved from https://www.linkedin.com/pulse/focus-inputs-alfons-staerk

Takai, T. M. (2010). DoD unified capabilities (UC)(DoDI 8100.04) (United States, Department of Defense, Networks and Information Integration/DoD).

The ultimate partnership: balanced scorecard and performance management. (2012). Essentials of balanced scorecard, 217-226. doi:10.1002/9781118386774.ch13

United States, DAU. (2016). Dodi 5000.74 Defense acquisition of services.

United States federal budget analyst. (2017). Retrieved April 15, 2018, from https://www.usgovernmentspending.com/federal_budget_estimate_vs_actual_2017_XXbs2n_30#usgs302

Vasić, M., Potkonjak, A., Stanojevic, D., & Dimitrijevic, M. (2015, January). Quality implications on the business of logistic companies. Retrieved from https://www.researchgate.net/publication/282425842

Vliet, V. V. (2018, May 20). Balanced Scorecard model template by Kaplan and Norton. Retrieved from https://www.toolshero.com/strategy/balanced-scorecard/

Williams Dec, L. C. (2018). DoD looks to DIUX for the future of acquisition. Retrieved April 15, 2018, from https://fcw.com/articles/2017/12/07/diux-sasc-acquisition-future.aspx

Yoder, E. C., Long, W. E., Jr., & Nix, D. E. (2013). Phase zero contracting operations—strategic and integrative planning for contingency and expeditionary operations. Defense A.R.J.,20(3), 349-372. Retrieved May, 2018, from http://dau.DoDlive.mil/files/2014/11/ARJ67_Yoder.pdf

Yoder, E. C. (2018, April 2). Yoder establishing and utilizing performance metrics—getting the most from contracting. Yoder's basic performance metrics. Lecture.

Yoder, E. C. (2010). Phase zero operations for contingency and expeditionary contracting-keys to fully integrating contracting into operational planning and execution. Retrieved April 17, 2018, from https://calhoun.nps.edu/handle/10945/47203

Yoder, E. C. (2004). The Yoder three-tier model for optimal planning and execution of contingency contracting. Naval Postgraduate School.

Zwilling, M. (2013, July 31). 10 metrics every growing business must keep an eye on. Retrieved from https://www.forbes.com/sites/martinzwilling/2011/09/28/10-metrics-every-growing-business-must-keep-an-eye-on/#68565d4661b9

THIS PAGE INTENTIONALLY LEFT BLANK

# INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
   Ft. Belvoir, Virginia

2. Dudley Knox Library
   Naval Postgraduate School
   Monterey, California