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**JOINT APPLIED PROJECT**

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# THE DILEMMA OF DEPARTMENT OF DEFENSE BUSINESS SYSTEM MODERNIZATION EFFORTS: WHY INTENDED OUTCOMES HAVE NOT BEEN FULLY MET AND WHAT NEEDS TO CHANGE

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**June 2016**


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Over the last twenty (20) years, the Government Accountability Office (GAO) has repeatedly found that the Department of Defense's (DOD) business systems have little continuity and that many systems perform similar taskings and were classified as "high risk." Despite this designation being made over twenty (20) years ago, the DOD has made little progress implementing the GAO's recommendations.

The intent of this joint applied project (JAP) is not to merely discuss prior recommendations and findings regarding the DOD's business system modernization program from the GAO and other stakeholders, but to identify and thoroughly discuss root cause(s) that have prohibited the DOD from achieving full-implementation over the past twenty (20) years. The goal of this research is to expand upon data and information that is available through published literature and other sources by applying the unique work experiences of the authors as DOD Contact Specialists, as well as the authors' academic perspectives resulting from knowledge obtained through the Contract Management cohort at Naval Postgraduate School (NPS). Based on the authors' experience and familiarity, the emphasis of this research was on the DOD contract writing systems (CWS). This JAP seeks to report on the progress of DOD business system modernization efforts and develop a better way forward based on the findings to the following primary research questions:

1) What was the catalyst for the DOD's recent business systems modernization efforts, and what is the current nature of that need? 2) Why has the DOD failed to fully meet its business systems modernization objectives in a timely manner? 3) What additional action is needed for the DOD to fully achieve intended outcomes of its business system modernization objectives? 4) Are there other potential outcomes of DOD's business systems modernization efforts that have not been previously accounted for, or particular focus areas that may yield better results?

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# THE DILEMMA OF DEPARTMENT OF DEFENSE BUSINESS SYSTEM MODERNIZATION EFFORTS: WHY INTENDED OUTCOMES HAVE NOT BEEN FULLY MET AND WHAT NEEDS TO CHANGE

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Submitted in partial fulfillment of the requirements for the degree of

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# THE DILEMMA OF DEPARTMENT OF DEFENSE BUSINESS SYSTEM MODERNIZATION EFFORTS: WHY INTENDED OUTCOMES HAVE NOT BEEN FULLY MET AND WHAT NEEDS TO CHANGE

## ABSTRACT

Over the last twenty (20) years, the Government Accountability Office (GAO) has repeatedly found that the Department of Defense's (DOD) business systems have little continuity and that many systems perform similar taskings and were classified as "high risk." Despite this designation being made over twenty (20) years ago, the DOD has made little progress implementing the GAO's recommendations.

The intent of this joint applied project (JAP) is not to merely discuss prior recommendations and findings regarding the DOD's business system modernization program from the GAO and other stakeholders, but to identify and thoroughly discuss root cause(s) that have prohibited the DOD from achieving full-implementation over the past twenty (20) years. The goal of this research is to expand upon data and information that is available through published literature and other sources by applying the unique work experiences of the authors as DOD Contact Specialists, as well as the authors' academic perspectives resulting from knowledge obtained through the Contract Management cohort at Naval Postgraduate School (NPS). Based on the authors' experience and familiarity, the emphasis of this research was on the DOD contract writing systems (CWS).

This JAP seeks to report on the progress of DOD business system modernization efforts and develop a better way forward based on the findings to the following primary research questions:

1) What was the catalyst for the DOD's recent business systems modernization efforts, and what is the current nature of that need?
2) Why has the DOD failed to fully meet its business systems modernization objectives in a timely manner?
3) What additional action is needed for the DOD to fully achieve intended outcomes of its business system modernization objectives?

4) Are there other potential outcomes of DOD's business systems modernization efforts that have not been previously accounted for, or particular focus areas that may yield better results?

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# LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ACE | Acquisition Committee for E-Government |
| ACPS | Automated Contract Preparation System |
| AMC | Army Materiel Command |
| ANSI | American National Standards Institute |
| ARRA | American Recovery and Reinvestment Act |
| ASP | Agency Strategic Plan |
| AT&L | Acquisition, Technology, and Logistics |
| BEA | Business Enterprise Architecture |
| BMA | Business Mission Area |
| CAS | Contract Administration Service |
| CCDR | Combatant Commander |
| CIO | Chief Information Officer |
| CLS | Clause Logic Service |
| CMO | Chief Management Officer |
| CORT | Contracting Officer Representative Tool |
| COTS | Commercial Off The Shelf |
| CPARS | Contractor Performance Assessment Reports System |
| CWS | Contract Writing System |
| DA | Department of the Army |
| DAI | Defense Agencies Initiative |
| DBC | Defense Business Council |
| DBS | Defense Business System |
| DBSMC | Defense Business Systems Management Committee |
| DCMO | Deputy Chief Management Officer |
| DEAMS | Defense Enterprise Accounting and Management System |
| DFARS | Department of Defense Federal Acquisition Regulation Supplement |
| DMAG | Deputy's Management Action Group |
| DOD | Department of Defense |
| DODD | Department of Defense Directive |

| | |
|---|---|
| DOTMLPF | Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and Facilities |
| DPAP | Defense Procurement and Acquisition Policy |
| DSD | Deputy Secretary of Defense |
| DSG | Defense Strategic Guidance |
| E2E | End-to-End |
| EBS | Enterprise Business System |
| EC | Entergy Convergence |
| ERP | Enterprise Resource Planning |
| eSRS | Electronic Subcontracting Reporting System |
| ETP | Enterprise Transition Plan |
| FBO | FedBizOpps |
| FIAR | Financial Improvement and Audit Readiness |
| FPDS-NG | Federal Procurement Data System – Next Generation (FPDS-NG) |
| FSRS | Federal Subaward Reporting System |
| FY | Fiscal Year |
| GAO | Government Accountability Office |
| GEX | Global Exchange Service |
| GFEBS | General Fund Enterprise Business Systems |
| GPRA | Government Performance and Results Act |
| GPRAMA | Government Performance and Results Act of 2010 |
| IBF | Integrated Business Framework |
| ICA | Investment Certification and Approval |
| ID/IQ | Indefinite Delivery / Indefinite Quantity |
| IO | Industrial Organization |
| IRB | Investment Review Board |
| IT | Information Technology |
| ITIMP | Integrated Technical Item Management |
| JAP | Joint Applied Project |
| LCMC | Life Cycle Management Command |
| LMP | Logistics Modernization Program |
| MAC | Multiple Award Contract |

| | |
|---|---|
| MSC | Major Subordinate Command |
| MSC | Military Sealift Command |
| NAVAIR | Naval Air Systems Command |
| NAVFAC | Naval Facilities Engineering Command |
| NAVSEA | Naval Sea Systems Command |
| NAVSUP | Naval Supply Systems Command |
| NDAA | National Defense Authorization Act |
| NPS | Naval Postgraduate School |
| NSS | National Security Strategy |
| OEP | Organizational Execution Plan |
| OIG | Office of the Inspector General |
| OMB | Office of Management and Budget |
| ONR | Office of Naval Research |
| OSD | Office of Secretary of Defense |
| PADDS | Procurement Automated Data & Document Systems |
| PBIS | Procurement Business Intelligence Service |
| PBORG | Procurement Business Operations Requirements Group |
| PCA | Pre-Certification Authorities |
| PD2 | Procurement Data & Document System |
| PDS | Procurement Data Standard |
| PEO | Program Executive Office |
| PGI | Procedures, Guidance, and Information |
| PPIRS | Past Performance Information Retrieval System |
| PRDS | Purchase Request Data Standard |
| PSA | Principal Staff Assistant |
| PSC | Product Service Code |
| PSS | Professional Support Services |
| QDR | Quadrennial Defense Review |
| ROI | Return on Investment |
| SAM | System for Award Management |
| SECDEF | Secretary of Defense |
| SMP | Strategic Management Plan |

| | |
|---|---|
| SPAWAR | Space & Naval Warfare Systems Command |
| SPS | Standard Procurement System |
| SSPI | Software and System Process Improvement |
| SV-8 | System View-8 |
| TIPS© | Three Integrated Pillars of Success© |
| TOMS | Task Order Manager Systems |
| USC | United States Code |
| USMC | United States Marine Corps |
| WAWF | Wide Area Workflow |
| WDOL | Wage Determinations Online |

# EXECUTIVE SUMMARY

In 1995, the Government Accountability Office (GAO) issued a report designating the Department of Defense (DOD) business systems as high risk. The DOD is responsible for seven (7) of GAO's high risk areas, including: DOD's approach to business transformation, support infrastructure, financial management, supply chain management, weapon system acquisition, and contract management (Department of Defense, 2015).

Since that time, the GAO has made over 200 recommendations to strengthen DOD modernization efforts and reduce risks related to the modernization efforts (DOD Business System Modernization, 2016). However, the DOD is experiencing ongoing difficulties of implementing procedures and controls, which would allow for the proper management of the modernization effort while at the same time minimizing risks (DOD Business System Modernization, 2016).

Since the high risk designation by GAO, many important policies and regulations have been issued, however, of particular importance was the issuance of Section 332 of the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2005, which required the DOD to take specific actions based upon GAO's recommendations (GAO, 2015). The NDAA also required that milestones for the modernization efforts be established, and, in order for funding to be provided for modernization, DOD must show that progress has been with respect to streamlining each system (GAO, 2015). The act also details that the DOD must, to the maximum extent practicable, use commercial off-the-shelf (COTS) systems that are modified to meet the DOD's unique requirements and to remove unique interfaces that inhibit competition.

This Joint Applied Project (JAP) examines the policy, regulations, and reports that have been issued on the topic of business system modernization efforts within the DOD and takes an in depth analysis at the progress made toward acquisition related business systems, specifically CWSs. Specifically, a CWS is any computer-based system used within the Federal Government to create solicitations, contracts, and modification documents (Lloyd, 2012). Because the DOD business systems environment is incredibly

complex, as such, this JAP focused on analysis of CWSs being utilized by the authors to better enable the identification of specific improvement areas—SPS, SeaPort-e, and PADDS CWSs. Using the selected three (3) CWSs, the JAP focused on the background, key functionalities, and problems/issues associated with each of the aforementioned CWSs. Using these case studies, in-depth analyses were formed, which, ultimately led to recommendations for improving DOD's business system modernization efforts.

Following the review of the CWS, the authors utilized an analytical model to assess the current state of the DOD CWSs and provided three (3) alternatives for implementation:

1) Alternative 1 – Enterprise Wide CWS
2) Alternative 2 – Department Specific CWS
3) Alternative 3 – Maintain Status Quo

The three (3) alternatives were then evaluated based on the utilization six (6) evaluation criteria—resources, the complexity of implementation, infrastructure, compatibility, GAO compliance, and cybersecurity risk. Using the established criteria an analysis was conducted to dissect the current state of the DOD CWS, and, ultimately provide a recommendation for implementation. The authors offered (7) recommendations to help address maturity gaps; however, the below listed recommendations, in particular, provide for a more focused approached on DOD's CWSs.

1) Recommendation 5: Focus modernization efforts more exclusively on CWS development and implementation
2) Recommendation 6: Implement Alternative 2 (Department Specific CWS)

While the seven (7) recommendations provided by the authors are not intended to be all-inclusive of potential improvement areas, the authors contend that the proffered recommendations will adequately address DOD's business system modernization efforts. However, additional questions were posed in this JAP to further refine the suggested recommendation.

## References

Department of Defense. (2015). *Agency Strategic Plan Fiscal Years 2015–2018.* Washington, D.C.: Author.

DOD Business System Modernization. (2016). Retrieved from GAO: http://www.gao.gov/key_issues/dod_business_systems_modernization/issue_summary#t=0

GAO. (2015). *GAO 15-627: DOD Business System Modernization Additional Action Needed to Achieve Intended Outcomes.* Washington, DC: Author. Retrieved from U.S. Government Accountability Office: http://gao.gov/assets/680/671452.pdf

Lloyd, R. E. (2012). Public Contract Writing Systems: A House Divided. *Journal of Public Procurement, 12*(3). Retrieved April 2016, from http://pracademics.com/attachments/article/561/Article%201_Lloyd.pdf

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# I. INTRODUCTION

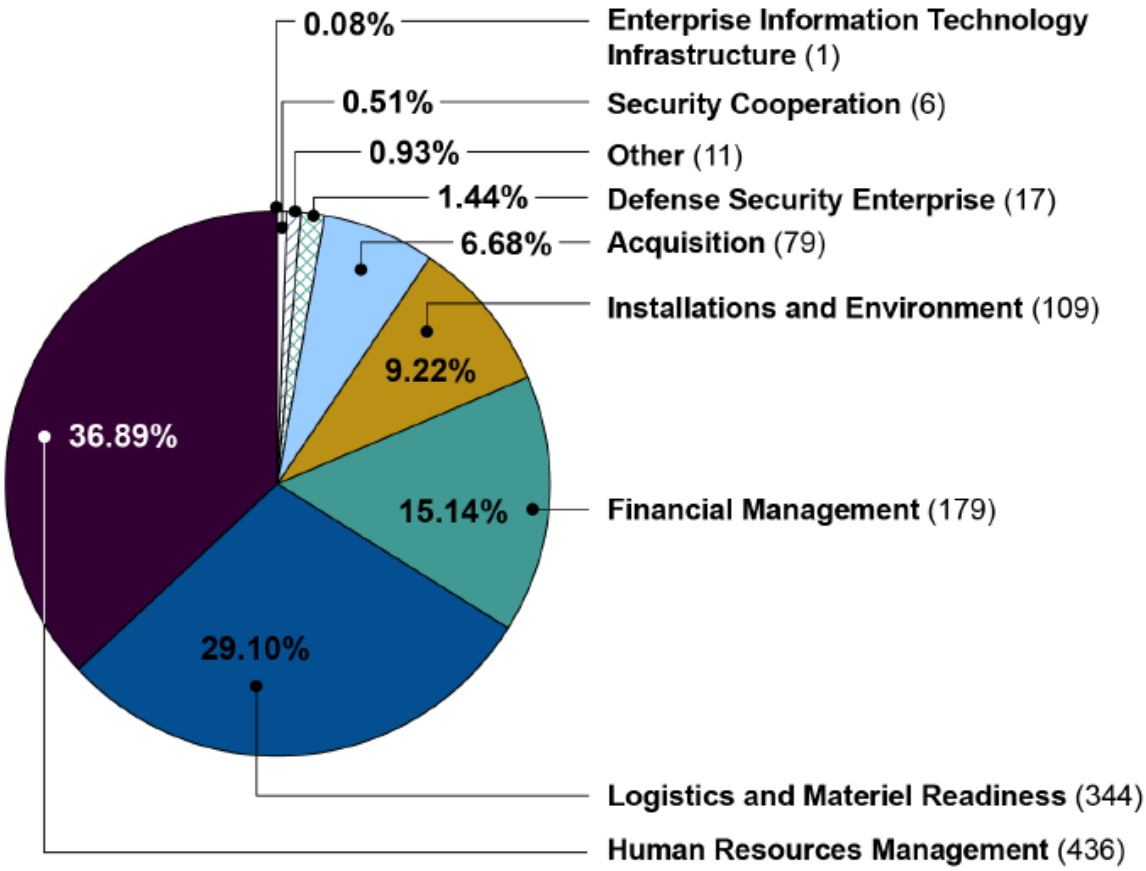
## A. PURPOSE

> Delivering modernized business systems is at the heart of the Department of Defense (DOD) efforts to transform its business operations. These systems include timeworn and duplicative systems that support DOD business operations. Since 1995, Government Accountability Office (GAO) has designated the department's business systems modernization efforts as high risk. Because DOD spends over $10 billion each year on its business systems, the potential for identifying (and avoiding) the costs associated with duplicative functionality across its business systems investment is significant. (GAO-11-318SP, 2011a)

The purpose of this Joint Applied Project (JAP) is to discuss the prior recommendations and findings regarding the DOD business systems modernization program from the GAO and other stakeholders, as well as identify and thoroughly discuss root cause(s) that have prohibited DOD from achieving full-implementation of prior recommendations over the past twenty (20) years. Figure 1 illustrates the number of DOD business systems. This research will examine the areas of the Acquisition business systems, with a specific concentration on contract writing system(s) (CWS) used within the DOD.

The above mentioned GAO report was in response to new statutory legislation that required the GAO to identify initiatives that have duplicate functions throughout the government and various federal programs. Part of Pub. L. No. 111-139, § 21, 124 Stat. 29 (2010), 31 U.S.C. § 712, this report requires GAO to report to these findings to congress annually in order to allow policymakers to make informed decisions in response to the fiscal pressures that make up the current economic environment. Due to the decreasing DOD budget, successfully modernizing the business system becomes more difficult every year while receiving more and more visibility. In terms of technology, it is known that the Federal Government lags the private sector and still uses antiquated technology first introduced in the early 1970s. Following a detailed analysis of the DOD business system modernization program, recommendations will be provided for improvement, with a concentrated focus on DOD CWSs

Figure 1. Certified and Approved Department of Defense Business Systems




Source: GAO 15-627 (2015b)

## B. RESEARCH QUESTIONS

To report on the progress of DOD business systems modernization efforts, and develop a better way forward, the following research questions will be asked:

1. What was the catalyst for the DOD's recent business systems modernization efforts, and what is the current nature of that need?
2. Why has the DOD failed to fully meet its business systems modernization objectives in a timely manner?
    a. Is there adequate representation from functional/execution-related personnel to fully demonstrate the scope of problem(s) / issue(s)?

b. How entrenched are legacy systems within each service / component, and how feasible is it to change the status quo?

c. Is DOD resourced (e.g., personnel, funding, facilities/technology, etc.) appropriately for this effort?

3. What additional action is needed for the DOD to fully achieve intended outcomes of its business system modernization objectives?

   a. Is DOD resourced (personnel, funding, facilities/technology, etc.) appropriately for this effort?

   b. Is there a more effective organizational structure/model for Chief Management Officer (CMO)/Deputy Chief Management Officer (DCMO) and other stakeholders who are responsible for this effort?

4. Are there other potential outcomes of DOD's business system modernization efforts that have not been previously accounted for, or particular focus areas that may yield better results?

   a. What are the risks associated with prior recommendations from GAO and other stakeholders?

   b. Are there better recommendations not previously accounted for?

   c. Are there specific focus areas (e.g., contract writing system(s), integrated contract/financial system(s), etc.) that should be emphasized over other areas?

## C. SCOPE

This project will attempt to identify and thoroughly discuss root cause(s) that have prohibited DOD from achieving full-implementation of prior recommendations from GAO (and other stakeholders) regarding its business system modernization program. This will be accomplished through the following:

1. Expand upon data or information available through published literature.

2. Review GAO reports and recommendations on business system modernization efforts.
3. Analyze past and current business system modernization efforts to assess areas in need for further improvement.

## D. METHODOLOGY

Research for this JAP will be based upon data or information available through published literature to include procurement related policies, audits, Appropriation Bills, and various reports. The analysis of the research material is based upon academic perspectives resulting from knowledge obtained through the workplace and our curriculum at Naval Postgraduate School (NPS), specifically the use of analytical framework to appropriately analyze the problem and provide a recommendation for implementation.

## E. ASSUMPTIONS

This JAP makes the assumption that the reader has a basic understanding of the DOD business systems, specifically the complexities and current challenges that exist within the antiquated DOD contract writing systems. This JAP also makes the assumption that the reader has an understanding of Information Technology (IT) terminology and concepts.

## F. DEFINITION OF KEY TERMS

*Defense Business System (DBS)* – "An information system, other than a national security system, operated by, for, or on behalf of the DOD, including financial systems, mixed systems, financial data feeder systems, and information technology and information assurance infrastructure, used to support business activities, such as acquisition, financial management, logistics, strategic planning and budgeting, installations and environment, and human resource management" (Public Law 108-375, 2004).

*Defense business system modernization* – "The acquisition or development of a new defense business system; or any significant modification or enhancement of an existing defense business system" (Public Law 108-375, 2004).

*Contract Writing System (CWS)* – The term "contract writing system" is not defined in the Federal Acquisition Regulation (FAR) or the DOD Federal Acquisition Regulation Supplement (DFARS), nor is it included with the definitions of other related terms within Public Law 108–375 or Title 10 U.S.C. § 2222. This JAP refers to CWSs in the same manner as Robert E. Lloyd in his fall 2012 article entitled "Public Contract Writing Systems: A House Divided" as published in the Journal of Public Procurement. Specifically, a CWS is any computer-based system used within the Federal Government to create solicitations, contracts, and modification documents (Lloyd, 2012).

*Enterprise Transition Plan (ETP)* – The transition plan for implementing the Business Enterprise Architecture (BEA) for defense business systems (FY 2014 Enterprise Transition Plan (ETP) Overview, 2014). The 2014 ETP Overview identifies an ETP as the desired set of business and IT capabilities as well as defines how the DOD will transition from current state to the target defense business systems computing environment within a specified timeframe.

*Legacy system* – Any system with a sunset date within thirty-six (36) months of the date of the certification approval, or for non-covered defense business systems, enduring systems with operations and support life cycle dates of less than thirty-six (36) months from the start of the fiscal year in Organizational Execution Plan (OEP) (FY 2014 Enterprise Transition Plan (ETP) Overview, 2014). The 2014 ETP Overview goes on to state that legacy systems are not required to undertake efforts to assert Business Enterprise Architecture (BEA) compliance but must identify a sunset date and the system(s) it is being replaced by. In addition, the source states that legacy systems are not allowed to obligate modernization dollars.

## G. STUDY ORGANIZATION

This JAP is organized into seven (7) chapters. Chapter I introduces the research project, outlines the research objectives, identifies the research questions, author assumptions, and methodologies used to construct the JAP. Chapter II provides background information, to include the evolution of policy and reform that have shaped the DOD business system modernization program. This chapter covers multiple National

Defense Authorization Acts, the Clinger-Cohen Act, and various GAO and DODIG reports. Chapter III discusses the current procurement system environment. This discussion will consist of the current governance and organizations with influence over the modernization effort, as well as, the current strategic plan and future goals. Chapter IV presents case studies that are relevant to the CWS portion of DOD's business system modernization efforts. Specifically, the case studies will provide the historical background and functionalities for the following three (3) CWSs that are currently being utilized by the authors: SPS, SeaPort-e, and PADDS. Chapter V applies an analytical framework to better address problems pertaining to DOD's business system modernization efforts, and includes an evaluation of three (3) potential CWS alternatives. Chapter VI provides recommendations for the purposes of improving the efficiency and effectiveness of DOD's utilization of electronic procurement systems to accomplish its mission objectives. These recommendations will be based on information presented herein, as well as the authors' conclusions based on applicable work experience. Finally, Chapter VII will provide the authors' overall conclusions as a result of this research endeavor.

## H. CHAPTER SUMMARY

This chapter has introduced the problems of DOD business system modernization efforts and framed the outline of this research project. Specifically, this chapter identified the scope of this JAP as well as presented the four (4) research questions that this research project will address. Finally, the methodology was described in how this analysis was conducted. The next chapter will provide a detailed timeline and background of the evolution of policy reform within the DOD, with particular emphasis on that of DOD business systems.

# II. EVOLUTION OF POLICY REFORM

Chapter I provided an introduction to the background of this research project and described the research questions that this JAP will address. This chapter will focus on the evolution of policy reform within the DOD, specifically highlighting the historical information that led to the DOD business system modernization being designated as high risk over twenty (20) years ago. This chapter will go into greater detail about additional reports, policies, and documentation that have created this problem.

As emphasized by GAO-15-627 *(DOD Business System Modernization)*, the current DOD systems are excessively complex and, due to this attribute, the systems are prone to issues and malfunctions. The GAO also found that there is little to no continuity, that the DOD has several systems completing the same tasking (which lead to the same data being saved in multiple locations), as well as, an unnecessary amount of manual data entry (GAO 15-627, 2015b). This chapter reviews the policies, regulations, reports, and acts that impacted the DOD business system modernization efforts from 1995 to 2015; while examining the GAO high risk designation and the regulations that have been issued to mitigate the risk assessment.

## A. BACKGROUND

The DOD spends billions of dollars annually on its modernization efforts, which consist of over 2,300 business systems that support all aspects of operations and business functions (GAO 15-627, 2015b).

> GAO designated DOD's multibillion dollar business systems modernization program as high risk in 1995, and since then has provided a series of recommendations aimed at strengthening its institutional approach to modernizing its business system investments. Section 332 of the NDAA for Fiscal Year (FY) 2005, as amended, requires the department to take specific actions consistent with GAO's prior recommendations and included a provision for GAO to review DOD's efforts. In addition, the Senate Armed Services Committee Report for the NDAA for FY 2015 included a provision for GAO to evaluate the usefulness and effectiveness of DOD's business enterprise architecture and business process reengineering processes. (GAO 15-627, 2015b)

## B. ACTS, GAO, AND DEPARTMENT OF DEFENSE INSPECTOR GENERAL (DODIG) REPORTS

### 1. National Defense Authorization Act for Fiscal Year 2005

Section 332 of Public Law 108–375, also known as the "Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005" amended Chapter 131 of Title 10 U.S.C. § 2222, by inserting the following new section, "Defense business systems: architecture, accountability, and modernization." Under this act, an annual report is submitted by 15 March to various congressional defense committees in order to ensure compliance with the requirements of the NDAA for FY 05 (GAO 15-627, 2015b). As amended, NDAA for FY 2005, requires the DOD accomplish tasks consistent with prior suggestions made by the GAO. Section 332 of the act addresses the following provisions:

a) Business Enterprise Architecture (BEA)

b) Enterprise Transition Plan (ETP)

c) Investment Management

d) Investment Certification and Approval (ICA)

e) Mandated Budgetary Reporting

f) Other (Human Capital)

In addition, this NDAA requires that the DOD submit the following information to the appropriate congressional committees in an annual report on compliance with the provisions outlined in the act:

> Detail actions taken and milestones for meeting the acts requirements. Specific milestones and performance metrics against stated performance measures, along with any amendments. Executions on any system modernization submitted for certification under the appropriate subsection. Detail specific improvements in business operations and cost savings initiatives on successful modernization efforts. Detail the number of system modernizations that have been certified; and, identify any obligation in excess of $1 million for the system modernization that has not been certified the prior year. (Public Law 108-375, 2004)

The NDAA for FY 2005 consists of various requirements, one of which states that the DOD should implement milestones to ensure the modernization effort is kept on track and establish metrics to capture performance data, funding needs, and non-financial needs. The NDAA for FY 2005 asserts that in order for funding to be approved for specific business systems, the DOD must demonstrate the organization has taken the appropriate steps required to guarantee that each system is as streamlined and efficient as possible. The act also details that the DOD must, to the maximum extent practicable, use commercial off-the-shelf (COTS) systems that are modified to meet the DOD's unique requirements and to remove unique interfaces that inhibit competition (GAO 15-627, 2015b).

Contained within Section 332 of NDAA for FY 2005 is language that requires that the DOD must have the GAO assess the specific actions taken as part of the modernization effort that allows for an independent audit on modernization progress. A summary of the status of the implementation of those recommendations is contained in Table 1. A more detailed listing of GAO recommendations is provided by Appendix A.

Table 1. NDAA for FY 2005: Status of Recommendations

| NDAA provision | Implemented | Partially Implemented | Total |
|---|---|---|---|
| Business Enterprise Architecture | 1 | 2 | 3 |
| Enterprise Transition Plan | - | 1 | 1 |
| Investment Management | 1 | 3 | 4 |
| Investment Certification and Approval | 2 | 3 | 5 |
| Mandated Budgetary Reporting | 1 | - | 1 |
| Other (Human Capital) | - | 2 | 2 |
| Total | 5 | 11 | 16 |

Source: GAO 15-627 (2015b)

### 2. Clinger-Cohen Act

The Clinger-Cohen Act, enacted in 1996, was implemented to improve how the Government procures and disposes of IT hardware. This act also requires the DOD to appoint a Chief Information Officer (CIO) that has authority to ensure various aspects of

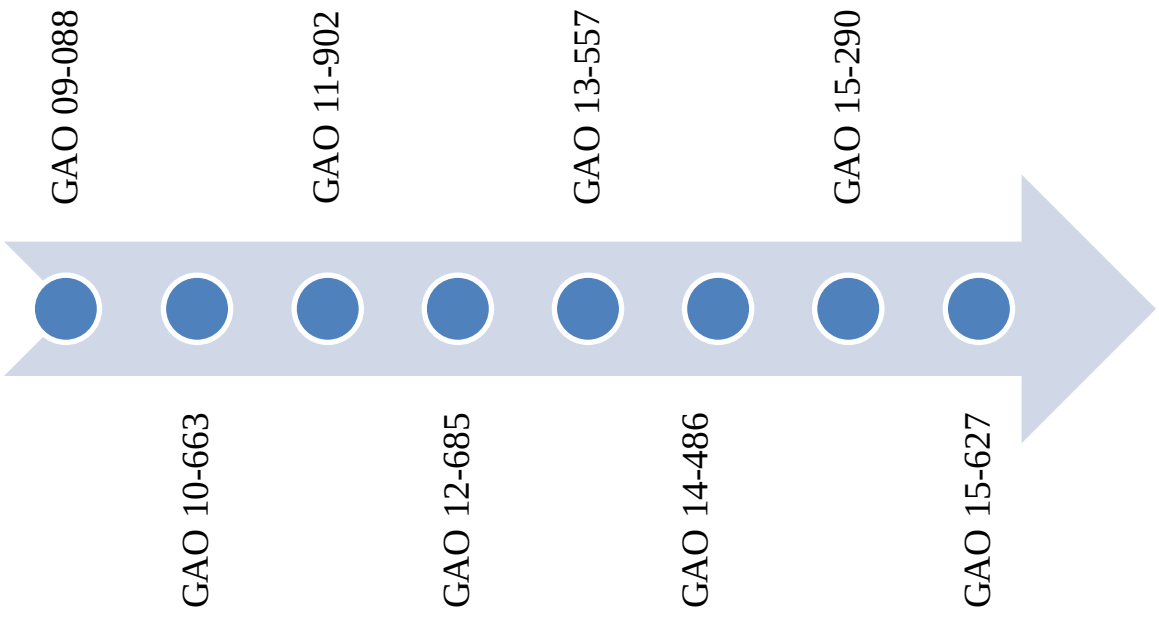
the act are implemented appropriately and successfully, thus creating accountability. The Act also holds the Director of the Office of Management and Budget (OMB) accountable for the improvement in the procurement through discarding of IT by the federal government (Clinger-Cohen Act, 2015).

### 3. GAO Reports

Since 1995, the GAO has stated the modernization of business systems is high-risk to the Government and has also issued multiple reports covering the progress with the modernization efforts. Section 804 of the Bob Stump NDAA for FY 2003 requires the Office of Secretary of Defense (OSD) and the DOD to implement various process improvements. Similar requirements have also been outlined in Section 332 of NDAA for FY 2005. Each statue requires that the DOD submit an annual report on the required aspects of the modernization efforts. The report is to contain specific actions taken and milestones met for meeting the requirements, detail specific improvements in operations and cost savings initiatives, the number of systems certified, and to identify any obligation on a system that exceeds $1 million. The modernization topic is of such a great importance due to the fact that the DOD allocates billions of dollars annually in order to maintain existing systems, as well as, develop new IT systems in order to support the warfighter and execute the mission. In 2011, it was reported that the DOD have over two thousand (2,000) IT systems in use that are covered by statutory requirements.

The GAO has performed multiple studies on the modernization effort by analyzing key information about each business system architecture in relation to identified core elements of the Enterprise Architecture Management Framework. Figure 2 provides a timeline of the various business system modernization reports issued by GAO. When evaluating the DOD's compliance with the act, the GAO analyzed policy and procedures of investment management, certification documentation for applicable system investments, and the latest transition plan. The cases below represent only a cross section of the available GAO reports, but show the gains and losses experienced by the DOD.

Figure 2. Timeline of GAO Reports




#### *a. GAO 09-888: DOD Software and System Process Improvement*

In the GAO-09-888 report, it was found that while OSD had implemented various process improvements that were required by statute, OSD had failed to implement any oversight measures in order to capture required metrics. OSD countered that "process improvement is a component of responsibility and thus it does not view oversight of component Software and System Process Improvement (SSPI) efforts as necessary" (GAO 09-888, 2009). According to the GAO, due to the lack of strong leadership over these efforts, OSD is not compliant with elements of Section 804 of the NDAA for FY 2003.

The GAO also found that while the DOD had implemented various process improvements, two (2) processes were not implemented in the mandated timeframe and that the implemented processes did not accurately fulfill the intent of the statue and other guidance (GAO 09-888, 2009).

#### *b. GAO 10–663: Business Systems Modernization*

In the DOD's FY 2010 report, the GAO found the content was incomplete, not capturing the appropriate rate of information needed to permit the meaningful oversight and understanding. The GAO stated that while the report included pertinent information, "other important performance measures, such as measures of progress against program cost, capability, and benefit commitments were not included in the report" (GAO 10-663, 2010). DOD officials countered that the lack of pertinent information was because these investments have not "progressed far enough in their life cycles to measure cost, capability, and benefit performance" (GAO 10-663, 2010). However, the GAO review found that the report did contain information on multiple investments that have produced savings and, therefore, these other investments can provide the same level of information related to program expenditures. The GAO also noted the DOD failed to provide key information about system investments due to the lack of reliable inventory of all DOD business systems. The report stated that the DOD can report on investments relative to expected costs even if capabilities and or benefits have not been partially or fully delivered. To further this lack of information, the DOD also had not fully defined policies and procedures at the corporate or component level. Based on these findings, the GAO indicated that some of the certification actions exclude meaningful and material information about known weaknesses in the system investments and the resulting actions are not sufficiently substantiated. Therefore, the provided congressional report was of "questionable reliability" due to the information used to substantiate and support budget requests and transition plans (GAO 10-663, 2010).

The GAO report details the metrics for key milestone statuses. Of the two hundred and twenty-four (224) acquisition, compliance and interim milestones: one hundred and twenty-six (126) were met, forty-six (46) were deleted and fifty-two (52) were delayed (GAO 10-663, 2010). However, when broken down, sixty-six (66%) percent of acquisition milestones and fifty (50%) percent of compliance milestones were not being met.

### *c. GAO 11-902: Organizational Transformation*

The GAO found that the DOD agencies and the Army concurred that a plan should be developed for meeting elements contained within the GAO framework; however, the Navy and Air Force did not concur with the recommended plan. While the DOD and Army concurred, the Navy and Air Force did not. The DOD countered that both the Navy and Air Force do not have the "valid business case" for that would warrant the execution of all framework components (GAO, GAO 11-902, 2011b). This report shows that on average the DOD has only fully satisfied twenty (20%) percent of elements, partially satisfied forty-four (44%) percent of elements, and not satisfied thirty-seven (37%) percent of identified elements (GAO 11-902, 2011b).

DOD officials have listed various issues that have impeded the modernization efforts to include lack of human capital resources with the applicable experience in upper management and a lack of funding (GAO 11-902, 2011b). Overall, the GAO once again concluded that the DOD is not positioned to fully maximize potential benefits of modernization efforts to include reducing the cost associated with "duplicative functionality" (GAO 11-902, 2011b).

### *d. GAO 12-685: DOD Business Systems Modernization*

As with previous reports, the GAO reiterated the DOD's inability to fully demonstrate its capacity to gather metrics in order to accurately measure the success of the modernization process. The GAO found that the DOD still has "not fully defined roles and responsibilities associated with the effort" and that the DOD still lacks a comprehensive database of all the business systems utilized by the department. While the DOD included data on over one thousand six hundred (1,600) systems for the FY 2013 submission, the GAO found that this lack of a comprehensive list potentially includes five-hundred (500) business systems, thus bringing to total of potential systems up to 2,100. It was also stated that the DOD still has yet to implement GAO Information Technology Investment Management framework key practices since the last review in 2011.

As with previous reports, the GAO again highlighted the DOD's inability to gather and analyze metrics in order to realize the full benefits of the modernization efforts. The

GAO noted that the DOD approved one hundred and ninety-eight (198) actions to run through the certification process that represents about $2.2 billion of the total modernization spending. While these actions were determined to need certification, decertification, or recertification, the GAO stated that the documentation for the basis of these actions is limited and, therefore, the grounds for which approvals were made are incomplete (GAO 12-685, 2012).

#### *e. GAO 13-557: DOD Business Systems Modernization*

The GAO found that the DOD still has challenges in regards to fulfilling certain actions to be compliant with NDAA for FY 2005 mandates. The act required that the DOD develop business enterprise architecture systems; however, the DOD still lacks a detailed implementation plan even though $379 million has been spent over ten (10) years. The act also requires that the DOD develop a transition plan, but the GAO found the latest version is missing key elements of the acts requirements (i.e., time-phased milestones and performance measures). The DOD also has to "establish an investment approval and accountability structure along with an investment review process," but the GAO found that the DOD still has not fully defined "the criteria and procedures for making portfolio-based investment decisions" nor a process (GAO 13-557, 2013). Lastly the act required that the DOD certify any system in excess of $1 million as compliant. While the DOD's approach included certifying over one thousand and two hundred (1,200) business systems for FY 2013 estimated at $6.8 billion, the DOD still has not ensured the accuracy of the system alignments through validation. The GAO also reported that reengineering assertions were not finalized and the outcomes were not contained in the submitted report (GAO 13-557, 2013).

During the FY 2013 review, the GAO found that the DOD has not defined a strategic approach to managing human capital requirements which restricts how successfully the DOD can address the acts requirements. This restriction puts the billions of dollars spent each year on over two thousand (2,000) systems at risk. Previous recommendations targeted "at achieving activities related to the business system modernization effort"; however, the DOD has not implemented over forty-five (45%)

percent or twenty-nine (29) recommendations (GAO 13-557, 2013). The DOD claims personnel turnover and changes to the requirements which expanded the scope of targeted systems that require certification and that the short timeline in which these activities have to be accomplished contributed to the noted GAO weaknesses.

#### *f. GAO 14-486: DOD Business Systems Modernization*

In 2014, the GAO found that the DOD certified and approved most of the business systems and updated the required transition plan, determining it to be compliant with the NDAA for FY 2005. However, the GAO reiterated the DOD's ongoing challenge in implementing certain requirements of the act. While the DOD has developed a framework that reflected various best practices, the GAO stated that the framework is not aligned and is lacking a review board that solely focuses of systems that are determined to be high risk. It was found that while the DOD certified roughly $6.4 billion expenditures for almost one thousand and two hundred (1,200) business systems; however, additional reviews are necessary to support the certifications and that department guidance does not mandate that pertinent information be collected to reduce duplication of business systems (GAO 14-486, 2014). However, unlike previous reports, GAO Report 14-486 concluded that the DOD did in fact make progress in the development of a transition plan included most of the documentation required by the act.

#### *g. GAO 15-290: High-Risk Series*

The GAO reported to congressional committee a High-Risk Series report updating progress on prior recommendations. The DOD segment of this report represents only part of the $3.5 trillion in outlays for FY 2014. This annual report examined the DOD's approach to business transformation, modernization efforts, managing infrastructure, financial and supply chain management, as well as, weapon system acquisition. While the GAO found that the DOD has "demonstrated" commitment to improve transformation efforts, unless the DCMO addresses prior issues (metrics to measure performance), the progress needed to transform the DOD into a more efficient and less costly entity will not happen (GAO 15-290, 2015a).

This report also focused on the lack of monitoring necessary for the assessment and reporting of progress. The GAO stated that the DOD still has not established protocol for monitoring the progress on the business transformation efforts across all the business functions impacted by this effort. It was noted by the GAO that the DCMO did not provide feedback to reporting officials, it was unknown if the information being submitted was complete or clear. However, the DCMO office later stated that the data provided by these reporting officials were unclear and not consistent across all functions. The GAO noted that unless standard reporting protocols and metrics are established and implemented, the DOD cannot determine the actual extent these efforts are helping achieve the modernization mission (GAO 15-290, 2015a).

While this report addressed the DOD Leadership's commitment to modernization efforts, it stated that additional steps are necessary to focus on key portfolio practices documented in the IT Investment Management Framework. As with other reports, the GAO once again determined that the appropriate information (cost, schedule, and performance) is reported and accurate in order to measure and demonstrate that the DOD is making progress in achieving expectations. The GAO also determined that the DOD needs to ensure that the appropriate level of resources is being allocated by conduction needs assessments and by ensuring the appropriate roles and responsibilities are established for future systems.

#### *h. GAO 15-627: DOD Business Systems Modernization*

The GAO preformed the study due to "the Senate Armed Services Committee Report for the NDAA for FY 2015 which included a provision that the entity evaluate the effectiveness of the DOD's business enterprise architecture and reengineering processes," (GAO 15-627, 2015b). In GAO 15-627 the GAO interviewed twenty-four (24) military department portfolio managers and other officials (GAO 15-627, 2015b).

Since 2011, the DOD has implemented five (5) of the sixteen (16) recommendations that addressed the provisions contained in the NDAA for FY 2005 and partially implemented eleven (11) of the recommendations. While progress had been made, the GAO made the determination that the efforts still are not achieving the expected and

intended results outlined in the statute. As reported in the aforementioned survey, portfolio managers stated that efforts were only reasonably effective in streamlining processes, current ineffective architecture systems constrained business system investments, and that the architecture could not produce dependable and timely data for the purposes of making informed decisions. The managers surveyed also reported a cultural resistance to change and a lack of necessary skills which contributed to the DOD's ability to achieve the acts envisioned results. It was also noted that if the DOD implemented the portfolio managers suggestions, that the DOD would achieve greater efficiencies in cost and performance and, therefore, better outcomes (GAO 15-627, 2015b).

### 4. DODIG REPORTS

#### *a. DODIG 2012-111 Increased Risks to DOD Auditability Goals*

Due to increasing costs and delayed schedules, Congress made a request for the DODIG to audit various DOD ERP systems. This audit was conducted in order to evaluate six (6) specific ERP systems required to produce "auditable financial statements" (DODIG, DODIG 2012-111, 2012). Information pertaining to each of these systems are provided in Table 2. The DODIG audit revealed that these six (6) ERP systems cost the taxpayer $8.0 billion over the initial estimate and took up to twelve and a half (12.5) years to implement and deploy the system. In this DODIG report, it stated that due to the reported delays, the use of antiquated technology will decrease the projected savings that would be realized with system modernization. The DODIG also stated that the continued use of antiquated technology will prohibit the DOD from being able to achieve preparedness for the FY 2017 audit.

Table 2. ERP System Background Information

| System Name | Initial Deployment Date | Current Number of System Users | Planned Number of System Users | Planned Number of Legacy Systems to Be Replaced |
|---|---|---|---|---|
| Army | | | | |
| GFEBS | 2008 | 46,000 | 53,000 | 107 |
| LMP | 2003 | 21,000 | 21,000 | 2 |
| Navy | | | | |
| Navy ERP | 2007 | 40,000 | 66,000 | 96 |
| Air-Force | | | | |
| DEAMS | 2007 | 1,200 | 30,000 | 8 |
| DOD | | | | |
| DAI | 2008 | 8,000 | 94,000 | 15 |
| EBS-EC | 2011 | Unknown | 700 | 7 |
| EBS-EProcurement | 2010 | 1,500 | 4,000 | 3 |

Source: DODIG, 2012-111 (2012, p. 12)

As a result of the DODIG 2012-11 audit, it was recommended that the Air Force, Army, Navy, DCMO and CMOs implement a methodology to review internal activities in order to restrict funding when a system cannot "demonstrate adequate business process reengineering," and also recommended that the Secretary of Defense (SECDEF) update the Financial Improvement and Audit Readiness (FIAR) Plan to track the effect of the DOD ERP systems on goals of obtaining auditable financial statements (DODIG, DODIG 2012-111, 2012). While the CMOs agree with the DODIG recommendations, only the Navy presented a plan for auditable data (DODIG, DODIG 2012-111, 2012).

#### *b. DODIG 2013–111 Status of Enterprise Resource Planning Systems' Cost, Schedule, and Management Actions Taken to Address Prior Recommendations*

After the analysis conducted under DODIG 2012-111, a request was made to update the findings during an audit conducted from February–July 2013. The rationale behind the audit was to ascertain whether or not there have been increases in cost or missed milestones

within the ERP systems since DODIG 2012-111 report (DODIG 2013-111, 2013). Since the last DODIG report, the DOD reported a $680.9 million cost reduction in four (4)of the six (6) systems highlighted in the previous report, however, a cost increase of $298.9 million in the other two (2) systems and three (3) additional delays (DODIG 2013-111, 2013).

## C. CHAPTER SUMMARY

This chapter has reviewed DOD's continuous struggle with successfully implementing all the requirements of the various National Defense Authorization Acts. Part of this struggle is due to different interpretations of the statues' requirements and lack of resources; however, due to technological advances over the last two (2) years, reports and findings are not a fixed target, but are continuously updated to mirror the current technological environment. As system modernization has progressed, the requirements contained within the act have evolved to better match the current technological environment. While the DOD has been able to implement some process improvements, the GAO concluded annually that the DOD is not fully executing the statute requirements and, therefore, did not capitalize on the overall impact of the modernization efforts nor able to effectively measure cost, schedule, and performance outcomes of these improvements.

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# III. CURRENT PROCUREMENT SYSTEM ENVIRONMENT

As thoroughly discussed in the previous chapter, the GAO has issued multiple reports stating which programs are determined to be high risk. The DOD is responsible for seven (7) of GAO's high risk areas, including: DOD's approach to business transformation, support infrastructure, financial management, supply chain management, weapon system acquisition, and contract management (Department of Defense, 2015b). Many of the aforementioned GAO high risk areas are beyond the intended scope of this project; however, in order to properly analyze business systems modernization efforts, it is important to understand the overall structure in which DOD operates within to implement new strategies and corrective actions. Accordingly, this chapter examines various aspects of DOD's organizational structure, stakeholder engagement, and strategic alignment as it pertains to necessary improvements to its business operations. This chapter also includes an in-depth discussion of DOD's strategic plan for defense wide procurement capabilities with particular emphasis on its CWSs.

## A. GOVERNANCE

As emphasized by the Department's Strategic Management Plan (SMP) for FY 2014–2015, the DOD is a highly complex organization, employing roughly three (3) million employees at over five thousand (5,000) locations, and has an annual budget of over $600 billion. "With such massive scale and a complex operating environment, it is crucial for DOD to efficiently execute its business operations" (Department of Defense, 2013, p. 6). In order for the DOD to successfully complete its mission, the procurement and other related systems are required to be efficient, agile, and effective. The SMP also states that effectively overseeing business operations is essential to achieving desired outcomes for improved business operations.

DOD's recently issued ASP for FY 2015–2018 emphasizes how effective management and oversight will drive the strategic goal of a successful implementation. The ASP also highlights that in order to achieve desired efficiencies and end goals, all leadership within the DOD must collaborate and take the appropriate action, specifically,

lead organizations are appointed as response for the cross-Departmental coordination for all goals. The stakeholders identified in Figure 3 report to the DMAG and DBC and are responsible for the management and implementation of strategic outcomes (Department of Defense, 2015b).

Figure 3. DOD Governance Forums, Stakeholder Roles, and Responsibilities.

| Stakeholder | Responsibility |
|---|---|
| **Deputy's Management Action Group (DMAG)** | Acts on behalf of the Deputy Secretary of Defense for executing a common management approach across disparate Departmental processes. |
| **Defense Business Council (DBC)** | Provide unified direction and leadership for the Department's business mission area, including approving the ASP. |
| **4th Estate Working Group + Military Departments** | Prioritize investments in functional and cross-functional transformation initiatives. |
| **Deputy Chief Management Officer (DCMO)** | Oversee the cross-functional development and execution of an integrated ASP and facilitate the monitoring, analysis and reporting of results. |
| **Principal Staff Assistants (PSA)** | Develop and manage the execution of business goals and initiatives. |
| **Components and Agencies** | Implement and report on initiative performance and milestone attainment. |

Source: Department of Defense (2015b, p. 39)

### 1. Deputy's Management Action Group

Serving as the DBSMC, the DMAG is accountable for implementing a consistent approach towards managing DOD's processes (Department of Defense, Strategic Management Plan (SMP) for Fiscal Years 2014-2015, 2013, p. 9). The DMAG "is the primary civilian-military management forum that supports the Secretary of Defense, and addresses top Departmental issues that have resource, management, and broad strategic and/or policy implications. The DMAG's primary mission is to produce advice for the DSD

in a collaborative environment and to ensure that the DMAG execution aligns with the Secretary of Defense's priorities as well as the planning and programming schedule" (Deputy Chief Management Officer, DCMO web page, "Governance," n.d.).

### 2. Defense Business Council

Section 901 of the NDAA for FY 2012, codified at Title 10 U.S.C. § 2222, established the DOD's single IRB, known as the Defense Business Council (DBC) (Department of Defense, 2014, p. 6). The DBC serves as the principal subsidiary body to the DMAG "for vetting issues related to management, improvement of defense business operations; and other issues to include performance management, pursuant to the Government Performance and Results Modernization Act of 2010" (Deputy Chief Management Officer, n.d.). The DBC leads efforts to reduce costs and optimize business operations as the DOD continues to implement institutional reforms. Because of shared interest and responsibilities with regard to business processes and system architecture, the DBC is now co-chaired by the DCMO and the CIO while continuing to evaluate management and business improvement issues for the DMAG (Department of Defense, 2015a).

### 3. Fourth Estate Working Group and Military Departments

The DOD Fourth Estate is comprised of organizational entities which are not in the Military departments or the Combatant Commands. These include the OSD, the Chairman of the Joint Chiefs of Staff, the Office of the Inspector General, the Defense Agencies, and Field Activities (Department of Defense, 2015a). The Fourth Estate business environment includes large, diverse organizations performing a complex set of functions. DCMO monitors baseline certification data from the Fourth Estate to pursue consolidation and business process improvement opportunities. Recent Fourth Estate measures include the consolidation and modernization of its portfolio, with server organizations being able to accelerate planned retirement of legacy systems or retire systems earlier than projected (Department of Defense, 2015a, p. 39).

### 4. Deputy Chief Management Officer

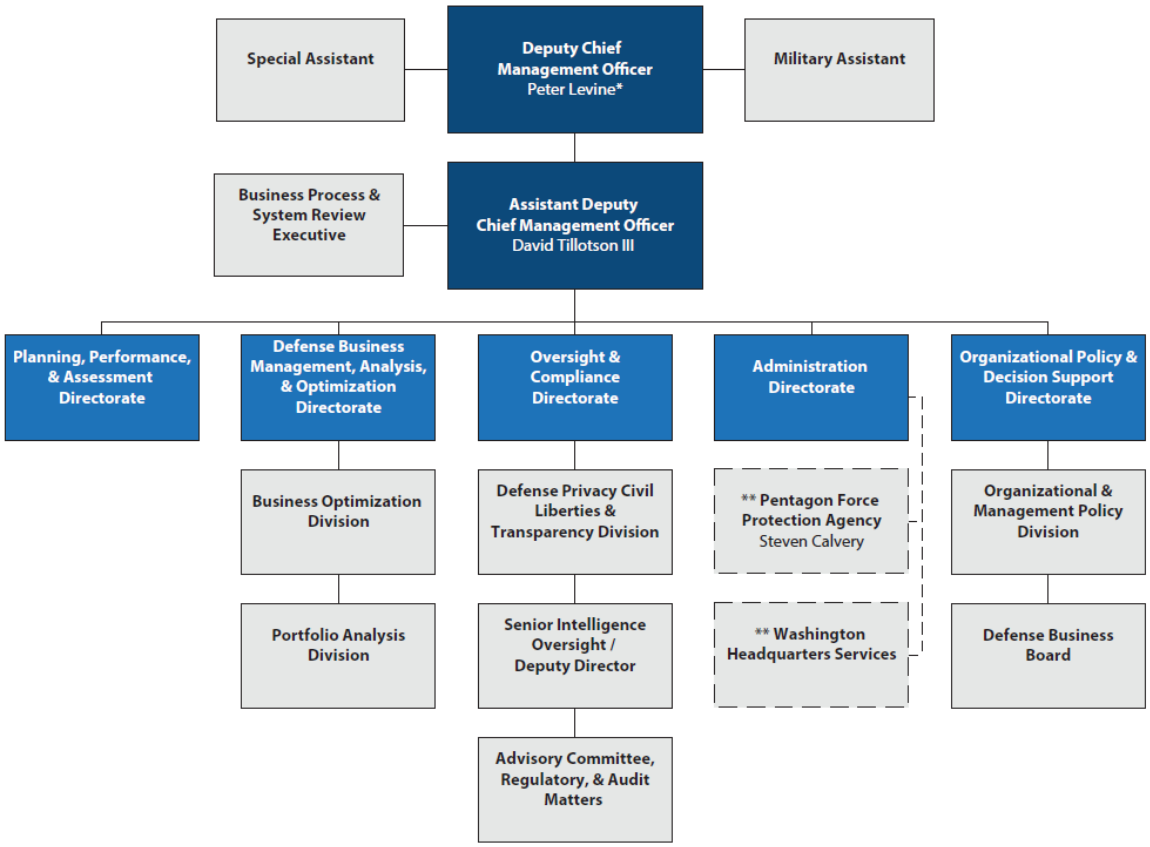
In 2007, the DCMO was established by Congress as an Under Secretary of Defense level position. The DCMO was founded to "synchronize, integrate, and coordinate the business operations of the department and ensure optimal alignment in support of the war fighting mission" (Deputy Chief Management Officer, DCMO web page, "About," n.d.). Acting as PSA and advisor to the Secretary of Defense and Deputy Secretary of Defense (DSD), the DCMO is paramount in serving as the DOD's Process Improvement Officer, creating a culture that is performance based which is piloted by strategy of cross-functional procedures, tracking established metrics, and ensuring requirements are met in a timely manner (Deputy Chief Management Officer, DCMO web page, "About," n.d.). The creation of the DOD's BEA, SMP, Investment Review Process, and ETP are the primary responsibility of the DCMO (Deputy Chief Management Officer, DCMO web page, "About," n.d.).

In order to fulfill the DCMO core mission, there are seven (7) core service offerings that be provided (Deputy Chief Management Officer, DCMO web page, "About," n.d.). As stated on the DCMO webpage, the seven (7) core service offerings are: 1) DOD business strategic planning, performance management, and oversight; 2) successful implementation and acquisition oversight of DOD business systems; 3) effective business portfolio and investment management; 4) rapid and agile business solutions provided for Combatant Commands and other in-theater customers to ensure that expeditionary business process work effectively and efficiently; 5) delivering the BEA, standards, and technology innovation; 6) E2E business process optimization, integration, and alignment to enable informed enterprise-wide decisions; and 7) business intelligence that enables data-driven, effective decision-making for DOD and other stakeholders (Deputy Chief Management Officer, DCMO web page, "About," n.d.).

As depicted by Figure 4, the Office of the DCMO is comprised of a combination of technical and industry experts that deliver a comprehensive suite of products and services through five (5) directorates: Planning Performance & Assessment Directorate; Defense Business Management, Analysis, & Optimization Directorate; Oversight &

Compliance Directorate; Administration Directorate; and Organizational Policy & Decision Support Directorate (Deputy Chief Management Officer, DCMO web page, "About," n.d.).

Figure 4. Organizational Structure for the Office of the DCMO.




Source: Deputy Chief Management Officer, DCMO web page, "About" (n.d.)

### 5. Principal Staff Assistants (PSAs)

The Secretary's PSAs act as business line owners, and fulfill a key role through the development of functional strategies that lay the foundation for the investment management process while also establishing the context for portfolio management efforts (Department of Defense, 2014, p. 3).

### 6. Components and Agencies

Comprised of Military of Departments, Defense Agencies, and Field Activities, the DOD Components execute and record data on all performance and milestone fulfillment (Department of Defense, 2015b, p. 39) During the investment review cycle, Components provide and explain respective roadmaps to the target environment described by the ETP, as established by the DCMO and DBC (Department of Defense, 2014, pp. 10-11). Components also generate problem statements for DOD's leadership that document the outcomes of investigations pertaining to problems, current capability gaps, and, or areas of opportunity (Department of Defense, 2014, p. 5). Additionally, Components provide the DBC with various BEA compliance assessments that enable the DBC to better identify and resolve risks (Department of Defense, 2014, p. 8).

### 7. Defense Procurement and Acquisition Policy (DPAP)

While not depicted in Figure 4, Defense Procurement and Acquisition Policy (DPAP) is another key collaborative stakeholder that drives the successful implementation of DOD's strategic goals (Defense Procurement and Acquisition Policy, n.d.). Under DPAP's purview are all matters relating to contracting and procurement, to include e-Business and the resulting implementation of policy through updates to DFARS and DOD Procedures, Guidance and Information (PGI) (Defense Procurement and Acquisition Policy, n.d.).

DPAP is composed of seven (7) directorates, summarized as follows: 1) DPAP Operations; 2) Contract Policy and International Contracting; 3) Defense Acquisition Regulation System; 4) Contingency Contracting; 5) Program Development and Implementation (includes Unique Identification and Purchase Card); 6) Program Acquisition; and 7) Services Acquisition / Strategic Sourcing (Defense Procurement and Acquisition Policy, n.d.).

DPAP contributes towards the governance of DOD's procurement capabilities from a functional perspective. Established by statute or regulation, requirements are scrutinized, ranked by importance, and then approved for execution by the Office of Federal Procurement Policy (OFPP) and the Acquisition Committee for e-Gov (ACE). These

prerequisites are then classified by those that impact Grants and Cooperative Agreements versus contract award processes (Department of Defense, 2016, p. 38).

As chair of the Procurement Business Operations Requirements Group (PBORG), the DPAP Director is responsible for providing authority as it relates to documentation standards, organizational procedures, and competencies to be used by all stakeholders (Department of Defense, 2016). As indicated in "The Plan," the PBORG consists of key personnel from the Military Departments as well as various Other Defense Agencies. The Plan also goes on to reiterate that the primary objective of the PBORG is to "achieve efficient and effective business operations through the use of data standards, internal controls, enterprise strategies for business systems and services, and electronic interfaces promoting systems interoperability, data accuracy, data visibility, and transparency of contracting data." In order to make the necessary decisions that impact the DOD procurement process, the Procurement Data Management Team provides any findings and/ or recommendations to the PBORG (Department of Defense, 2016, p. 38).

As required by Title 10 U.S.C. § 2222 and NDAA for FY 2008, DPAP works in concert with other functional sponsors to update the BEA to reflect the various laws, regulations, or policies that have been issued (Department of Defense, Strategic Plan for Defense Wide Procurement Capabilities (A Functional Strategy), Version 2.1, 2016, p. 8). In addition, DPAP has established the DOD Procurement Toolbox (available at http://www.dodprocurementtoolbox.com) to provide Components with a web portal to highlight the developing compliance criteria and functionality. The intent of the DOD Procurement Toolbox is to "document and describe the standards, services, and applications" pertinent to the DOD's procurement processes (Department of Defense, 2016, p. 8).

DPAP's program development and implementation for e-Business includes the following: Procurement Data Standard (PDS) and other enterprise initiatives; System for Award Management (SAM); Contracting Officer Representative Tracking (CORT) Tool; Federal Procurement Data System–Next Generation (FPDS-NG); Electronic Subcontracting Reporting System (eSRS); Federal Subaward Reporting System (FSRS);

Past Performance Information Retrieval System (PPIRS); Contractor Performance Assessment Reports System (CPARS); Federal Business Opportunities (FedBizOpps); American Recovery and Reinvestment Act (ARRA); Wage Determinations Online (WDOL); Clause Logic Service (CLS); Procurement Business Intelligence Service (PBIS); and the Wide Area Workflow (WAWF) e-Business Suite (Defense Procurement and Acquisition Policy, n.d.).

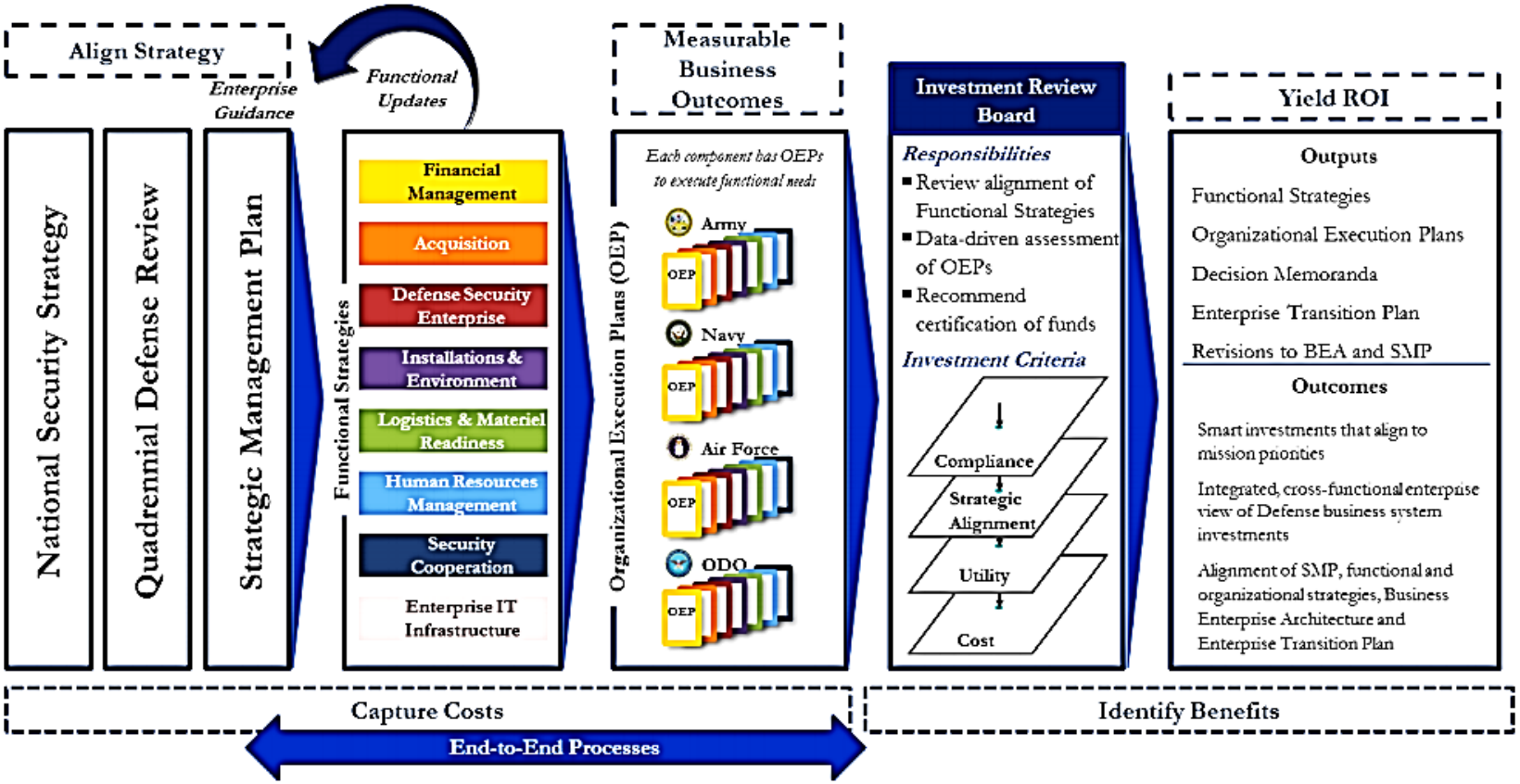
## B. MEASURING, TRACKING, AND REPORTING PROGRESS

According to the Plan, the Office of the DCMO controls a collaborative brainstorming group that includes the Office of Secretary of Defense (OSD), the DOD Components, and other stakeholders. The Plan also states that the DCMO must perform quarterly monitoring of "performance goals, measures, targets, business lines, key programs, and activities" (Department of Defense, 2015b). Progress and recommendations are closely monitored by DOD leadership to provide oversight and assistance to execute the DOD ASP (Department of Defense, 2015b, pp. 38-39). Through the existing governance forums depicted in Figure 3, the DOD continually develops the Plan, redefining performance goals and business objectives to implement evolving strategies (Department of Defense, 2015b, p. 40).

## C. INTEGRATED BUSINESS FRAMEWORK

The DBC provides the DOD with a context by which to examine and improve business operations through its management of the Integrated Business Framework (IBF) illustrated in Figure 5.

Figure 5. Integrated Business Framework. Source: Department of Defense (2013, p. 11)

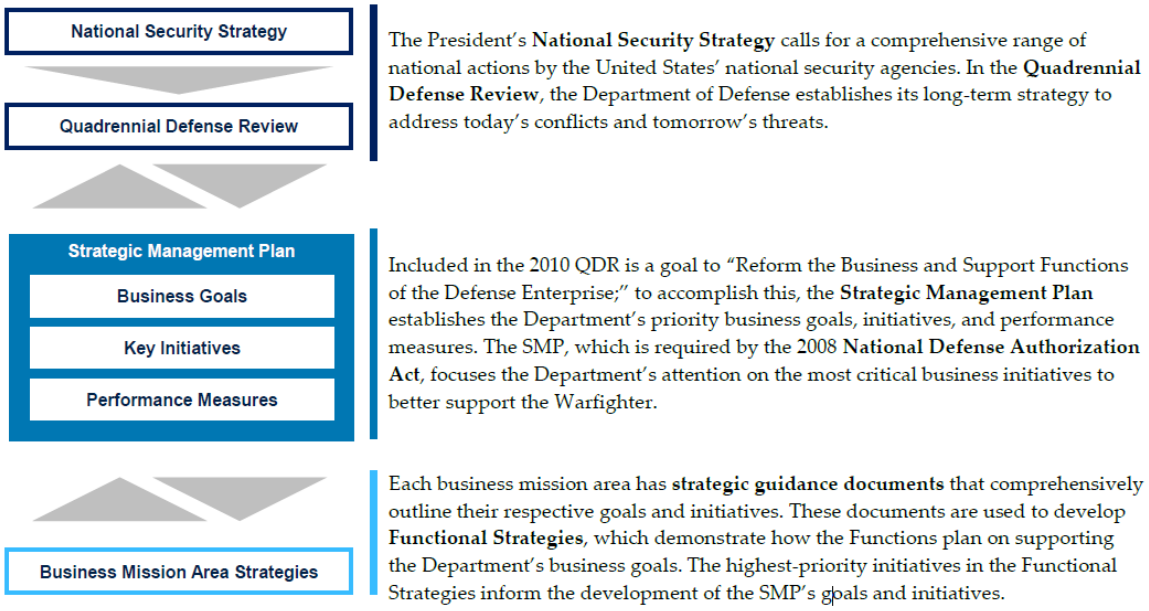


The DOD leverages this cross-functional framework to rationalize system investments, as business enablers, by aligning strategy with planned spending (Department of Defense, 2014, p. 2). The IBF is aligned with the guiding principles established in the SMP/ASP and enables DOD business leaders to instill a cost culture, institutionalize E2E business processes, align business operations, and modernize and rationalize business systems. The framework offers a critical and comprehensive structure for the DBC to establish DOD's strategic business priorities, select and align resources to priorities and make outcome-driven IT investment decisions which support the Department's business goals (Department of Defense, 2014, p. 2). The overall goal for the DOD is a state where: business and investment decisions are with the appropriate amount of information, mission proprietaries are aligned, and that produces a positive Return on Investment (ROI) (Department of Defense, 2013, p. 11). Primary components of the IBF are further discussed below:

### 1. Enterprise Guidance

According to the DOD SMP, the DOD's business processes are intricately interrelated to the realization of the President's mission for the National Security Strategy (NSS). The IBF begins with aligning the NSS, the President's Defense Strategic Guidance (DSG), and other enterprise-wide strategic documents such as the Quadrennial Defense Review (QDR), and the SMP/ASP to push the expansion and implementation of functional strategies that meet or exceed the DOD's business goals (Department of Defense, 2013, p. 11). Figure 6 depicts the linkage between the aforementioned enterprise-wide strategy documents.

Figure 6. Relationship between the SMP and Other Defense Strategy Documents




Source: Department of Defense (2013, p. 10)

### 2. Functional Strategies

The functional strategies developed by the Secretary's PSAs align with the SMP/ASP and address its goals, initiatives, and performance measures to assess progress against expected outcomes for each functional area.

> Functional strategies provide guidance to the Pre-Certification Authorities (PCAs) of the Components, who manage and request certification for their portfolios. They also provide key pieces of tactical direction to influence the development and management of the business systems that comprise a portfolio. Required elements include, but are not limited to: key initiatives; performance measures; and targets and projected outcomes achieved to date, presented as a percentage of target completeness. (Department of Defense, 2014, p. 3)

### 3. Business Enterprise Architecture (BEA)

As required by Title 10 U.S.C. § 2222, the DCMO is responsible for developing and maintaining a BEA (Department of Defense, 2014, p. 9). The BEA is an information

resource comprised of the following elements: functional business requirements; DOD-compliant architecture products; data requirements; standards; and policies and system alignment data (Department of Defense, 2014, p. 3). These elements are necessary to achieve DOD's plans to transform and mature the business environment. "Within the context of the business framework, the BEA integrates business objectives, such as direct Treasury disbursing, and compliance requirements, such as the Procurement Data Standard, identified in individual functional strategies. Together functional strategies and the BEA form much of the basis for funds certification, a key component of the IBF" (Department of Defense, 2014, pp. 3-4). As a critical element of the IBF, the BEA provides the alignment mechanism between strategic mission priorities for business operations and the capabilities, systems processes and standards that support the strategy (Department of Defense, 2014, p. 9). The BEA also "guides IT investment management to align with strategic business capabilities as required by the Clinger-Cohen Act, and supports OMB and GAO policies and strategies. The BEA supports the Department's overarching effort to improve business operations" (Department of Defense, 2014, p. 9).

According to DOD's 2015 Congressional Report on Defense Business Operations, "[d]espite being in version 10.0, the data from the BEA has not generated actionable reporting or conclusions for management of Department of Navy (DON) business systems. This year's deployment of the BEA compliance tool was not sufficiently supported, lacked sufficient training, failed to produce accurate reporting, and suffered from basic usability and access issues. With that, the DON has adopted a maturity model to improve the accuracy and completeness of compliance content given current constraints" (Department of Defense, 2015a, p. 19). The aforementioned Congressional report went on to discuss how DOD policy should be focused on limiting the scope of the BEA and on delivering actionable data. Specifically, rather than broadening the BEA's data collection effort with new taxonomies and classifications akin to E2E processes, a recommended change effort involved an increased focus on a single, high-value aspect and the generation of accurate, insightful data from smaller datasets. Furthermore, this 2015 Congressional report emphasized that the labor cost associated with BEA compliance needs to be carefully

assessed in the context of the benefits BEA provides (Department of Defense, 2015a, p. 19).

Despite the BEA's shortfalls discussed above, the 2015 Congressional report further emphasized that DOD actively uses the BEA and analysis tools for IT portfolio management and to identify candidates for duplication and overlap analysis, and that during FY2016, "the BEA will begin to add additional capabilities that include support for business process improvement and system investment and interoperability analysis. The BEA currently provides DBS information on the alignment to processes, functions, standards, operational activities, and system transitions with varying degrees of detail. As a first step, the BEA will add the ability to align DBS functions to mission lines of business as well as provide a sandbox review for new or proposed BEA changes" (Department of Defense, 2015a, p. 28). It is anticipated that these incremental improvements to the BEA capabilities "will enable the Department to not only improve the ability to analyze a portfolio for compliance and oversight but also provide organizations the ability to search the business architecture for existing enterprise systems and functions, standards, interfaces, and overall business process improvements" (Department of Defense, 2015a, p. 28).

#### 4. Organizational Execution Plans

OEPs are then developed by Components to describe how they will execute their respective business strategies. OEPs show how a Component selects its portfolio of IT investments to align to goals and objectives captured in the SMP/ASP, functional strategies, and the BEA (Department of Defense, 2014, p. 4). "OEPs also include certification requests presented to the DBC as portfolios of systems. Aligning business systems to the BEA allows the DBC to evaluate each Component's portfolio from a multi-dimensional perspective e.g., by Component, functional area or E2E process. The DBC reviews investments by OEP in a systematic manner through a four (4) filtered analysis of utility, strategic alignment, cost and compliance with legislation and regulations prior to certification" (Department of Defense, 2014, p. 4).

## D. ENTERPRISE TRANSITION PLAN

The ETP describes the target DOD business systems computing environment (otherwise known as the target environment) and is developed by the Office of the DCMO in close coordination with the DBC. This transition plan covers various DBS programs, supporting infrastructure (networks, information assurance, communications, etc.) and all applicable resources, all of which the DOD uses to direct and manage the principle business processes. The ETP identifies the set of blueprints and decisions to transition to the target environment and monitors transition progress (Department of Defense, 2014, p. 10).

In its 2014 report to Congress, DOD emphasized how the ETP has evolved from a voluminous paper-based plan addressing ninety-three (93) covered DBS in FY 2007 to a robust business intelligence tool providing interactive research capability for over one thousand one hundred (1,100) systems; and that newer iterations of the ETP act as a single point of access for obtaining comprehensive data on the business systems environment (Department of Defense, 2014, p. 10).

The aforementioned 2014 Congressional report further touted the following ETP functionality improvements: how users across the enterprise can now use the ETP to generate data visualizations and reports using dynamic queries; that the integrated ETP utilizes the same business intelligence analytics broker and data obtained for the FY 2014 certification process; that users have the ability to sort responses to queries by Component, cycle (primary, out-of-cycle or combined), business function or transition state (core or legacy); and how the enhanced ETP charts and analytics visualizations of complex data provide important information for stakeholders, DOD business leaders and governance bodies, and enable them to answer critical questions to make informed decisions about the business mission area (Department of Defense, 2014, pp. 10–11).

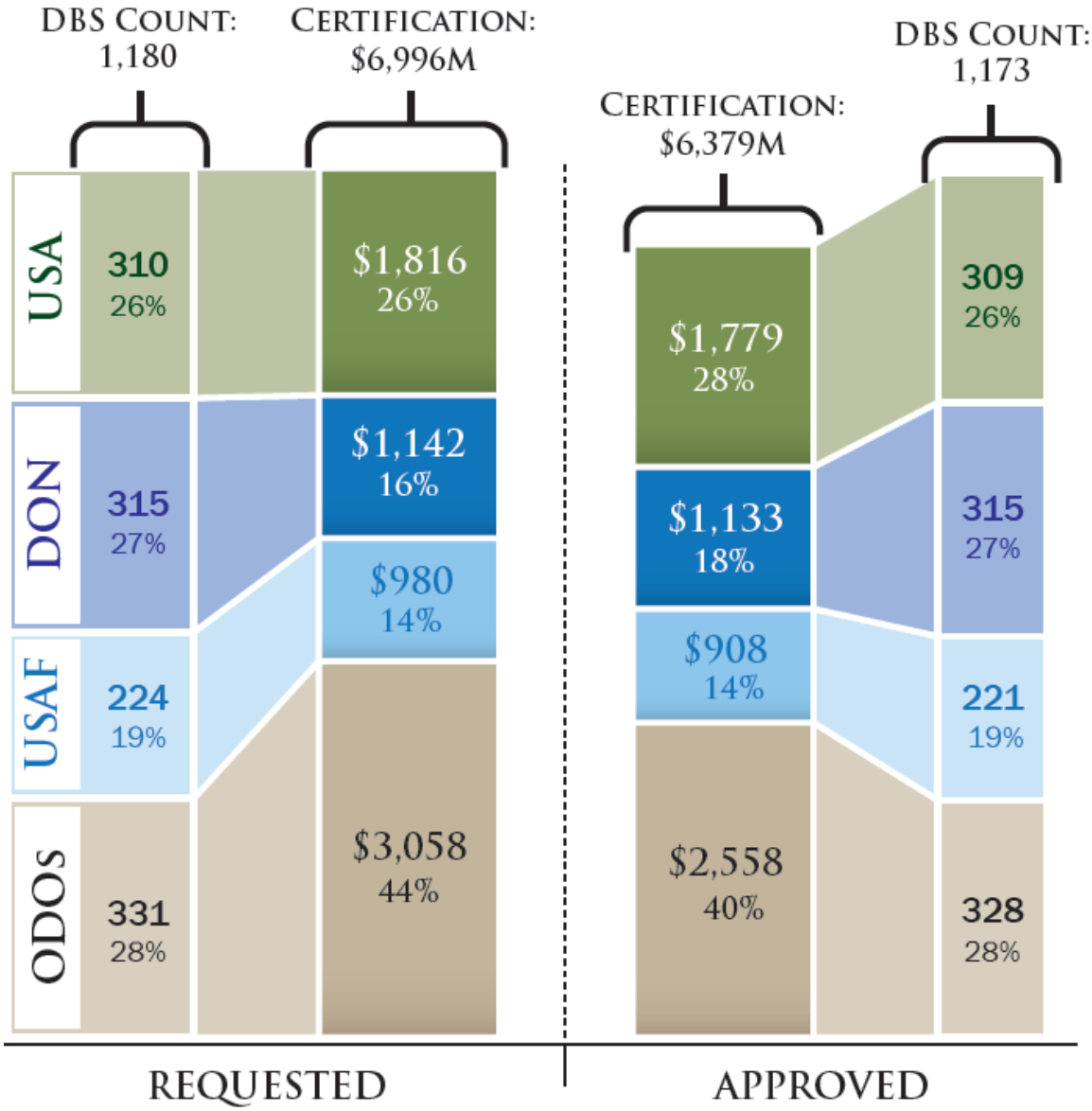
## E. BUSINESS SYSTEMS INVESTMENT CERTIFICATION

According to the Defense Business Council the DOD budgets over $7 billion per year for business system investments (Deputy Chief Management Officer, DCMO web page, “Governance,” n.d.). The DBC assumes the role of the DOD’s Investment Review Board (IRB) for business systems to ensure that DOD’s investment management process

is aligned to strategies, as well as working toward the modernization and elimination of legacy systems and permit interoperability (Defense Business Council, n.d.). Guidance to implement the review process is updated annually with a focus of business system investments being balanced in order to obtain cost savings that can then be redirected towards meeting current and future needs of the warfighter and overall mission (Defense Business Council, n.d.).

The business system investments within DOD are organized by portfolios, which are based on the component as shown in Figure 7 (the Other Defense Organizations (ODOs) portfolio consists of Defense Agencies and Field Agencies) (Department of Defense, 2014, p. 23). These components include the Federal Government, DON, United States Air Force (USAF), and ODOs.

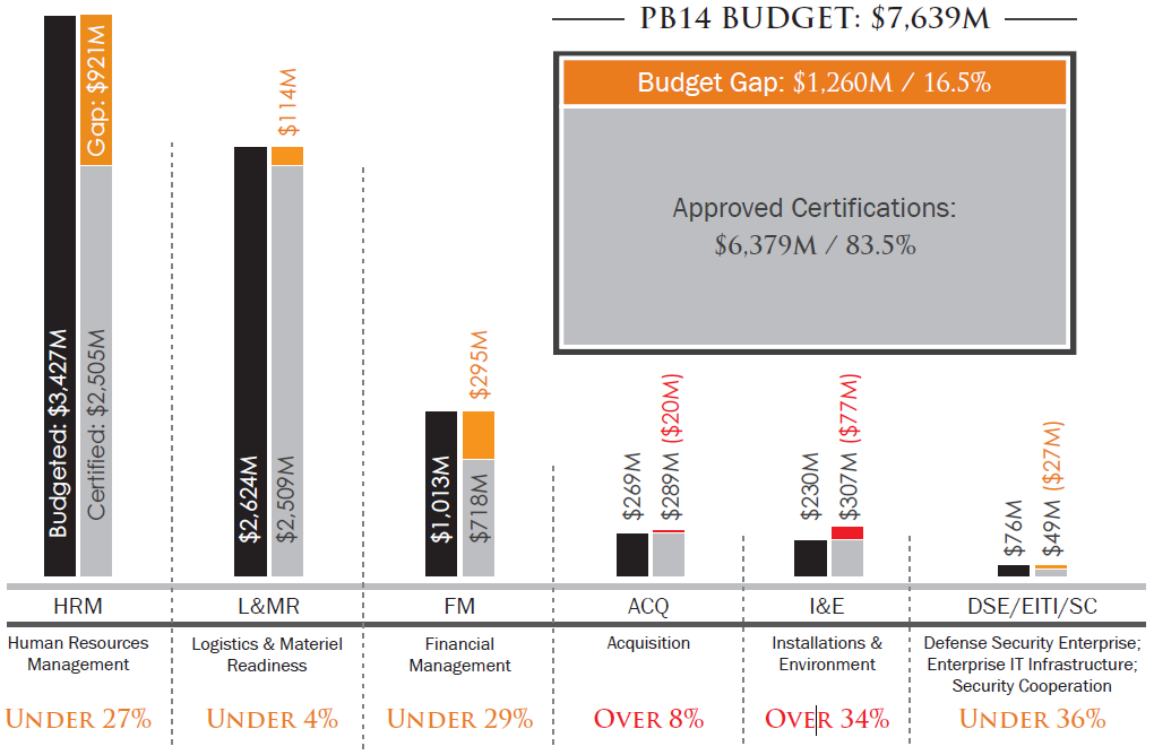
Figure 7. FY 2014 Requested vs. Approved Certifications by Component




Source: Department of Defense (2014, p. 23)

As shown in Figure 8, in FY 2014, funding in the amount of $6,996 million was requested for certification of DBS's; with approximately ninety (90%) percent of the requested funding being approved. The FY 2014 Presidential Budget approved funding at more than eight (8%) percent over the requested budget for the acquisition functional area.

Figure 8. FY 2014 Approved Certifications vs. Budgeted Amount by Functional Area




Source: Department of Defense (2014, p. 25)

In 2015, the DOD's overall budget investment trend for business systems decreased by five percent (5%), yet the total number of DBS remained relatively stagnant. Specifically, in 2015 DBC approved certification requests totaling $6,900 million for one thousand one hundred and eighty-two (1,182) business systems (Department of Defense, 2015a, p. 4)

## F. STRATEGIC PLAN FOR DEFENSE WIDE PROCUREMENT CAPABILITIES (A FUNCTIONAL STRATEGY)

As previously discussed by Section C of this chapter, there are various functional strategies which are developed by the Secretary's PSAs to align with the SMP/ASP and address its goals, initiatives, and performance measures to assess progress against expected outcomes within the IBF. The most pertinent functional strategy to any discussion of the current procurement system environment is the Strategic Plan for Defense Wide Procurement Capabilities (referred to earlier as "The Plan"); version 2.1 of which was

published as recently as February 2016 (Department of Defense, 2016). Developed with DOD Senior Procurement Executives and approved by the Director, DPAP, this Strategic Plan establishes a five year vision for the DOD's acquisition personnel. The Plan's vision is as follows:

> In order to minimize variation in contracting and simplify the design and development process for the next generation of systems, the Department is developing common services to enable data and business rule validation, provide clause logic, and distribute data between contract writing systems and the associated accounting and logistics systems. Employing this modular plug and play approach simplifies system development and enables agencies to choose the best technical solution to their individual needs and business environments. (Department of Defense, 2016, p. 3)

The Strategic Plan states that IT collaborations should allow Components to provide all required services and supplies which are necessary for the DOD's mission. These services and supplies are delivered through "innovative policy, guidance, and oversight while being good stewards of the taxpayers' money" (Department of Defense, 2016, p. 3). The DOD's intent for this approach is to utilize enterprise wide services and standards to establish and encourage uniform interpretation of guidance, policy, and legislation. The purpose of this intent is to reduce unnecessary investment and allow for the prompt implementation of policy and process change that allows unique procedures and requirements.

The Plan outlines a desire for the IT environment associated with DOD CWSs to meet defense-wide procurement capabilities, utilize common test criteria for validation and abide by electronic exchange data standards. Of upmost importance within The Plan is the "seamless use of data from authoritative sources"; therefore, "business intelligence and scorecards" are utilized to monitor and certify advancement and notify DOD's governing bodies of existing and future systems environment (Department of Defense, 2016, p. 3).

A COTS CWS is not currently available to meet the DOD's requirements. It is the intent of the DOD to develop an operating system that adheres to data standards that govern the core capabilities and business rules that allow Components to integrate commercial applications as well as develop unique capabilities based on specific business needs

(Department of Defense, 2016, p. 4). Key components of The Plan are further discussed below:

### 1. Contract Writing Systems Statutory Direction

Defense contracting is governed primarily by the FAR, DFARS (and associated supplements), along with DOD directives, and DOD instructions (Department of Defense, 2016, p. 8). As a result of regulation changes, defense contracting continues to experience changes with type change response cycles being eighteen (18) months or less. In order accommodate the changing regulations and policies, DOD CWSs would require functionality to enable customization in order to allow for updates due to emerging policy and guidance.

#### *a. E-Government Act of 2002*

By instituting goals, the E-Government Act of 2002 mandates requirements that the DOD must achieve within its business systems to ensure that efficiencies are realized with industry partners (Department of Defense, 2016, p. 8). Since the passage of this act, the DOD has improved transparency with regard to Government decision making by using the Internet to provide the general public with access to Government information (OMB, 2015, p. 7).

#### *b. National Defense Authorization Act of Fiscal Year 2013*

As required within Section 862 of the NDAA for FY 2013, the DOD has been directed to:

> Establish uniform data standards, internal control requirements, independent verification and validation requirements, and business process rules for processing requests, contracts, receipts, and invoices by the Department of Defense or other executive agencies, as applicable; Establish and maintain one or more approved electronic contract writing systems that conform with the standards, requirements, and rules established [above], and; require the use of electronic contract writing systems approved in accordance with [the electronic contract writing systems (above)] for all contracts entered into by the Department of Defense or other executive agencies, as applicable. (Public Law 112-339, 2013)

Since the passage of Section 862 of the NDAA for FY 2013, the DOD has implemented and released the mandatory criterions and business tenets. An update of DOD's progress was provided to Congress on 31 July 2013 (Department of Defense, 2016, p. 5).

### 2. Transparency

The Plan has provided a broader direction that addresses procedures across the entire procurement life cycle (Department of Defense, 2016, p. 5). According to The Plan, material and non-material factors within legacy DOD CWSs have impeded upon DOD's ability to comply with legislative policy to make DOD contracting actions available to the public, however, progress is now being realized through validation and verification processes.

### 3. Procurement Scenarios

Because contracting occurs worldwide, there are many different environments in which procurement can take place, such as an office environment in which modern automation is available, or in a contingency contracting environment in which operation is conducted in austere operating conditions with limited network connectivity (Department of Defense, 2016, p. 5). Contracting is then further defined into communities based on what that command procures, however, there are instances in which organizations that do not typically procure a certain type of commodity / service, must assist a sister organization in doing so. In order to receive acquisition packages from external organizations, procurement systems must be in place (Department of Defense, 2016, p. 5).

The contracting environment within the DOD is comprised of "operational/base level, major systems, and logistic/inventory control point" scenarios (Department of Defense, 2016, p. 5). The most complicating factor within these environments is the, "required integration with legacy, new, and emerging component systems within the requirements development, logistics and accounting areas in order to support the components requirements" (Department of Defense, 2016, p. 5).

#### *a. Major Weapon System Procurement*

Major weapon system procurement is supported by each branch within the DOD and is identified within The Plan to be the most complex contracting scenario. Because of the size and complexity of these contract requirements, it has been difficult to develop a Government contracting tool that accommodate the needs of this type of procurement without excessive modification (Department of Defense, 2016, p. 5). Currently Air Force's Contract Writing System (ConWrite), Army's PADDS, and the Navy's (and other Defense Agencies) SPS are the contract writing systems that support major weapon system procurement (Department of Defense, 2016, p. 5).

#### *b. Operational / Base Level Procurement*

This type of contracting can include a full range of contract types, products, services, and construction and is classified as less complex than major weapons systems procurement. The SPS contract writing system is most commonly used for operational / base level procurement (Department of Defense, 2016, p. 6).

#### *c. Inventory Control Point Procurement*

The Plan identifies this type of contracting as the least complex contracting scenario in which relatively simple contract actions are executed. The workload volume for this type of contract action is generally high, with a great deal of integration required amongst the CWS and the requirements systems (Department of Defense, 2016, p. 6). Currently Automated Contract Preparation System (ACPS), Integrated Technical Item Management (ITIMP), and EProcurement are the contract writing systems that support inventory control point procurement (Department of Defense, 2016, p. 6).

### 4. Current State of the Procurement Electronic Business Environment

As previously mentioned, since 1995 DOD has been designated as high risk because of the challenges within the DOD's business system modernization efforts. The procurement enterprise capabilities have automated manual processes and achieved efficiencies with pre and post-award contract processes; however, today there are seventeen (17) unclassified CWS in use within the DOD, each with shortages that do not

allow for long term usage without additional investment, material modification or complete implementation of a new system. Issues with the clause logical capabilities and legacy system architectures are the largest sources of issue within the DOD CWS.

While DOD continues to employ the use of seventeen (17) different CWS, there have been efforts to consolidate other business systems, such as the establishment of the PPIRS system to become the single source of past performance information; the integration within the WAWF suite to include the Electronic Document Access (EDA), CORT, or the establishment of SAM which replaced Central Contractor Registration (CCR) and the On-line Representations and Certifications Application (ORCA) tools (Department of Defense, 2016, p. 6).

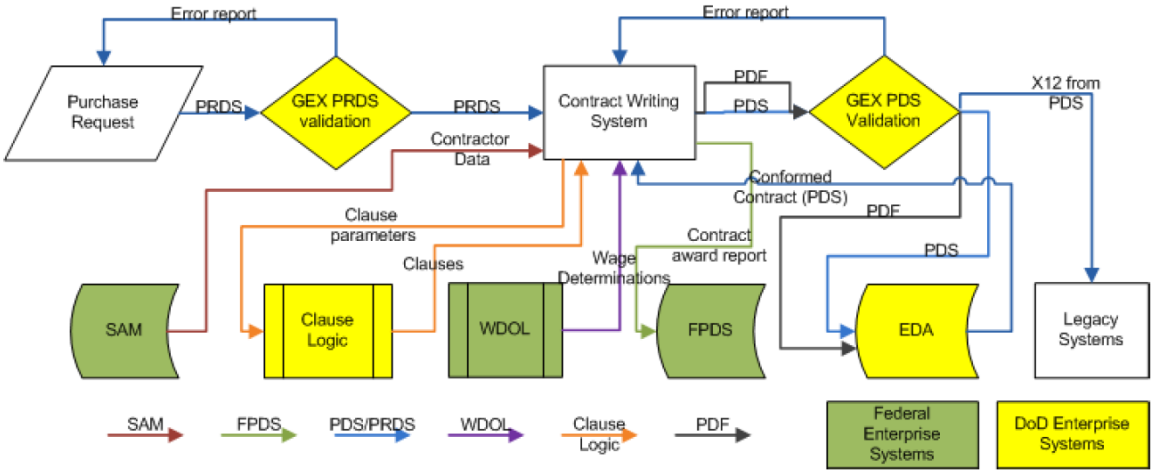
### 5. Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and Facilities (DOTMLPF)

"Re-engineering and readiness initiatives on DOD policy have prioritized actions to further develop internal controls and implemented data standardization to improve existing operations" (Department of Defense, 2016, p. 6). Appendix B shows a complete listing of the DOD procurement environment compared to the DOTMLPF framework.

### 6. Enterprise Systems and Services

"The System View (SV)-8 'Systems Evolution Description' presents a whole life cycle view of resources (systems), describing how they change over time. It shows the structure of several resources mapped against a timeline. The intended usage of the SV-8 includes: the development of incremental acquisition strategy and planning for technology insertion" (DoDAF Architecting, n.d.). The SV-8 architecture is mainly funded at the DOD level. The role of enterprise systems and services is shown in Figure 9. The goal when developing new information systems is to reduce duplicate actions and increase compatibility with other systems within the network, but also to acknowledge and allow for unique procedures and interoperability constraints (Department of Defense, 2016, p. 31).

Figure 9. Use of Enterprise Services in Contract Writing Data Flow




Source: Department of Defense (2016, p. 31)

DOD CWSs must be able to accept Purchase Request Data Standard (PRDS), import existing contract documents from Electronic Document Access (EDA) website and then import the specific contractor data from SAM, use the PRDS/PDS validation service at the Global Exchange Service (GEX), obtain provisions and clauses from the clause logic service, import wage determinations from the Wage Determinations On-Line service, validate modifications prior to award using EDA and GEX PDS validation service, then distribute contracts as PDS and Portable Document Format (PDF) documents, and, finally be able to report contract actions to FPDS-NG (Department of Defense, 2016, p. 31). Further information about the required capabilities for each of the aforementioned systems or services can be found within Appendix C.

The following capabilities are *not* currently provided at the enterprise level:

1. User interface for drafting documents
2. Document workflow
3. Records management of internal documents
4. Solicitation posting
5. Proposal receipt
6. Source selection tools

7. Cost analysis tools

In the future, functionalities such as solicitation posting, proposal receipt, and cost analysis tools could become incorporated in to enterprise services (Department of Defense, 2016, p. 31).

#### 7. Data Standards for CWSs

There are two (2) sets of data standards in use in DOD contracting- PDS) and PRDS (Department of Defense, 2016, p. 35) . As described in "The Plan," all DOD CWSs are required to adhere with the interface enterprise systems as well as the prescribed use of data.

PDS data is made up of data from American National Standards Institute (ANSI) X12 850 and 860 transactions, plus any data that may be required to recreate the contract documentation. Within the DOD, all future CWSs are anticipated to be compatible with currents PDS and to undergo regular updates (Department of Defense, 2016, p. 35).

PRDS contains the data within the purchase request (PR) which is required to support contract writing. Any system that creates a PR should be compatible with the PRDS when transmitting to external CWSs (Department of Defense, 2016, p. 35).

## G. FUTURE GOALS

The Government Performance and Results Act (GPRA) was established as a means to improve performance management and requires that all agencies engage in performance management tasks (Public Law 13-62, 1993). In order to be compliant with the GPRA, each agency must submit both strategic and performance plans, as well as, conducting a gap analysis of various agency elements. The strategic plan is to cover a five (5) year span that must contain the agencies mission statement and long term goals for each major component of the agency. The intent of the performance plan is to establish goals by fiscal year, as well as, how each goal will be accomplished and how each goal can be certified as complete. The annual progress reports are meant to detail both successes and failures in accomplishing identified performance goals.

On 4 January 2011, President Obama signed H.R. 2142 (GPRA Modernization Act of 2010 or GPRAMA) as Public Law 111-352 Section 10 which added the further requirement that agencies must publish their plans and reports in a machine-readable format (Wikipedia, The Free Encyclopedia, 2015). This Act also requires agencies to develop priority goals as required under Section 1120(b) of Title 31 U.S.C and that this information will be merged with the existing data required by Section 112 of Title 31 U.S.C. This updated Act further fits into the overall modernization goal that GAO has been reporting on the DOD since 1995.

As stated in the Strategic Plan for Defense Wide Procurement Capabilities (A Functional Strategy) Version 2.1, the DOD has laid out various objectives and initiatives for FY 2016 through FY 2018 as a roadmap for the modernization effort broken down by the overall goal (Protecting the Future and Improving Efficiency). These goals encompass both enterprise systems and component systems, as well as, touching on many of the various elements of contract writing from clause logic to Product Service Codes. In order to improve overall efficiency, the DOD has laid out thirteen (13) different initiatives (Department of Defense, 2016). Table 3 details each of these initiatives, the applicable policy, overall objective, and policy target:

Table 3. FY 14 – FY 15 Accomplishments Improving Efficiency

| Initiative | Policy | Objective |
|---|---|---|
| Re-engineer contract management Clause | Reference clause control PGI | Expand operational implementation and integration of clause logic service. Mature scorecards and validation strategies to measure clause compliance. |
| Standardize procurement and financial management electronic exchanges across the Procure to Pay (P2P) transaction life cycle. | Numerous References | Publish with the Comptroller procedures to address financial and procurement transactions |

| Initiative | Policy | Objective |
|---|---|---|
| Standardize processes and procedures for Intragovernmental Transactions | FAR 17.5, DFARS 217.5, 208.70, DODI 4000.19. | Continue to pilot electronic direct cite Military Intradepartmental Purchase Requests (MIPRs) capability using PR data standard in WAWF. Support Navy pilot with (In-Service Procurement Program (IPP) and Treasury for reimbursable MIPRs. |
| Standardize procurement and logistics exchanges across the transaction P2P life cycle to support GFP E2E | FAR 52.245-1, DFARS 252.245-7001 through 7004 and 252–245-7007 | Conduct outreach, training to ensure workforce understands ability to track Warranty E2E and Government Furnished Property (GFP), GFP scorecards issued quarterly |
| Establish enterprise capability to track appointment and training of Contracting Officer Representatives (CORs) | DODI issued, DFARS PGI 201.602-2 | Complete deployment of DOD wide COR tool as a module in WAWF; ensure metrics and training are provided. |
| Standardize procurement and financial management electronic exchanges across the P2P transactions | Numerous References | Measure the effectiveness of procedures (metrics) pertaining to data sharing across functional areas. |
| Improve collection of vendor data (including annual representations) | FAR 4.11, 4.12, DFARS 204.11, 204.12, 204.71 | DOD to ensure sponsorship for several proposals for the System for Award Management [managed by General Services Administration (GSA)] to improve vendor management. Implementation will occur in FY16/17 |
| Develop and enterprise capability to notify DOD regarding physically complete and closed contracts | FAR 4.8, DFARS 204.804 | Refine policy needed to ensure an enterprise capability. Automate contract closeout where feasible |

| Initiative | Policy | Objective |
|---|---|---|
| Virtual File Management/ Electronic File Folder | DFARS 204.802 | Enable enterprise view of contract status; establish official contract file rules to eliminate requirements for paper copies, avoid redundancy, and use enterprise resources. |
| Improve the management of high risk procurement | FAR 9.1 and 9.2, DFARS 209.1 and 209.2, FAR 13.106, FAR 15.304, FAR 42.15 and DFARS 215.304 | Develop and deploy increment 2 of PPIRS-SR to improve quality and usability of data on contractor performance to improve source selections especially simplified acquisitions. |
| Clarify rules for DoDAAC use | Numerous References | Clarify use of Department of Defense Activity Address Codes (DODAACs) for DATA Act Implementation; ensure use of procurement hierarchy in Department of Defense Activity Address Directory (DoDAAD) |
| Standardize policy and procedures for Contract Deficiency Reports | DFARS 204.270 | Develop and implement DFARS policy for Contract Deficiency Reports (CDRs) to improve contract quality; update module to track CDRs. |
| Consolidate and standardize the instances of Electronic Contract Management Reporting Application (eCMRA) | Pending regulatory coverage | With Under Secretary of Defense for Personnel and Readiness [USD (P&R)] achieve efficiencies for ECMRA reporting |

Source: (Department of Defense, 2016, p. 16)

To address potential future issues and protect the systems down the road, the DOD identified fourteen (14) different initiatives each with its own objective, as further detailed by Table 4.

Table 4. FY 14 – FY 15 Accomplishments Protecting the Future

| Initiative | Policy | Objective |
|---|---|---|
| Determine a Business Intelligence method to measure the Health of Contracting Offices | N/A | Develop and deliver V3.0 |
| Establish and implement a data standard for Purchase Requests | Numerous References | Implement PRDS across DOD; determine scorecard and implementation approach |
| Standardizing Procurement Identification Numbers | FAR 2012–203 final, DFARS 2015-D011 pending final rule | DFARS policy will establish DOD implementation data. Implementation underway. |
| Standardize line item contracting for the federal government | FAR case pending final rule publication | FAR case published for public comment under adjudication. |
| Establish an Product Service Code (PSC) to Object Class crosswalk | Policy Established with Deputy Chief Financial Officer (DCFO) memo signed March 15 | Establish governance for codes, code crosswalk, and tool maintenance. |
| Improve management of GFP | FAR 52.245-1, DFARS 252.245-7001 through 7004 and 252.245-7007 | Develop and E2E roadmap to guide implementation |
| Establish ability to efficiently determine vendor corporate family tree structure | FAR/DFARS | Implementation of corporate family tree underway, completion targeted for FY 2016 |
| Improve ability to measure compliance and DOD contracting trends | N/A | DOD will define and develop reports to enable transparency and P2P execution and traceability. |
| Develop an effective efficient method to present buying instruments to a large community | Numerous References | Redesign EMALL to enable a government wide automated process for selecting sources and managing award for common commercial products and services, and stock numbered items. |

| Initiative | Policy | Objective |
|---|---|---|
| Determine requirements for capturing and managing Contracting Officer warrants | DFARS 201.60 | Develop ability to store warrants in EDA. Army has developed a capability to manage, issue, and track warrants. The procurement community will assess this capability for enterprise use. |
| Business Process Management (BPM) Capability | N/A | DOD procurement community is assessing the need to develop and implement a BPM environment to fill gaps between commercial tools and DOD requirements as an enterprise capability. |
| Contract Line Item Number (CLIN) Service | To Be Determined (TBD) | Explore methods to enable better compliance with the Uniform Contract Format |
| Vendor Portal for Solicitation | TBD | DOD will explore possibility of an enterprise service to enable solicitation management. |
| Determine common role designators for access to procurement systems. | N/A | Determine approach to an enterprise service to enable common role designators for access to procurement systems. |

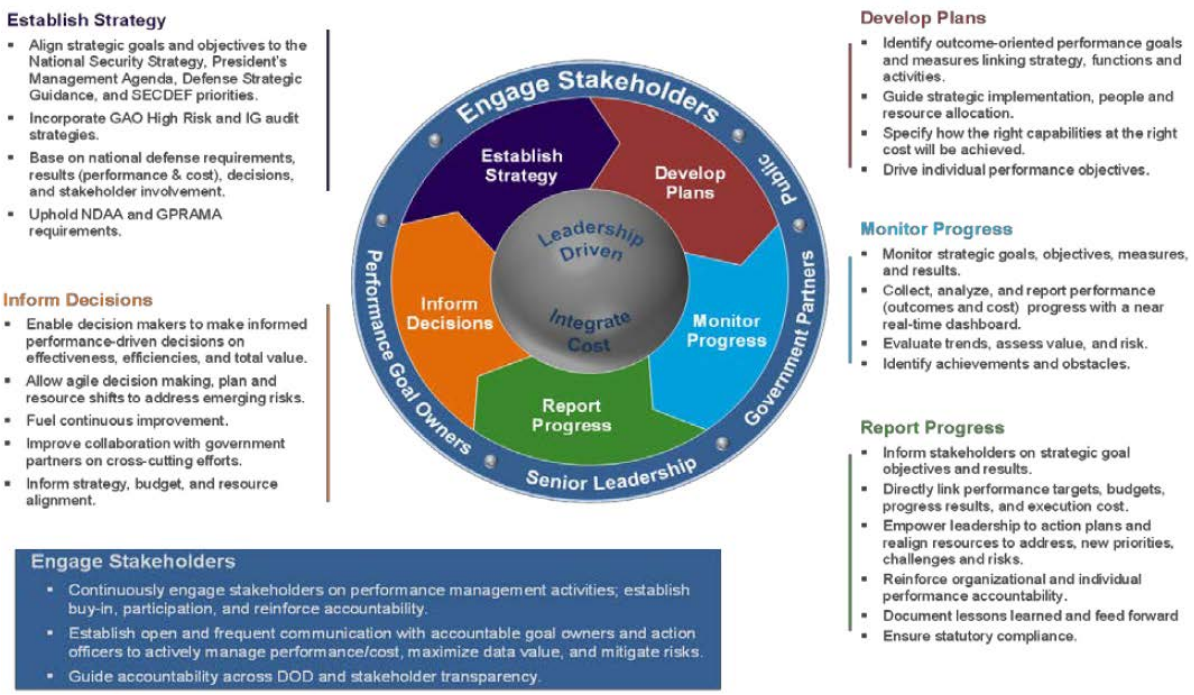
Source: Department of Defense (2016, p. 18)

As required by Title 10 U.S.C. §2222, the Secretary of Defense submits an annual report on DOD compliance to the congressional defense committees covering Defense Business Operations. From FY 2014–2015, the department continued to track progress of system certification based on the individual systems which have financial investments specifically for development and modernization that exceed $250,000 (Department of Defense, 2015a). By 2015, Mr. David Tillotson III stated that Defense Business Council certified 1,182 systems that accounted for $6.9 billion in investments (Department of Defense, 2015a). It was noted that of the $6.9 billion, $1.7 billion was specifically for Development/Modernization and that the DOD had retired multiple legacy systems through this process. The DOD reported that fifteen (15) or roughly sixteen (16%) percent

of systems with a certification request exceeding $250,000 all have a positive ROI. The DOD plans on focusing on the other seventy-seven (77) systems (all of which have a greater than $250,000 in Development and Modernization funds) which have yet to experience positive ROI or systems that have not been reported on.

The DOD's Management Strategy is one that provides a "disciplined approach to providing leadership with a linkage between performance management and resourcing decisions through strategy, planning, monitoring, and reporting; and manages progress toward achieving improvements" (Department of Defense, 2015a). In this strategy, the DOD identified multiple tactics which include incorporating the high risk areas identified by the GAO, complying with NDAA and GPRAMA, ensuring other statutory compliance, collecting and analyzing metrics, and providing real time data on cost and performance. Figure 10 details how each area transitions into the next and identifies each of the major stakeholders:

Figure 10. DOD's Management Strategy




Source: Department of Defense (2015b, p. 38)

## H. CHAPTER SUMMARY

This chapter has examined various aspects of DOD's organizational structure, stakeholder engagement, and strategic alignment as it pertains to necessary improvements to its business operations. This chapter also included an in-depth discussion of DOD's strategic plan for defense wide procurement capabilities with particular emphasis on its CWSs. The intent of which has been to provide a greater understanding of the overall structure in which DOD operates within to implement new strategies and corrective actions in order to establish the proper context for the analysis and recommendations regarding DOD's business systems modernization efforts that are subsequently included herein. The next chapter will provide a closer examination of CWSs currently being utilized by the authors.

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# IV. CASE STUDIES

## A. INTRODUCTION

The DOD business systems environment is incredibly complex. The intent of this chapter is to provide a more focused discussion of CWSs being utilized by the researchers to better enable the identification of specific improvement areas. Currently, there are approximately seventeen (17) unclassified CWS in the DOD (Department of Defense, 2016). The authors have direct work experience with the following CWSs: SPS, SeaPort-e, and PADDS. This chapter will provide a brief history, key functionalities, and problems/ issues for each of the aforementioned CWSs. The case studies developed in this chapter will be utilized to present an in depth analysis, as well as recommendations for improving DOD's business system modernization efforts in Chapters V and VI respectively.

## B. STANDARD PROCUREMENT SYSTEM (SPS)

### 1. Background

According to a 2002 GAO report that provided testimony from the Managing Director for Information Technology Issues, Joel C. Willemssen, the SPS program was established in November 1994 by the Office of the Director of Defense Procurement to serve as the foundation for DOD's multi-billion dollar business systems modernization efforts with the intention of consolidating all of DOD's contract management functions into a single enterprise-wide platform (GAO-02-392T, 2002). The testimony provided by the aforementioned GAO report went on to detail DOD's initial expectation that SPS would dramatically improve the efficiency and effectiveness with which the Department procured and administered contracts by replacing seventy-six (76) CWSs that existed at that time (GAO-02-392T, 2002). This testimony also provided information regarding SPS requirements development that occurred between 1994 and 1996, ultimately resulting in the award of a commercially procured contract to American Management Systems (AMS) in April 1997 with the direction that system functionalities be provided through a series of planned incremental releases (GAO-02-392T, 2002).

The implementation of SPS encountered a myriad of challenges that were identified by GAO and DODIG. Even by 2002, the aforementioned testimony highlighted the fact that "[o]nly two (2) legacy systems had been fully retired and two (2) partially retired, and DOD did not know what, if any, associated cost savings had resulted" (GAO-02-392T, 2002). This testimony went on to emphasize many other commitments DOD had made for the SPS program, but which the Department had failed to achieve.

While the DOD has responded to many of these SPS-related issues over the years, the CWS continues to run into obstacles that prohibit the system from achieving DOD's lofty initial goals and objectives. In acknowledgement of many of SPS' shortfalls, then Under Secretary of Defense for Acquisition, Technology and Logistics, Frank Kendall III, issued a memorandum 25 September 2014 that extended his previously established sunset date for SPS of 30 September 2015 to 30 September 2018 (USD AT&L Memorandum, 2014). The aforementioned memorandum provided the following: the DOD's objective is to migrate completely from SPS by 30 September 2020, this allows for contracts to be awarded through 18 September 2018 and administered through the cut-off date. By establishing these cut-off-dates it enforces that each Component should prioritize, budget, and plan for any future contracting needs (USD AT&L Memorandum, 2014).

Currently, the authors are observing the separate efforts of the Navy and the Army to replace the now over 20-year-old SPS CWS. Even though the authors have observed progress being made by the Navy and Army, there are still a number of obstacles and risks that need to be proactively considered and mitigated. All Departments moving forward with CWS development should take a closer look at challenges DOD faced with the implementation of SPS, and use those lessons learned as a way to mitigate future risks associated with a major CWS procurement.

### 2. Functionalities

Given the forthcoming sunset of SPS, the authors will place less emphasis on the system's functionalities. Instead, a general summary of SPS' functionalities will be provided as a means to highlight basic considerations for future CWSs. More emphasis will be placed on the functionalities of SeaPort-e and PADDS later in this chapter.

CACI International, Inc., a private-sector company that currently owns the data rights to SPS, deploys the CWS through its Procurement Desktop-Defense (PD2) application, and has published a brochure highlighting the functionalities of the PD2 v4.2.2 platform, some of which are included below (CACI International, Inc., 2016):

a. Requirements definition through PR forms, supporting documentation using forms and templates, and incorporation of technical information and specific clauses – The researcher notes the PR functionality is not consistently utilized at the Component level due to a myriad of Legacy systems which perform that capability.
b. At the CLIN level the contract type, quantity, product/service description, cost, and delivery information is captured. This information is also captured at the sub-Contract Line Item Number (SLIN) level, or Exhibit Line Item Number (ELIN) level – The researcher notes the functionality of line items at the sub-CLIN and ELIN levels is rather sub-optimal, and often conflicts with data standards (e.g., format/structure of lines of accounting) from Legacy financial systems.
c. Development of all standard solicitation and award documents through integration into a Microsoft Word document – The researcher notes the Microsoft Word version within SPS often conflicts with more current versions on the user's desktop, and users do not have sufficient ability to customize the system-generated documents to appear in a more professional manner.
d. Clause logic systematically selects appropriate contract terms and conditions via pre-selected parameters – The researcher notes that the clause selection logic is not intuitive enough, often results in duplicative or unnecessary clauses, or other discrepancies such as clauses being marked as read-only which actually require fill-in data (and vice versa).
e. Evaluation of sole-source and competitively obtained price proposals – The researcher notes this capability is not consistently utilized at the Component level.

f. Maintains the conformed contract document – The researcher notes this functionality is significantly sub-optimal.
g. Supports "concurrent modifications" – The researcher notes numerous problems have been incurred with this claimed capability.
h. Contract closeout on DD1597 and DD1594 – The researcher notes that contract closeout procedures in SPS often requires manual data entry in separate financial-related Legacy systems.
i. Contract Action Report (CARs) which sends data directly to the FPDS-NG website.
j. Contractor-provided SPS service and support – The researcher notes that many of the Contractor's claimed support services are rarely utilized at the Component level, and that Components expend additional resources of their own to address SPS-related issues.

## C. SEAPORT-E

### 1. Background

As stated on the Naval Sea Systems Command (NAVSEA) website, "SeaPort-e is the Navy's electronic platform for acquiring support services in twenty-two (22) functional areas including Engineering, Financial Management, and Program Management" (Naval Sea Systems Command, n.d.). SeaPort-e is utilized by NAVSEA, Naval Air Systems Command (NAVAIR), Space & Naval Warfare Systems Command (SPAWAR), Naval Facilities Engineering Command (NAVFAC), Naval Supply Systems Command (NAVSUP), the Office of Naval Research (ONR), Military Sealift Command (MSC), and the United States Marine Corps (USMC) compete their service requirements amongst 2.400+ SeaPort-e Indefinite Delivery/Indefinite Quantity (ID/IQ) Multiple Award Contract (MAC) holders. This online portal provides an efficient and standardized means of communicating, advertising, and requesting proposals from pre-approved industry partners. Task orders issued through the portal are awarded on a competitive basis and are administered using the platform. This online portal is paramount in engaging & meeting small business goals since almost eighty-five (85%) of approved industry partners are

Small Business Administration (SBA) verified small businesses. In order to submit a proposal as a prime in this portal, a company must enroll through the annual rolling admissions which allows new industry partners

NAVSEA procures over a half billion dollars of Professional Support Services (PSS) each year for its headquarters' Directorates, Program Executive Offices (PEOs), and field activities. The SeaPort-e Office was established in at Naval Surface Warfare Center Dahlgren Division (NSWC-DD) to bring organization to the acquisition of PSS and to meet the OSD performance based contracting directive. NAVSEA's vision for this portal was to provide "a faster, better, and cheaper means in which to procure PSS" (Naval Sea Systems Command, n.d.).

As stated on the NAVSEA SeaPort-e website:

> The strategy developed in October 2000 involved a product line solution containing three components: (1) Develop and award Multiple Award IDIQ contracts (MACs) using innovative acquisition techniques to achieve the NAVSEA strategic wedge, to conform to the OSD performance based contracting directive, and to bring order to PSS acquisitions. (2) Exploit existing e-business opportunities and create an automated, intuitive, web-based, e-procurement portal to provide services quickly and easily in an "amazon.com" environment. (3) Create a website continually refreshing customers and suppliers with new information, opportunities, training, metrics and useful links to associate sites. (Naval Sea Systems Command, n.d.)

In less than six (6) months, all three of these components merged and the portal was launched on 02 April 2001.

### 2. Functionalities

The portal consists of two (2) sides: The Proposal System and the TOMS. Each side feeds into a milestone function calculator which will send automated emails to the Contract Specialist should an agreed upon milestone is missed. Below details various functionalities of the SeaPort-e Portal.

***a. Proposal System:***

1. Online competition portal: Vendors submit proposals via the online portal exclusively. The Contract Specialist is able to download all proposals and applicable documents via the portal. Only subcontractors are allowed to submit un-sanitized proposals only directly to the Contract Specialist in order to protect proprietary information, if the subcontractor does not have a SeaPort-e account. Subcontractors can also upload via the portal and password protect proposal documents while emailing the Contract Specialist the applicable password. This exception is detailed in Section L of the solicitation.
2. Search Capability: On the proposal side you can search by Event Name, Description, Status (Current, Past, Future, Cancelled, Incomplete, Superseded), Category (various MACs in the Gov), Sub-Category [Solicitation, Request for Information (RFI), Draft Status, etc.], Zone, and Set-Aside Status. You can also search by Teaming Arrangements. This allows you to pull similar solicitations, advanced notices, and industry day announcements as part of the Market Research process.
3. Announcements: Industry Day/Advanced Notices: The Government can upload Draft Section C, Labor Qualifications, and estimated Level-of-Effort for vendors to ask questions about via the portal. The Government can let the industry partners know when the industry day is and other applicable information (estimated milestones, etc.).
4. Question & Answers: After the solicitation or Announcement is released, Primes can submit questions via the portal; the Government gets a notification and then can craft the appropriate answer which is also visible to all potential offerors Question and Answers are open to every company, not just the one answering the question. However, source selection integrity is intact, vendors cannot see who submitted the Question.
5. Annual rolling admissions: Primes can submit proposals to be accepted into the program, by applying vendors agree to many of the required Clauses and

Provisions first before submitting their first proposal. Vendors also have to propose caps on fee, pass-thru, and escalation.

6. Zones: The U.S. is broken down by zones and then further broken down by SBA classifications. If you want the prime to be in your area and an 8(a), you pick your zone and then can send the notice to just 8(a) Primes located within your zone. Or you can select all companies in the zone and further push for competition by allowing every company to know what just hit the street.
7. Number of proposals: When a solicitation closes, each vendor is shown how many proposals were submitted in response.
8. Source Selection: After the Source Selection Team has provided the required documents/training, they can register for SeaPort-e access if they do not have it already. The Contracting Officer and Contract Specialist have the ability to choose what documents in the portal the team has access to, ensuring the source selection team does not have access to cost related information.

***b. Seaport TOMS***:

1. Online Files: Both the COR and Contract Specialists have electronic files located in each task order where required documents can be uploaded and saved electronically.
2. Funding: When money is approved by Comptroller, it is automatically imported into the portal. SeaPort-e imports the Line of Accounting (LOA), Cost Center, and other applicable information from ERP (see below). The only time the LOA is hand typed is on the initial award (except for one-bids). Since Task Order Number has to be identified when creating a PR, this information is not supplied until after the award is released when competition is released in order to ensure procurement integrity and source selection information. When this information is omitted, it cannot be imported into the right task order electronic file. Within the Section G Section of the system, there is a drop down menu in Seaport showing all PR's that have been approved.

3. Other Systems – ERP: ERP is our main electronic system, this software handles financials, training, timecards, etc. SeaPort-e is linked to ERP, when a piece of funding is obligated on a mod, you check ERP to ensure the obligation was accepted by ERP (90% of the time it does).
4. Cost Realism: SeaPort-e has a search function where you can search by users mailbox, package status, activity, contractor, negotiator, Bilateral Task Order Status, document number, command, keyword, COR, or contract vehicle. If additional information is needed, the Contract Specialist can use this feature to assist in the cost realism process. However, this assumes the Contract Specialist's files are up to date – some commands do not enforce the utilization of this functionality.
5. Reporting: SeaPort-e can generate the following reports: Executed Task Orders, Option Expiration, Package Status, Small Business, Small Business Subcontracting, Solicitation, Task Order Award, Task Order Cumulative Status, Task Order, Modification Procurement Administration Lead Time (PALT), TimeStamp, and TimeStamp Per Package.

## D. PROCUREMENT AUTOMATED DATA AND DOCUMENT SYSTEM

### 1. Background

The PADDS is used by Army Materiel Command (AMC) at six (6) Major Subordinate Command / Life Cycle Management Commands (MSC/LCMCs) (LeGros, 2008). PADDS provides a standardized method that is used in the preparation, recording, processing, and maintaining of contractual instruments—whether administered in-house or assigned to another DOD contract administration service (CAS) component for administration (Site Purpose, n.d.). The purpose of PADDS is to provide a means of producing signature-ready solicitation and award documents with minimal manual input (CSC- St. Louis, 2013).

### 2. Functionalities

As indicated in the PADDS User's Manual, PADDS is able to execute the following interface functions:

a. Interface with funding data contained within the Logistics Modernization Program (LMP) program with minimal manual input.
b. Automatically connect to FPDS-NG website to complete the required CAR.
c. New PRs are built into PADDS from the Defense Automated Procurement Request System (DAPRS) or LMP interface once the PR is released for processing.
d. Automatically generate a PDF version of the contract/modification to be posted at the Defense Finance and Accounting Service (DFAS).
e. Automatically generate EDI transaction sets for the contract/modification for Mechanization of Contract Administration Systems (MOCAS).
f. Ability to automatically post solicitations and amendments to the FedBizOpps website.

Although there are many functions within the PADDS CWS it is the researcher's opinion that the current functionality offered by PADDS is not enough. The antiquated system is often undependable, experiencing frequent outages due to required repairs and does not reflect the vision set forth by the GAO. The researcher of this JAP that exclusively uses the PADDS CWS finds the below listed functionalities to be the most beneficial when executing duties as a Contract Specialist.

(1) Computation of regulatory and instrument clauses for solicitation and contract documents which are required by the FAR, DFARS, Department of the Army (DA), AMC, and local levels based on general criteria such as type of instrument, anticipated dollar value, kind and type of contract, and whether or not the acquisition is competitive.

(2) Ability for the user to change, add to, or delete clauses from the list computed for a specific instrument.

(3) Entry and maintenance of user supplied narratives at the instrument and line item level.

(4) Creation of contract lines, sub lines and exhibit lines in accordance with the DFARS.

(5) Processing of delivery schedule dates entered as either a firm or estimated date, number of days after award or as required.

(6) Calculation and validation of total line item quantities and dollar amounts and the total amount of the award or modification.

(7) Automatic accumulation of obligated dollar amounts by Accounting Classification Reference Number (ACRN).

(8) Capability to concurrently process multiple open modifications or amendments against the same instrument.

(9) Generation of appropriate standard and DOD procurement forms [Standard Form (SF) 18, SF 26, SF 33, SF 1449, and DD Form 1155] applicable to the solicitation or award instrument. All documents conform to the uniform contract format (UCF) specified by the DFARS and include completed table of contents entries and pagination (current page and of page values resolved).

(10) Generation of a contract distribution list with the award document when requested.

(11) Generation of an errata sheet with all solicitation and award documents. The errata sheet identifies regulatory clauses that were changed, added to, or deleted from the acquisition instrument.

(12) Standard Form 279. A Contract Action Report (CAR) will be generated for all contract, order and modification actions. A CAR will be generated for no dollar basic ID/IQ, basic ordering agreements (BOA) and basic purchase agreements (BPA). Upon validation of a contractual instrument requiring a CAR, PADDS will link to the Federal Procurement Data System website to initiate the creation of a CAR. Multiple CARs may be generated if the action includes Recovery Act funding, foreign military sales (FMS) and non-FMS requirements.

(13) Processing of multiple user organizations on one database and machine.

(14) The automatic updating of the Logistics Modernization Program (LMP) database as a by-product of the award process.

(15) Contract award documents, which are signed in PADDS, are loaded to the Electronic Document Access (EDA) website.

(16) PADDS has an automated method to track actions issued through EDI or actions exempt from EDI (depicted by head of contracting agency (HCA) class exemption or Contracting Officer determination). PADDS releases EDI transactions to vendor(s), public, or multiple commercial and government entity (CAGE) codes.

(17) PADDS contracts/modifications procurement documents are transmitted by EDI (transaction sets 850 and 860) to the MOCAS.

(18) PADDS has the ability to automatically forward synopsis of award to the Federal Business Opportunity website for contract awards greater than $25,000.

(19) PADDS provides the ability to generate a Pre-solicitation Synopsis and post the synopsis to the Federal Business Opportunity website.

(20) The Federal Acquisition Streamlining Act (FASA) of 1994 requires the capability to issue solicitations, receive and evaluate responses, and award purchases through the ANSI X.12 transaction sets. PADDS is capable of processing through the ANSI X.12 transaction sets.

(21) PADDS has the capability to allow the generation of Automated Delivery Orders (ADOs) against Indefinite Delivery Contracts (IDCs) based upon specific criteria which is established on the IDC.

## E. CHAPTER SUMMARY

This chapter discussed some of the primary functionalities of each of the three (3) CWSs used by the authors of this JAP. In addition, this chapter also provided an assessment of the most beneficial parts of each of the referenced three (3) CWS, based on each of the authors' experiences. The intent of this chapter was to provide a focused discussion of three (3) CWSs currently being utilized within DOD so that specific improvement areas could be better identified. The functionalities of the CWSs which were highlighted in this chapter

serve as examples of the potential shortfalls, redundancies, capabilities, and best practices that should be thoroughly considered by DOD leadership. The next chapter will apply an analytical framework to better address problems pertaining to DOD's business system modernization efforts.

# V. ANALYSIS

## A. INTRODUCTION

This chapter applies an analytical framework to better address problems pertaining to DOD's business system modernization efforts, and includes an evaluation of three (3) potential CWS alternatives. The intent for this chapter is to analyze the information previously presented herein for the purposes of determining potential root causes which are inhibiting successful modernization efforts. This discussion will provide the foundation for the authors' recommendations which will be presented in Chapter VI.

## B. THREE INTEGRATIVE PILLARS OF SUCCESS© ANALYTICAL FRAMEWORK

The TIPS© consisting of personnel, platforms, and protocols were initially developed by E. C. Yoder in 2010 to provide "an assessment and management tool for planning and executing contingency contracting operations" (Yoder, 2014). The essential premise was that, "[w]ithout all three pillars working in harmony, the contracting, planning, and associated support provided to the warfighter will be sub-optimized. Sub-optimization will result in lost efficiencies and effectiveness and, at worst, may act to subvert the COCOM objectives" (Yoder, 2010, p. 42). TIPS© was modified in 2013 to address the important distinction that the three (3) primary pillars of personnel, platforms, and protocols require a requisite foundation of authorization and appropriation, and that together all four (4) elements are required to be mature in order to support a successful organization (Yoder, 2014). The TIPS© analytical framework is illustrated by Figure 11.

Figure 11. Three Integrative Pillars of Success© (TIPS©)

Source: Yoder (2014, p. 16)

While the TIPS© analytical framework was initially developed as an assessment and management tool for contingency contracting operations, the authors have determined it to be incredibly suitable for analyzing the efficiency and effectiveness of DOD's CWSs. Doing so provides a systematic approach to addressing the myriad of complex issues presented earlier. Accordingly, the following discussion applies the TIPS© analytical framework to DOD's CWS environment to help determine if there are any sub-optimizations or maturity gaps that need to be overcome. Each TIPS© element will be defined and discussed separately to provide a more focused assessment. Following the discussion of each individual TIPS© element, the authors will provide an overall assessment regarding whether or not DOD's current utilization of its CWSs truly optimize the accomplishment of its mission objectives.

### 1. TIPS© – Authorization and Appropriation

The TIPS© foundation of authorization and appropriation emphasizes that "nothing gets accomplished without the funds to structure and execute pillars" (Yoder, 2014, p. 20). Chapter II discussed the extensive legislative authorities pertaining to the use of funds in

support of DOD's business systems modernization efforts, and Chapter III provided detail regarding how those legislative authorities have shaped the structure in which DOD operates within to implement new strategies and corrective actions. Examples of legislation which have significantly impacted DOD's business systems modernization efforts are listed below for further emphasis:

a. The Clinger-Cohen Act – This act was enacted in 1996 to improve how the Federal Government procures and disposes of IT hardware. The act required the DOD to appoint a CIO with delegated authority to ensure various aspects of the act were implemented properly, and assigned the Director of OMB the "responsibility for improving the acquisition, use, and disposal of IT by the Federal Government" (Clinger-Cohen Act, 2015).
b. Section 804 of Public Law 107–314 – Also known as the NDAA for FY 2003, required the OSD and the DOD to implement various improvements to software acquisition processes (GAO 09-888, 2009).
c. Section 332 of Public Law 108–375 – Also known as the NDAA for FY 2005, amended Chapter 131 of Title 10 U.S.C. § 2222 by inserting a new section for DOD's business systems, architecture, accountability, and modernization. The act established annual reporting requirements to congressional defense committees in order to ensure statutory compliance. As amended, Section 332 of the act addresses provisions pertaining to DOD's BEA, ETP, investment management, investment certification and approval, mandated budgetary reporting, and other such as human capital (GAO 15-627, 2015b).
d. Section 904 of Public Law 110–181 – Also known as the NDAA for FY 2008, established DCMO as an Under Secretary of Defense level position to strengthen the management of DOD's business operations (Deputy Chief Management Officer, DCMO web page, "About," n.d.). The NDAA for FY 2008 also amended Title 10 U.S.C. § 2222 to require DPAP, in concert with other functional sponsors, to update the BEA to reflect the various laws, regulations, or policies that have been issued (Department of Defense, 2016).

e. Section 901 of the NDAA for FY 2012 – Codified at Title 10 U.S.C. § 2222, established the DOD's single IRB, known as the DBC, which serves as the principal subsidiary of the DMAG to lead efforts to reduce costs and optimize business operations (Department of Defense, 2014).

While it is rather apparent that there are numerous legislative measures which have been enacted over the past two (2) decades to address DOD's business systems modernization efforts, the authors have presented a myriad of issues and challenges herein which continue to prohibit the successful achievement of intended outcomes. These challenges and issues are further underscored by a number of separate research efforts such as those which are captured by Dr. Jacques S. Gansler's and William Lucyshyn's 2009 report entitled "Transformation of the Department of Defense's Business Systems" which found that the Goldwater-Nichols Department of Defense Reorganization Act of 1986 and the Clinger-Cohen Act of 1996 overlap in the area of IT acquisition and introduce an unnecessary level of complication by making it more difficult to implement Defense business transformation because they blur responsibility and accountability (Gansler & Lucyshyn, 2009, p. 31). Dr. Jacques S. Gansler's and William Lucyshyn's 2009 report also found that the NDAA for FY 2008 complicated Defense business transformation by establishing DCMO as a new layer of management in the middle of the acquisition process which could potentially create additional confusion (Gansler & Lucyshyn, 2009, p. 31).

Information is readily available regarding DOD's overall business systems investment certifications. For instance, Chapter III provided recent data obtained from congressional reports on Defense business operations which show that approximately ninety percent (90%) of the FY 2014 requested funding in the amount of $6,996 million was ultimately approved, and that funding for 1,182 business systems in the amount of $6,900 million was approved in FY 2015; a decrease of approximately five percent (5%) from the FY 2014 appropriation. This captures just how significant the scope and scale is for DOD's business systems.

However, insufficient detail is provided with respect to the efficiency with which those funds are expended, and the effectiveness those funds have on DOD's overall

business systems modernization efforts. Additionally, the authors were unable to obtain funding-related information that provides sufficient detail regarding the true cost of the development and implementation of DOD's CWSs. If such CWS-related costs are being actively tracked by DOD, they do not appear to be captured in congressional reports which provide valuable insight for decision makers which are involved in the authorization and appropriation process. This indicates that the TIPS© foundation of authorization and appropriation for DOD's CWSs does not appear to be fully-optimized.

For these reasons, rather than analyze historical trend data pertaining to DOD's overall business systems investment certifications over the past two (2) decades, the authors present the following questions which should be considered by DOD and congressional leadership for the purpose of increasing the optimization of the TIPS© authorization and appropriation foundation with respect to CWSs utilized by the DOD:

a. How much funding is required to sufficiently modernize DOD's CWSs?
b. Is funding currently allocated for the development and implementation of DOD's CWSs efficiently being utilized?
c. Are there measures in place to monitor the effective utilization of funding which has been allocated for the modernization of DOD's CWSs?
d. Are there legislative actions that can be undertaken to positively incentivize Defense Departments to pursue long-term cost savings resulting from CWS development despite short-term cost barriers?
e. Are there ways to improve overall communication efforts between DOD and congressional leaders which would enable collaborative modernization efforts in a more proactive manner?

### 2. TIPS© – Personnel

The TIPS© pillar of personnel provides 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, pp. 42-43). Chapter III provided detail regarding how legislative authorities have shaped the structure in which DOD operates within to implement new strategies and corrective

actions, and included identification of key stakeholders responsible with decision making authorities for DOD business system modernization efforts. As demonstrated by the preceding analysis of the TIPS© authorization and appropriation foundation, many of the stakeholder and workforce concerns pertaining to CWS modernization are inextricably linked to funding and other requirements established by statute. This underscores the importance that both the TIPS© authorization and appropriation foundation, and the TIPS© personnel pillar, be in harmony with each other. While the authors acknowledge the criticality of ensuring DOD's workforce is appropriately staffed, resourced, trained, and otherwise equipped to foster CWS modernization efforts, particular emphasis is placed on stakeholder analysis.

a. In order to properly analyze the dilemma of DOD's business system modernization efforts with respect to personnel, the stakeholders involved in the decision making process should be closely examined. Accordingly, the stakeholders identified and discussed by Chapter III are summarized below for further emphasis:

b. DMAG – Serves as the "DBSMC, which is a joint committee of senior leaders, chaired by the DSD, responsible for executing a common management approach across" DOD's processes (Department of Defense, 2013, p. 9).

c. DBC – The DBC serves as the principal subsidiary body to the DMAG "for vetting issues related to management, improvement of defense business operations; and other issues to include performance management, pursuant to the Government Performance and Results Modernization Act of 2010" (Deputy Chief Management Officer, n.d.). The DBC leads efforts to reduce costs and optimize business operations as the DOD continues to implement institutional reforms.

d. Fourth Estate Working Group – This stakeholder is comprised of organizational entities which are not in the Military departments or the Combatant Commands. These include the OSD, the Chairman of the Joint Chiefs of Staff, the Office of

the Inspector General, the Defense Agencies, and Field Activities (Department of Defense, 2015a).

e. DCMO – This stakeholder is an Under Secretary of Defense level position which was established to strengthen the management of DOD's business operations (Deputy Chief Management Officer, DCMO web page, "About," n.d.). The DCMO is vital in serving as the DOD's Process Improvement Officer, creating a culture that is performance based which is piloted by strategy of cross-functional procedures, tracking established metrics, and ensuring requirements are met in a timely manner (Deputy Chief Management Officer, DCMO web page, "About," n.d.). The creation of the DOD's BEA, SMP, Investment Review Process, and ETP are the primary responsibility of the DCMO (Deputy Chief Management Officer, DCMO web page, "About," n.d.)

f. PSAs – The Secretary's PSAs act as business line owners, and fulfill a key role through the development of functional strategies that lay the foundation for the investment management process while also establishing the context for portfolio management efforts (Department of Defense, 2014, p. 3).

g. Components and Agencies – These stakeholders are of comprised of Military of Departments, Defense Agencies, and Field Activities which execute and record data on all performance and milestone fulfillment (Department of Defense, 2015b). During the investment review cycle, Components provide and explain respective roadmaps to the target environment described by the ETP, as established by the DCMO and DBC (Department of Defense, 2014, pp. 10-11).

h. DPAP – This is another key collaborative stakeholder which drives the successful implementation of DOD's strategic goals (Defense Procurement and Acquisition Policy, n.d.). DPAP accomplishes this from a functional perspective by scrutinizing, ranking by importance, and then approving for execution those requirements which have been established by statute or regulation.

The term stakeholder analysis is "the process of identifying the individuals or groups that are likely to affect or be affected by a proposed action, and then sorting them according to their impact on the action as well as the impact that action will have on them" (Stakeholder analysis, 2016). Stakeholders are those individuals that need to be considered in achieving project goals (Babou, 2008). According to Babou, the identification of all stakeholders is a critical element to ensuring the success of the effort.

It is the authors' belief that much of the DOD's failure to properly modernize their business systems, specifically the CWSs, is due to a failure in properly engaging the stakeholders who utilize DOD CWSs. It is the authors' opinion that there is a strong disconnect in the personnel/functionalities that rely upon a properly working CWS and those that are decision makers. This perspective is largely supported by the fact that none of the of governing documents discussed by Chapter III, fully identify or discuss all of the stakeholders which have been determined by the authors' as being integral to the success effort for CWSs. Accordingly, the authors present the following stakeholders which, in addition to the stakeholders identified above, should have more prominent involvement in the planning and implementation of any DOD CWS change efforts:

a. Contract Specialist / Contracting Officer – The Contract Specialist and/or Contracting Officer is the primary user of DOD CWSs. These stakeholders are responsible for the creation, execution, and modification of solicitations and contract documents within the CWS. In order to be able to perform these roles, these stakeholders need a dependable CWS that can be used for all types of contract actions. The DOD CWS should have maximum connectivity to other systems. Proper involvement of these stakeholders would result in a more refined CWS, and could result in dramatic improvement with respect to operational efficiency.

b. Budget Analyst / Financial Manager / Comptroller – These stakeholders impact the Contract Specialist and/or Contracting Officer's ability to properly obligate and/or de-obligate funding within the CWS. These stakeholders are integral to the processing of funding documents, whether that function is integrated into

the CWS or, more commonly, performed within a Legacy financial system which then interfaces with the CWS in conjunction with each contract action. Proper involvement of these stakeholders could significantly reduce funding-related complications which the authors contend often plague CWSs and burden the primary users.

c. Program Manager – These stakeholders are ultimately accountable for performance of the overall success of a program, and are inextricably linked to the functions performed by the contracting and budgetary stakeholders discussed above.

d. Supported Customers – These stakeholders represent the primary reason contract actions need to be executed from within a CWS in the first place. Proper involvement of supported customers will help ensure CWS functionalities are consistent with requirements drivers, and would provide valuable insight regarding the effectiveness of the CWS.

e. Contracted Entities – While these stakeholders are external to the development and implementation of DOD's CWSs, their proper involvement could yield valuable insight regarding the effectiveness of CWSs, as well as the potential incorporation of best practices from contracting methods amongst private industry.

f. Taxpayers – The taxpayer is the ultimate contributor of funding for CWS modernization, and DOD personnel salaries. It is imperative that the most efficient and effective CWSs are being utilized to ensure taxpayer dollars are being expended properly.

Based on the analysis presented herein, the authors have determined that DOD's current CWS environment is rather sub-optimal with respect to the TIPS© pillar of personnel. Accordingly, the authors present the following questions which should be considered by DOD leadership for the purpose of increasing the efficiency and effectiveness with which DOD's workforce is able to support CWS modernization efforts:

a. Who are the stakeholders involved with CWS modernization efforts, and are those stakeholders integrated properly?
b. Do DOD leaders responsible for CWS modernization, as well as users of the CWSs themselves, possess the requisite training and experience?
c. Who are the users of the CWS, and what are their needs?
g. How many users of the CWS are there?
h. How much concurrent usage of the CWS is there? Average? Peak?
i. What type of transactions do users need to perform within the CWS?
j. How many transactions are being performed? And when?
k. How long does it take for users to perform transactions within the CWS?
l. Are there potential transactional savings (in terms of both cost and time) of CWS alternatives being considered? If so, how can those transactional costs be determined, measured, and reported to leadership?

### 3. TIPS© – Protocol

The TIPS© pillar of protocol is "defined as the rules, decision-making framework, and business models employed" and consist of the "complex set of logic-based systems that allow business operations to follow sound practices" (Yoder, 2010, p. 43). Chapter III provided detail regarding how legislative authorities have shaped the structure in which DOD operates within to implement new strategies and corrective actions through the DBC's management of the IBF, illustrated by Figure 5. Within Chapter III, the authors discussed how the IBF leverages a cross-functional framework to rationalize system investments, as business enablers, by aligning strategy with planned spending (Department of Defense, 2014, p. 2). The IBF is aligned with the guiding principles established in the SMP/ASP and enables DOD business leaders to instill a cost culture, institutionalize E2E business processes, align business operations, and modernize and rationalize business systems.

Primary components of the IBF were previously discussed by Chapter III, but are summarized below for further emphasis:

a. Enterprise Guidance – The IBF begins with aligning the NSS, DSG, and other enterprise-wide strategic documents such as the QDR, and the SMP/ASP to push the expansion and implementation of functional strategies which meet or exceed the DOD's business goals (Department of Defense, 2013).

b. Functional Strategies – The functional strategies developed by the Secretary's PSAs align with the SMP/ASP and address its goals, initiatives, and performance measures to assess progress against expected outcomes for each functional area (Department of Defense, 2014). Chapter III further detailed a particular DOD functional strategy entitled the "Strategic Plan for Defense Wide Procurement Capabilities (A Functional Strategy)" which is integral to the development and implementation of CWSs

c. BEA – DCMO is required by Title 10 U.S.C. § 2222 for developing and maintaining a BEA (Department of Defense, 2014). The BEA is an information resource comprised of the following elements: functional business requirements; DOD-compliant architecture products; data requirements; standards; and policies and system alignment data (Department of Defense, 2014). These elements are necessary to achieve DOD's plans to transform and mature the business environment.

d. OEPs – OEPs are developed by Components to describe how they will execute their respective business strategies, and show how a Component selects its portfolio of IT investments to align to goals and objectives captured in the SMP/ASP, functional strategies, and the BEA (Department of Defense, 2014).

e. ETP – DOD's ETP identifies the set of blueprints and decisions to transition to the target environment and monitors transition progress (Department of Defense, 2014).

The authors acknowledge the extensive governing documents which address DOD's business systems modernization efforts; however, based on the myriad of issues and challenges regarding these governing documents which have been presented previously, the authors have determined these governing documents fall short of achieving

intended outcomes. Just because so many governing documents exist to support DOD's business systems modernization efforts does not necessarily mean they are fostering efficient and effective operational capabilities. In review of the various governing documents identified above, the authors found a significant lack of detailed information with respect to CWS development and implementation, which indicates that particular aspect of DOD's modernization efforts has not been sufficiently emphasized. Therefore, and based on the analysis presented herein, the authors have determined that DOD's current CWS environment is sub-optimal with respect to the TIPS© pillar of protocol.

Targeted improvements to the TIPS© pillar of protocol may be accomplished through issuance of new or revised regulations, guidance, and policies; but the authors emphasize the importance of remembering the challenges and pitfalls of the past before simply adding to the problem with yet even more direction. Accordingly, the authors present the following questions which should be considered by DOD leadership for the purpose of increasing the efficiency and effectiveness with which DOD's protocols support CWS modernization efforts:

a. Are the myriad of separately published functional strategies properly integrated?

b. Does DOD's ASP truly account for the CWS needs of individual Departments and/or Components?

c. Are there governing documents available that could be revised to more directly deal with a particular problem which is inhibiting CWS modernization?

#### 4. TIPS© – Platform

The TIPS© pillar of platform consists of "those hardware and tangible software systems that provide the mechanisms for analysis, decision making, and communication" (Yoder, 2010, p. 43). This TIPS© element encompasses a significant amount of the information presented within this document, and is the primary focus for this JAP.

Currently the DOD is facing increasing pressure to modernize the enterprise architecture system, which includes CWSs. As previously discussed in Chapter II, the GAO

has issued many reports stating these areas are determined to be high risk and the DOD is currently utilizing seventeen (17) various CWSs (excluding legacy or homegrown systems) which interface with the CWSs. Accordingly, the authors' analysis pertaining to the TIPS© pillar of platform will provide a more thorough discussion of three (3) alternatives with which DOD could employ in its efforts to modernize its CWSs

#### *a. Why Modernization is Important*

In February of 2015, the Anthem Blue Cross Blue Shield computer systems were compromised in a sophisticated data breach impacting 78.8 million people, of which 1.3 million were federal employees (Anthem medical data breach, 2016). In June of 2015 the Office of Personnel Management discovered a major security breach that had taken place in early 2014. This data breach impacted 21.5 million federal employees to include retirees and others who had undergone a background investigation for employment purposes (Office of Personnel Management data breach, 2016). Due to increased cybersecurity threats, the rapid pace at which computer technology is evolving, and the ages of the CWSs currently being utilized, the modernization effort is receiving ever increasing visibility. Currently, each Department has almost no immediate incentive to implement a new CWS and the short term risks (cost, human resources, time, and training) associated with the modernization effort act as a deterrent from major progress. However, due to the rise in cybersecurity breaches, the use of antiquated technology, software systems requiring higher amounts of memory, and increased processing speeds, the modernizations effort is already long overdue and the modernization of the CWS used by acquisition professionals is reaching a critical point.

#### *b. Identification of Alternatives*

The DOD has three (3) high level alternatives available, two (2) of which actually meet the GAO requirements and one does not. These alternatives are as follows: 1) implement an enterprise wide CWS; 2) implement Department specific CWSs; and 3) maintain the status quo.

Alternative 1: Enterprise Wide CWS

Implementing the same CWS for the entire DOD: The approach to this alternative involves the DOD migrating to one (1) system or two (2) specific systems that contain all the necessary functionality. These systems would be utilized by all acquisition professionals. This system or systems would be responsible for awarding and administering multiple types of contracts (Large Contracts, Sole Sources, SAPs, etc.).

Alternative 2: Department Specific CWS

Each Department implementing their own CWS: This alternative allows each Department (Army, Navy, Air Force, Joint Chiefs of Staff, and the Office of the Secretary of Defense) to choose or develop a CWS independently allowing for customization. These systems would be responsible for awarding and administering multiple types of contracts (Large Contracts, Sole Sources, SAPs, etc.) and tailored to that Departments specific needs in terms of functionality and feeder systems.

Alternative 3: Status Quo

Status Quo is a Latin phrase meaning "the existing state of affairs" (Status quo, 2016). This alternative is to maintain the current seventeen (17) systems used by each Department. This alternative allows each Department to keep monetary costs associated with modernizing the CWS low in the immediate future.

#### *c. Criteria for Selecting Alternatives:*

Six (6) selection criteria were established in order to analyze each alternative against. The first of the six (6) criteria is Resources: How much time, money, and effort will be invested into this solution? The second of the six criteria is Complexity of Implementation: How complex will this solution be? The third is Infrastructure: What is the impact to the current Information Technology Infrastructure? The fourth is Compatibility: How compatibility will the new CWS be with the existing IT Infrastructure. The fifth is GAO Compliance: Is this alternative compliant? The final is Cybersecurity Risk: What security risks are associated with this alternative and what is the possible impact of a security breach? These criteria help identify and address various root causes

that are or can impede the modernization effort and risk ratings (Green/Low, Yellow/ Moderate, and Red/High) used in the analysis process.

For the purposes of analyzing the alternatives, the authors of this JAP used the following definitions. Green (Low) is defined as the alternative has strengths or benefits that outweigh any weaknesses or risks. The risk associated with this alternative is low. A rating of Yellow (Moderate) signifies that the alternative has strengths or benefits that are offset by known weaknesses or risks. The risk associated with this alternative is moderate. A rating of Red (High) signifies that the alternative has weaknesses and risk that outweigh known strengths and benefits. The risk associated with this alternative is high

Resources (Cost, Time, & Human Capital):

This criteria measures the monetary cost associated with a major software implementation, the time involved to complete from Market Research through final go-live, and the number of human capital it would take to implement the new system and trainers for end users for the alternative.

a. Green (Low) – Means that the resources (cost, time, & human capital) required to implement this alternative is low. Benefits greatly outweigh the costs.
b. Yellow (Moderate) – Means that the resources required to implement this solution are moderate.
c. Red (High) – Means that the resources required to successfully implement this solution are high (millions of dollars in spending, training, and hundreds of people). The cost greatly outweighs benefits.

Complexity of Implementation (Size, Number of Users, and Integration of Legacy and Feeder Systems):

This criteria measures the complexity of the software implementation, taking into account the number of users impacted and the integration of existing feeder and legacy systems of the alternative.

a. Green (Low) – Means there are a couple processes and systems that would require change and little time is devoted to the implementation. If changes

exist, each change is relatively simple. Ease of implementation outweighs the normal risk associated with a system implementation.

b. Yellow (Moderate) – Means there are some key complexities which involve sole risk, but through can most likely be mitigated or minimized.

c. Red (High) – Means that the time necessary to successfully implement this solution could take five years or more. Complexity of the implementation greatly exceeds the normal risk associated with a system implementation.

Infrastructure (Size, Number of Users, and Integration of Legacy and Feeder Systems):

This criteria measures the complexity of the software implementation, taking into account the number of users impacted and the integration of existing feeder and legacy systems of the alternative.

a. Green (Low) – The information technology implications for this alternative would be low. If changes exist, the change is relatively simple from a hardware and software aspect.

b. Yellow (Moderate) – The information technology implications for this alternative would be moderate. If changes exist, the change is moderately complex from a hardware and software aspect.

c. Red (High) – The information technology implications for this alternative would be high. If changes exist, the change is extremely complex from a hardware and software aspect.

Compatibility (Capacity for multiple systems to work together):

This criteria measures the compatibility issues that arise during any software implementation and the capacity for multiple hardware and software systems to work together without having to alter the existing Information Technology environment.

a. Green (Low) – Means overall minimal compatibility concerns between the current software system and the new software system.

b. Yellow (Moderate) – Means overall moderate compatibility concerns between the current software system and the new software system.

c. Red (High) – Means overall significant compatibility concerns between the current software system and the new software system.

GAO Compliance Potential:

This criteria measures the potential compliance with GAOs' recommendations.

a. Green (Low) – Means the alternative is fully compliant.
b. Yellow (Moderate) – Means the alternative is partially compliant or neutral.
c. Red (High) – Means this alternative is not compliant with previous GAO recommendations.

Cyber Security:

This criteria measures how vulnerable this alternative is to cybersecurity threats and the overall impact to the DOD.

a. Green (Low) – The cyber security risk is low. DOD wide impact of a hack is low. Hardware and Software are modern enough to handle security software updates and pushes.

b. Yellow (Moderate) – The cyber security risk is moderate. Hardware and Software could handle security software updates and pushes in the near term, but long term abilities are unknown. Additional software (antivirus, patches, etc.) will slow the network down.

c. Red (High) – The cyber security risk is high. Hardware and Software are not modern enough to handle security software updates and pushes. Additional software (antivirus, patches, etc.) will slow the network down considerably.

#### *d. Evaluation of Alternatives*

Table 5 identifies the three (3) alternatives in the vertical rows and the selection criteria in the horizontal rows. Within each block is a high level analysis of each alternative identified and the benefits/risks associated with each selection criteria.

Table 5. Evaluation Matrix

| Alternative / Criteria | Alternative 1 Enterprise Wide CWS | Alternative 2 Department Specific CWS | Alternative 3 Status Quo |
|---|---|---|---|
| Resources | Short Term: Significant upfront resources to develop a single CWS.<br><br>Long Term: Potential for significant resource efficiencies; however, impact unknown. | Short Term: Moderate upfront resources to develop 3–4 CWSs.<br><br>Long Term: Potential for moderate resource efficiencies. | Short Term: Minimal resources to maintain current CWSs.<br><br>Long Term: Acceptable impact to resources which are currently programmed/ budgeted. |
| Complexity of Implementation | Significantly complex to implement. | Moderately complex to implement. | No new implementation. |
| Infrastructure | Short Term: Significant infrastructure concerns.<br><br>Long Term: Minimal infrastructure concerns. | Short Term: Minimal infrastructure concerns.<br><br>Long Term: Moderate infrastructure concerns. | Short Term: Moderate infrastructure concerns.<br><br>Long Term: Significant infrastructure concerns. |
| Compatibility | Short Term: Significant compatibility concerns.<br><br>Long Term: Minimal compatibility concerns. | Short Term: Moderate compatibility concerns.<br><br>Long Term: Minimal compatibility concerns. | Short Term: Moderate compatibility concerns.<br><br>Long Term: Significant compatibility concerns. |
| GAO Compliance Potential | Fully compliant. | Fully compliant. | Not compliant. |

| Alternative / Criteria | Alternative 1 Enterprise Wide CWS | Alternative 2 Department Specific CWS | Alternative 3 Status Quo |
|---|---|---|---|
| Cyber Security Risk | Significant risk of cyber security breaches. | Moderate risk of cyber security breaches. | Significant risk of cyber security breaches. |
| Summary | Overall high risk. | Overall low risk. | Overall moderate risk. |

**Alternative 1: Enterprise Wide CWS – Pros, Cons, and Implementation:**

As shown in Table 5, implementing an enterprise wide CWS for the entire DOD has an overall ranking of red due to the significant cost, human capital, and physical resources required, and would greatly contribute to the root causes which have impeded DOD's modernization effort. In order to modernize the system, the DOD would have to fund the modernization effort up front while continuing to pay for support through the implementation. Training would have to be developed and provided for every Contract Specialist, Contracting Officer and any other user of the CWS system. However, long term training costs would decrease due to the standardization. The cost associated with this alternative is also considerably high and can potentially lead to higher future costs since the DOD has chosen one single provider for the CWS providing influence for future cost increases of support. If data rights to the CWS were not acquired, the DOD would create a sole source environment thus limiting future competition and repeating historical acquisition errors.

Due to the size and complexity of a single system, a phased implementation would be required, allowing the DOD to correct any compatibility or network issues as they arise, creating lessons learned through each implementation. However, a lengthy timeline for the CWS implementation could potentially keep the DOD consistently behind in the modernization effort. Currently each command has multiple legacy systems (to include homegrown systems) which interface with the current CWS environment; one single system would be burdened down by the volume of interfaces if each legacy system is kept

online. If the DOD was to retire all legacy systems, additional functionality would be required in order to fill the gaps left in response. The major risk associated with one single system is the risk of cybersecurity breaches. If a cybersecurity breach were to occur at the end of the fiscal year, billions of dollars would not be obligated due to systems being taken offline to prevent additional compromise. This risk could be mitigated by utilizing multiple server sites to minimize the overall impact the DOD if a breach were to occur. While this alternative is compliant with GAO recommendations and a complete upgrade in infrastructure could support future requirements and software implementations; overall, the risks significantly outweigh the benefits.

**Alternative 2: Department Specific CWS – Pros, Cons, and Implementation:**

As shown in Table 5, allowing each Department to implement their own system (or systems) presents the lowest risk and mitigates most identified risks. A possible cause in the delay in the modernization effort is the unwillingness to retire specific customized systems belonging to each Department. In this alternative, each Department can ensure that the chosen system(s) are compatible across current multiple infrastructure platforms and can interface successfully with legacy/feeder systems.

Ensuring competition is a key objective of the DOD and this alternative would keep modernization industry partners stable and allow for future competitive environments, thus reducing long term acquisition costs. While this alternative would still take three to five years to implement from Market Research through the final go-live, it would take considerably less time than the single system just based on the size, scope and complexity of that alternative and require a moderate level of resources in comparison. Since each Department would implement their own system, the location of servers would not be centralized decreasing the impact of cybersecurity breaches. Even though any implementation would take considerable time, money, and resources than maintaining the current systems; an implementation on a smaller scale represents an overall lower risk while still accomplishing GAO's recommendations.

**Alternative 3: Status Quo – Pros, Cons, and Implementation:**

As shown in Table 5, the status quo provides a reasonable alternative for the immediate short term; however, risk increases significantly in the future. There would be little resistance from stakeholders that utilize the system on a daily a basis; however, eventually the antiquated software systems would not be compatible with new software pushes. In the current environment, networks and systems are already stressed due to lack of bandwidth and the number of users greatly exceeding the original estimation, which impacts the user's ability to complete required actions and this issue would only increase exponentially in the future. Since there would be no immediate system migration, there is no time involved in implementing this alternative and no training of users to be completed. Even though the short term implications are low risk, each year that the status quo is maintained the greater the long term risk and the dilemma of why intended outcomes have not been fully realized. Departments and agencies could mitigate risk to upgrading on an as needed basis providing constant short term fixes.

#### *e. Summary of Analysis for the TIPS© Platform Pillar*

Based on this analysis, the authors have determined that DOD's current CWS environment is significantly sub-optimal with respect to the TIPS© pillar of platform. While DOD's current CWSs are not currently an impediment to mission fulfillment, significant challenges remain with respect to the manner in which these systems facilitate efficient and effective contracting. Three (3) different alternatives were presented and when six (6) criteria were analyzed, the best alternative is each Department implementing one or two CWS's; however, there are many challenges that must be overcome. An example of which is integrating the DOD's ARRT Tool that is used in the development of Performance Work Statements. Since this tool is already functional and known throughout the Contracting community, it is in the DOD's best interest to focus on the CWS modernization and integrate existing tools during the implementation process.

#### *f. TIPS© Analysis – Successful Organization*

As stated previously, the TIPS© analytical framework consists of four (4) primary criteria, as follows: 1) All three (3) pillars require a strong foundation of authorization and appropriation; 2) Each individual element of the TIPS© model needs to be optimized (meaning that it is efficient, and effective); 3) All three (3) pillars need to be in harmony; and 4) Together, all four (4) elements of the TIPS© model are required to be mature in order to support a successful organization. Within the context of the subject JAP, the "successful organization" depicted in Figure 11 consists of the DOD's successful utilization of its CWSs to accomplish its mission. Based on the analysis provided above, the authors have determined that the three (3) primary TIPS© pillars of personnel, protocols, and platforms are not in harmony with each another, and are built upon a TIPS© foundation of authorization and appropriation that is currently providing sub-optimal efficiency and effectiveness. A number of complex challenges remain. Therefore, maturity gaps currently exist which require diligent action if they are to be overcome. While the subsequently provided recommendations will address maturity gaps for each TIPS© element, the authors place significant emphasis on the TIPS© pillar of platform given that it encompasses the primary focus of this JAP.

## C. CHAPTER SUMMARY

This chapter applied the TIPS© analytical framework to enable the authors to better synthesize the information previously presented herein, and facilitated the determination of potential root causes which are inhibiting successful modernization efforts. The subsequent chapter builds upon this analytical foundation by providing the authors' recommendations for incorporating improvements to the status quo.

# VI. RECOMMENDATIONS

## A. INTRODUCTION

The following seven (7) recommendations are provided within the context of the TIPS© analytical framework for the purposes of improving the efficiency and effectiveness of DOD's utilization of electronic procurement systems to accomplish its mission objectives. While these recommendations will address maturity gaps for each TIPS© element, the authors place significant emphasis on the TIPS© pillar of platform given that it encompasses the primary focus of this JAP.

## B. TIPS© – AUTHORIZATION AND APPROPRIATION

### 1. Recommendation 1: Establish an integrated council comprised of DOD and congressional stakeholders to collaboratively address CWS modernization efforts

This recommendation involves establishing an integrated council comprised of DOD and congressional stakeholders to collaboratively implement CWS modernization efforts. Currently, there are too many degrees of separation between members of Congress, which are involved in the authorization and appropriation process, and DOD leadership which is responsible for implementing statutory requirements such as those pertaining to the modernization of its business systems. These degrees of separation create a significant communication barrier wherein congressional direction may not adequately account for implementation challenges, and places DOD in a rather reactive role as it struggles to comply with established statutes in a constrained resource environment.

An integrated council would be a more proactive approach. The structure for this integrated council would need to allow for Departments to have more of a voice in the authorization and appropriation process with respect to CWS modernization needs, and for congressional members to have more visibility on DOD's CWS implementation efforts. The integrated council would be responsible for identifying issues and challenges pertaining to CWS modernization, establishing proper approaches to address those issues and challenges, collecting data to better assess the efficiency and effectiveness with which

CWSs are modernized, and adapting to changes to the overall business systems modernization environment. The integrated council's aforementioned responsibilities would have the added benefit of allowing DOD and congressional stakeholders to focus on solving specific factors that contribute to DOD's business systems as being designated as high risk by GAO. For example, the integrated council would be able to fulfill the role of a review board that solely focusses on high risk systems which would address an area that has yet to be fully-implemented by DOD, as previously discussed by the authors' summary of GAO Report No. 14-486 from Chapter II (GAO 14-486, 2014).

#### *a. Pros*

An integrated council comprised of DOD and congressional stakeholders would centralize overall modernization efforts, and provide a forward-focused vision for implementation. The integrated council could ensure goals are met in a timely fashion and formulate risk mitigation plans should issues arise. Since responsibilities are centralized, the integrated council can be held accountable for milestones and objectives.

#### *b. Cons*

This recommendation removes leadership actions from the Departments implementing the new CWS, adds yet an additional management layer, and could result in duplicative functions if this recommendation is not implemented in conjunction with concurrent reductions of the responsibilities of other stakeholders.

## C. TIPS© – PERSONNEL

### 1. <u>Recommendation 2</u>: Revise DOD's Strategic Workforce Plan to include additional training for military department portfolio managers and other officials responsible for CWS modernization

This recommendation involves incorporating necessary revisions to DOD's Strategic Workforce Plan to provide additional education and experience qualifications for military department portfolio managers and other officials responsible for CWS modernization efforts, as well as to provide for interagency personnel rotations to increase awareness of CWS alternatives and best practices. As previously discussed by the authors'

summary of GAO Report No. 15-627 from Chapter II, GAO interviewed various military department portfolio managers and other officials as required by the NDAA for FY 2015 and received input regarding a cultural resistance to change and a lack of necessary skills which contributed to the DOD's ability to achieve many of the provisions contained in the NDAA for FY 2005 (GAO 15-627, 2015b). The finding contained in GAO's 2015 report is not a new one. Dr. Jacques S. Gansler's and William Lucyshyn's 2009 report addressed a similar finding that "DOD employees involved with business transformation often lack the necessary experience and skills to spearhead the planning and management of the business transformation implementation within the scope envisioned" (Gansler & Lucyshyn, 2009, p. 33). Accordingly, this recommendation builds from the findings presented by Dr. Jacques S. Gansler's and William Lucyshyn's 2009 report, and GAO's 2015 report by emphasizing the importance of investing in the personnel responsible for the critical and monumental task of modernizing DOD's CWSs.

#### *a. Pros*

The authors anticipate implementation of this recommendation would dramatically improve DOD's ability to achieve the results envisioned by the NDAA for FY 2005. A stronger, more well-informed, and experienced workforce would pay dividends with respect to developing and implementing CWSs.

#### *b. Cons*

It remains unclear exactly what type of training is required. The full nature and extent of additional training requirements, how training should be structured and administered, and identification of the individuals which should receive that training remain unknown. Moreover, in the current environment, training would need to encompass a myriad of Legacy systems, as well as account for the development of more modernized CWSs. These complexities could be mitigated through consolidation and standardization of CWSs; resulting in a more efficient approach to training programs.

### 2. Recommendation 3: Strengthen horizontal and vertical relationships amongst DOD's CWS stakeholders

This recommendation is unique from the concept the authors provided in the first recommendation which focused on increasing communication between the DOD and congressional stakeholders. This recommendation specifically addresses the lack of engagement from the newly identified stakeholders (e.g., Contract Specialists, Contracting Officers, Budget Analysts, Financial Managers, Comptrollers, Program Managers, supported customers, et cetera) presented by the authors in Chapter V. Additionally, this recommendation also builds from an important concept presented by Dr. Jacques S. Gansler's and William Lucyshyn's 2009 report which involved "tiered accountability" within the DBSMC wherein functional competencies were horizontally integrated across the enterprise (Gansler & Lucyshyn, 2009, p. 6).

The previously established horizontal integration discussed by Dr. Jacques S. Gansler's and William Lucyshyn's 2009 report should be strengthened to ensure the personnel contributing to the modernization of IT, cyber security, CWS, and other related business systems are able to collaborate effectively.

Moreover, the governing bodies of DOD's overall modernization effort should become more vertically aligned with those personnel which are executing its objectives. For instance, the organizational structure of the DBC and/or DCMO could be revised to allow for the establishment position(s) for the newly identified stakeholders (e.g., Contract Specialists, Contracting Officers, Budget Analysts, Financial Managers, Comptrollers, Program Managers, supported customers, et cetera) presented by the authors in Chapter V. Those positions could allow for personnel rotations on a three (3) to six (6) month basis, wherein top performing functional representatives could be nominated through their chain of command to be temporarily involved with higher-tier stakeholders for the purposes of improving CWS development and implementation efforts.

#### *a. Pros*

The horizontal integration emphasized by this recommendation would enhance the various functional strategies which are produced by IT, cyber security, CWS, and other

related business systems representatives, and which are provided to the DBSMC, DBC, DCMO and other higher-tier stakeholders. Furthermore, the vertical integration emphasized by this recommendation would ensure higher-tier stakeholders are better informed, as well as directly benefiting lower-tier personnel through enhanced training, experience, and recognition opportunities.

#### *b. Cons*

This recommendation would blend the leadership provided by higher-tier stakeholders with the execution provided by lower-tier stakeholders which could result in unintended consequences pertaining to reduced management and operational efficiencies. For instance, meetings typically conducted only amongst higher-tier stakeholders would likely take more time and would have to be re-structured to accommodate the direct involvement of lower-tier stakeholders. Additionally, the direct involvement of lower-tier stakeholders would negatively impact their ability to execute normal workload priorities. These types of challenges could be mitigated through implementation of control measures such as re-designed meeting structures/frequencies, and the temporary backfilling of positions vacated by lower-tier stakeholders following their nomination to be temporarily involved with higher-tier stakeholders.

## D. TIPS© – PROTOCOL

### 1. <u>Recommendation 4</u>: Enhance data and metrics being provided for compliance with the Government Performance and Results Modernization Act of 2010 (GPRAMA)

Chapter III presented information regarding of DOD's Strategic Plan for Defense Wide Procurement Capabilities (A Functional Strategy) Version 2.1 which provides various objectives and initiatives for FY 2016 through FY 2018 as a roadmap for the modernization effort broken down by the overall goal (Protecting the Future and Improving Efficiency). These goals encompass both enterprise systems and component systems, as well as, touching on many of the various elements of contract writing from clause logic to Product Service Codes. In order to improve overall efficiency, the DOD has laid out thirteen (13) different initiatives (Department of Defense, 2016).

While the scope and scale of those initiatives is significant, the authors have determined that improvement opportunities exist for enhancing data and metrics which are being provided by DOD in pursuit of compliance with the GPRAMA. As presented by Chapter III, GPRAMA was enacted to require that all agencies engage in performance management tasks (Public Law 13-62, 1993). GPRAMA was later revised in 2011 to require agencies to develop priority goals as required under Section 1120(b) of Title 31 U.S.C and that this information be merged with the existing data required by Section 112 of Title 31 U.S.C. Currently, the DOD is compliant with GPRAMA through its annual update to the Department's Strategic Plan for Defense Wide Procurement Capabilities (A Functional Strategy) for FY 2016 through FY 2018. This recommendation involves enhancing the information provided within the aforementioned plan to capture more CWS specific metrics, and increasing the frequency with which the plan is updated from an annual basis to a quarterly basis.

#### *a. Pros*

Quarterly updates to DOD's Strategic Plan for Defense Wide Procurement Capabilities (A Functional Strategy) will heighten visibility of progress being made with respect to the Department's modernization efforts, and will ensure more frequent assessment and mitigation of potential maturity gaps or other problematic issues that arise.

#### *b. Cons*

Although well intended, quarterly updates to DOD's Strategic Plan for Defense Wide Procurement Capabilities (A Functional Strategy) could become overly burdensome on existing resources (time, funding, and human capital), and result in a reduction to the quality of the information if resource constraints are not alleviated. These types of undesirable consequences could be mitigated through additional congressional support.

## E. TIPS© – PLATFORM

### 1. Recommendation 5: Focus modernization efforts more exclusively on CWS development and implementation

Based on the analysis presented herein, the authors recommend that the DOD optimize the TIPS© pillar of platform through the DOD focusing on the CWS portion of the modernization effort allowing for the appropriate allocation of required resources necessary for this implementation. This recommendation builds on the finding presented in Dr. Jacques S. Gansler's and William Lucyshyn's 2009 report which involved the DOD trying to do too much in a single modernization initiative (Gansler & Lucyshyn, 2009, p. 34).

#### *a. Pros*

Focusing solely on the CWS aspect of DOD's modernization effort allows for more resources (time, money and human capital) to be invested for that purpose. If each Department successfully modernized the CWS over the next five (5) years, this will have a significant improvement on DOD operations. The CWS is the primary tool for procuring and administering both services and supplies. A modern CWS will allow for future IT upgrades without compromising processing speed and allow for additional functionality that will enable acquisition professionals to be more productive.

#### *b. Cons*

Focusing more exclusively on the modernization of CWSs does come with risks. The first is continuing to maintain legacy systems while paying for and implementing a new system. There is a significant amount of short term resource constraints associated with changing the status quo, and those constraints would need to be alleviated through congressional support. Moreover, modernization efforts across Departments would need to be closely coordinated. A supported customer which provides funding to various Departments, would be negatively impacted if the DON modernized its CWS in such a way that required the supported customer to alter how it's Legacy financial system interfaces with the newly implemented CWS in a manner different from how that supported

customer's Legacy financial system interfaces with other CWSs from other Departments. Furthermore, focusing more exclusively on the development and implementation of CWSs could negatively impact other modernization efforts across the enterprise given the constrained resource environment.

### 2. Recommendation 6: Implement Alternative 2 (Department Specific CWS)

Based on the analysis presented by Chapter V, the authors recommend that the DOD optimize the TIPS© pillar of platform through implementation of Alternative 2 (Department Specific CWS). This recommendation builds from the authors' prior recommendation that the DOD focus its modernization efforts more exclusively on CWSs, but emphasizes that the DOD do so by moving forward specifically with the development and implementation of Department-specific CWSs, as the authors previously presented as Alternative 2.

#### *a. Pros*

The authors contend that this alternative has the highest probability to achieve short term and long term gains within the DOD. Focusing solely on implementation of Alternative 2 (Department Specific CWS) as part of DOD's modernization efforts allows for resources (time, funding, and human capital) to be more effectively utilized, and provides for significant operational enhancements. Rather than maintaining over a dozen primary CWSs and a myriad of Legacy systems, the future business systems environment could consist of one or two primary CWSs for each Department. This would significantly improve the efficiency with which CWSs enable successfully achievement of mission objectives.

#### *b. Cons*

There are a number of risks and challenges associated with implementation of this alternative. The first is continuing to maintain legacy systems while paying to develop and implement a new system. If a completely new CWS is developed, training and infrastructure would require a significant investment upfront. If the Department does not

implement an IT platform that has room for growth in future upgrades (hardware and software), as well as, the increase in users and functionality, the Department will only continue the current cycle of having a CWS that too easily becomes outdated. Despite the aforementioned, the authors contend that the benefits associated with this alternative far outweigh the identified risks and challenges.

### 3. Recommendation 7: Establish a Functionality Circle of Excellence Panel for CWS development and implementation

Based on the CWS functionalities presented in Chapter IV, as well as the analysis presented in Chapter V, the authors recommend that the DOD establish a Functionality Circle of Excellence Panel. This panel will be comprised of senior acquisition professionals who use the CWS on a daily basis to identify and prioritize required functionality. The Functionality Circle of Excellence Panel could also be a key contributor to the integrated council further detailed by the authors' first recommendation, as well as the vertical integration efforts further detailed by the authors' third recommendation.

#### *a. Pros*

This approach would harness the insight provided by power (primary and secondary) users from every CWS to collaboratively discuss the various functionalities that would be most beneficial. This panel would also be integral to overcoming maturity gaps within the current CWS environment. The power users would have direct work experience with the various contract actions that need to be performed within a CWS, and be able to leverage that expertise to better inform DOD and congressional leadership which have the power to shape policies, regulations, and guidance pertaining to CWSs.

#### *b. Cons*

The optimal composition, structure, and conduct of this panel remains unclear. In all likelihood, any individuals tasked with participating on this panel would need to do so in addition to their current duties which would further strain their ability to fulfill their responsibilities, and could potentially compromise the intended outcomes of the panel itself. Scheduling conflicts could delay results. Due to the decrease in available funding for

travel, getting the stakeholders comprising this panel together for a monthly or quarterly meeting is unlikely. Scheduling conflicts could be mitigated by utilizing remote conference technology, but that could lessen the desired level of collaboration.

## F. CHAPTER SUMMARY

This chapter provided seven (7) recommendations within the context of the TIPS© analytical framework for the purposes of improving the efficiency and effectiveness of DOD's utilization of electronic procurement systems, with particular emphasis on the importance of CWSs. While these recommendations are not intended to be all-inclusive of potential improvement areas, the authors contend the proffered recommendations will result in the most significant gains with respect to addressing identified CWS maturity gaps.

# VII. CONCLUSION

## A. FINDINGS TO RESEARCH QUESTIONS

This JAP sought to address the DOD business system modernization efforts, identify root causes that have prohibited significant progress, and to develop concepts and recommendations that can propel progress by addressing the research questions posed earlier:

### 1. What was the catalyst for the DOD's recent business systems modernization efforts, and what is the current nature of that need?

Chapter II of this JAP discussed various GAO reports which were the catalyst to pushing business system modernization efforts, as well as NDAA for FY 05. The current nature of that need is significant due to the consistent use of antiquated systems and advancements taking place in the current technological environment.

### 2. Why has the DOD failed to fully meet its business systems modernization objectives in a timely manner?

As further detailed by Chapter V of this JAP, the authors have identified numerous issues which have impeded DOD's progress to modernize business systems. The recommendations presented within Chapter VI will remove previous barriers DOD has encountered when attempting to modernize its business systems.

#### *a. Is there adequate representation from functional/execution-related personnel to fully-demonstrate the scope of the problem(s)/issue(s)?*

No, there is currently not adequate representation from functional/execution-related personnel. Various recommendations have been provided in Chapter VI which addressed this concern.

#### *b. How entrenched are legacy systems within each service/component, and how feasible is it to change the status quo?*

As further detailed by the case studies presented in Chapter IV, the three (3) CWS's that were analyzed under this JAP are very entrenched within their respective service /

component. The analysis provided by the authors included in Table 5 captured the feasibility of improving the status quo.

### 3. What additional action is needed for the DOD to fully achieve intended outcomes of its business system modernization objectives?

Implementing the seven (7) recommendations provided by Chapter VI will contribute greatly towards DOD's business system modernization efforts.

### 4. Are there other potential outcomes of DOD's business systems modernization efforts that have not been previously accounted for, or particular focus areas that may yield better results?

As discussed earlier, the DOD should specifically focus on the CWS portion of the modernization effort. While all seven (7) of the authors' recommendations found in Chapter VI will help address maturity gaps, Recommendations 5 and 6 in particular provide for a more focused approached on DOD's CWSs. In doing so, the DOD will be able to maximize the utilization of resources and dramatically improve efficiencies and effectiveness of operations.

## B. FUTURE RESEARCH AREAS TO CONSIDER

The scope and scale of DOD's modernization efforts are significant. While much progress has been made, this area continues to be viewed by GAO and other stakeholders as a high risk concern. The seven (7) recommendations proposed by the authors are as follows:

1) Recommendation 1: Establish an integrated council comprised of DOD and congressional stakeholders to collaboratively address CWS modernization efforts;

2) Recommendation 2: Revise DOD's Strategic Workforce Plan to include additional training for military department portfolio managers and other officials responsible for CWS modernization;

3) Recommendation 3: Strengthen horizontal and vertical relationships amongst DOD's CWS stakeholders;

4) Recommendation 4: Enhance data and metrics being provided for compliance with the Government Performance and Results Modernization Act of 2010 (GPRAMA);

5) Recommendation 5: Focus modernization efforts more exclusively on CWS development and implementation;

6) Recommendation 6: Implement Alternative 2 (Department Specific CWS);

7) Recommendation 7: Establish a Functionality Circle of Excellence Panel for CWS development and implementation

While the seven (7) recommendations provided by the authors in Chapter VI are not intended to be all-inclusive of potential improvement areas, the authors contend that the proffered recommendations will adequately address DOD's business system modernization efforts. However, there will still be numerous improvement areas that will need to be pursued. Various aspects of DOD's operations, such as financial management, acquisition, enterprise security, installations and environment, logistics and materiel readiness, human resources management and security cooperation should continue to be explored more thoroughly. These additional areas comprise the other functional strategies of the Integrated Business Framework depicted by Figure 5 in Chapter III.

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# APPENDIX A. STATUS OF GAO RECOMMENDATIONS

Table 6. Status of Recommendations Made Since 2011

| GAO Report | Implemented | Partially Implemented | GAO Assessment |
|---|---|---|---|
| **GAO 11–684** | | | |
| 1. The Secretary of Defense should expeditiously complete the implementation of the announced transfer of functions of the Business Transformation Agency and the Office of the Assistant Secretary of Defense for Networks and Information Integration/Department of Defense Chief Information Officer and provide specificity as to when and where these functions will be transferred. (Business Enterprise Architecture) | **X** | | As we reported in May 2013, the department formally disestablished the Business Transformation Agency in October 2011, completing the transfer of its various functions to other DOD entities, including the Office of the Deputy Chief Management Officer (DCMO). In addition, in January 2012, DOD announced the disestablishment of the Assistant Secretary of Defense for Networks and Information Integration and the transfer of its various functions to other DOD entities, including the DOD Chief Information Officer and Under Secretary of Defense for Acquisition, Technology, and Logistics. |
| **GAO 12-685** | | | |
| 2. The Secretary of Defense should ensure that the DSD, as the department's Chief Management Officer, establish a policy that clarifies the roles, responsibilities, and relationships among the Chief Management Officer, Deputy Chief Management Officer (DCMO), DOD and military department Chief Information Officers, Principal Staff Assistants, military department Chief Management Officers, and the heads of the military departments and defense agencies, associated with the development of a federated business enterprise architecture.<br><br>Among other things, the policy should address the development and implementation of an overarching taxonomy and | | **X** | The department has taken steps to address the intent of this recommendation. For example, the DCMO approved the Business Enterprise Architecture Configuration Control Board charter on August 19, 2013. The board includes the Business Enterprise Architecture Chief Architect and representatives from both the department's Office of the Chief Information Officer as well as the Chief Management Officer organizations of the Defense Business Council member organizations. According to its charter, the board is to be the principal body for managing the disposition of proposed architecture change requests. The board is to be supported by the Component Collaboration Forum, which is to focus on developing a path ahead for a federated business architecture.<br><br>The department has also developed a draft plan for a federated architecture. However, the plan does not provide details on how DOD intends to extend architecture content across the |

| GAO Report | Implemented | Partially Implemented | GAO Assessment |
|---|---|---|---|
| associated ontologies to help ensure that each of the respective portions of the architecture will be properly linked and aligned.<br><br>In addition, the policy should address alignment and coordination of business process areas, military department and defense agency activities associated with developing and implementing each of the various components of the Business Enterprise Architecture, and relationships among these entities. (Business Enterprise Architecture) | | | department, including the military departments. In addition, the department has not provided details of an overarching taxonomy to be used across the enterprise or established a policy that clarifies roles, responsibilities, and relationships as called for by our recommendation. |
| 3. The Secretary of Defense should direct the appropriate DOD organizations to establish a deadline by which it intends to complete the integration of the repositories and validate the completeness and reliability of information. (Mandated Budget Reporting) | **X** | | The department has taken steps to implement this recommendation. In particular, in 2013, the Office of the DCMO established the DOD Information Technology Investment Portal to serve as the authoritative data source for Defense Business Systems certification funding and approval information. In addition, the department has established common elements in its three primary repositories used for tracking information about business systems—DOD Information Technology Investment Portal, Department of Defense Information Technology Portfolio Repository, and Select & Native Programming Data Input System for Information Technology—that allow information about individual business systems to be integrated across the repositories.<br><br>Moreover, the Office of the Chief Information Officer demonstrated that it conducts periodic data quality assessments. For example, the results of the most recent assessment provided by DOD demonstrate that the number of business systems is generally consistent across its repositories. |

| GAO Report | Implemented | Partially Implemented | GAO Assessment |
|---|---|---|---|
| | | | |
| 4. The Secretary of Defense should ensure that the DSD, as the department's Chief Management Officer, direct the Deputy Chief Management Officer to include in DOD's annual report to Congress on compliance with 10 U.S.C. § 2222 the results of the department's business process reengineering efforts.<br><br>Among other things, the results should include the department's determination of the number of systems that have undergone material process changes, the number of interfaces eliminated as part of these efforts (i.e., by program, by name), and the status of its end-to-end business process reengineering efforts. (Investment Certification and Approval) | | **X** | The Office of the DCMO's *2015 Congressional Report on Defense Business Operations* included some information about its business process reengineering efforts, but the report did not include the department's determination of the number of systems that have undergone material process changes, the number of interfaces eliminated as part of these efforts (i.e., by program, by name), and the status of its end-to-end business process reengineering efforts. For example, the department's report to Congress stated that the Army utilized business process reengineering as part of a personnel and pay program to reengineer 157 discrete personnel processes to fit the capabilities of a commercial enterprise resource planning system. While the department's annual report included information about specific efforts, the Office of the DCMO has not yet reported on measures such as those called for by our recommendation.<br><br>According to officials from the Office of the DCMO, its annual report is not intended to provide the level of detail requested by this recommendation. Further, these officials stated that the Office of the DCMO does not perform business process reengineering assessments. Rather, the pre-certification authorities have the responsibility to perform business process reengineering. Nevertheless, regardless of who conducts business process reengineering, the department has not demonstrated that it has reported on the results of business process reengineering efforts as called for by our recommendation in either its annual report or in any other report to Congress. |
| 5. The DSD, as the department's Chief Management Officer, should direct the Deputy Chief | | **X** | The Office of the DCMO provided an update to GAO on the numbers of positions filled and open. In addition, officials provided documentation |

| GAO Report | Implemented | Partially Implemented | GAO Assessment |
|---|---|---|---|
| Management Officer to include in DOD's annual report to Congress on compliance with 10 U.S.C. § 2222, an update on the office of the DCMO's progress toward filling staff positions and the impact of any unfilled positions on the ability of the office to conduct its work. (Other – Human Capital) | | | associated with the department's FY 2016 budget request identifying information about changes in requested funds and full-time equivalent positions. Officials also identified examples of publicly available information about full-time equivalent positions that the office was seeking to fill. Nevertheless, an update on staffing and the impact of unfilled positions on the ability of the office to conduct its work has not yet been included in the annual report or in other reports to Congress. |
| **GAO 13-557** | | | |
| 6. The Secretary of Defense should direct the Deputy Chief Management Officer to define by when and how the department plans to develop an architecture that would extend to all defense components and include, among other things:<br><br>(a) information about the specific business systems that support business enterprise architecture business activities and related system functions,<br>(b) business capabilities for the Hire-to-Retire and Procure-to-Pay business processes, and<br>(c) sufficient information about business activities to allow for more effective identification of potential overlap and duplication. (Business Enterprise Architecture) | | **X** | The department has taken steps to improve the integration of Business Enterprise Architecture information with other existing information. For example, this integration is to allow the department to identify information such as mapping of existing business systems to individual Business Enterprise Architecture system functions. In addition, officials from the office of the DCMO provided a draft plan for business enterprise architecture federation, which includes steps associated with extending the architecture to all defense components. Nevertheless, officials stated that the plan is not yet complete.<br><br>Moreover, the department has yet to define by when and how it will develop an architecture that extends to all defense components. Officials from the Office of the DCMO stated that they are working to federate Army business architecture information into the Business Enterprise Architecture and that this effort will inform future steps; however, that effort remains a work in progress. |
| 7. The Secretary of Defense should direct the Deputy Chief Management Officer to define by when and how the | | **X** | The Office of the DCMO has taken steps to improve information available about its business systems. More recently, the department has established the |

| GAO Report | Implemented | Partially Implemented | GAO Assessment |
|---|---|---|---|
| enterprise transition plan will include, among other things,<br><br>(a) milestones, performance measures, and funding plans for all business systems expected to be part of the target architecture and each system's risks or challenges to integration;<br>(b) time-phased end dates associated with terminating legacy systems in phases;<br>(c) a listing of all other defense business systems (including systems that are considered to be core systems) that will be a part of the target defense business systems computing environment and a strategy for making modifications to those systems that will be needed to ensure that they comply with the defense business enterprise architecture, including time-phased milestones, performance measures, and financial resource needs; and<br>(d) information about how systems are to be sequenced according to, among other things, dependencies among investments. (Enterprise Transition Plan) | | | Integrated Business Framework-Data Alignment Portal as a repository of automated information available about Functional Strategies, Organizational Execution Plans, and the business architecture. According to officials from the Office of the DCMO, this portal will be used to document, among other things, the data that are to be included in Functional Strategies and Organizational Execution Plans. Such a collective set of data may be used to generate transition plan information. However, the full implementation of this new approach remains to be seen. Moreover, the department has not provided a plan that defines when and how it will address the various elements called for in our recommendation. |
| 8. The Secretary of Defense should direct the Deputy Chief Management Officer to ensure that the functional strategies include all of the critical elements identified in DOD investment management guidance, including performance measures to determine progress toward achieving the goals that incorporate all of the | | **X** | DOD established performance measures in its functional strategies that addressed at least some of the five attributes called for in DOD guidance. For example, all of the FY 2015 functional strategies identified examples of quantitative metrics. However, not all functional strategies identified metrics that addressed the other attributes. Specifically, the strategies did not all include performance measures that addressed the following attributes: (1) |

| GAO Report | Implemented | Partially Implemented | GAO Assessment |
|---|---|---|---|
| attributes called for in the department's guidance. (Investment Management) | | | data that are tracked incrementally over a specified period, (2) a baseline for each performance measure, (3) a target against the baseline, and (4) a rationale for the identified target. In addition, DOD's FY 2016 functional strategies also lacked such attributes. |
| 9. The Secretary of Defense should direct the Deputy Chief Management Officer to select and control its mix of investments in a manner that best supports mission needs by<br><br>(a) documenting a process for evaluating portfolio performance that includes the use of actual versus expected performance data and predetermined thresholds;<br>(b) ensuring that portfolio assessments are conducted in key areas identified in our IT investment management framework: benefits attained; current schedule; accuracy of project reporting; and risks that have been mitigated, eliminated, or accepted to date; and<br>(c) ensuring that the documents provided to the Defense Business Council as part of the investment management process include critical information for conducting all assessments. (Investment Management) | | **X** | The department's February 2015 investment management guidance identifies four criteria and specifies the associated assessments that are to be conducted when reviewing and evaluating component-level organizational execution plans in order to make a portfolio-based investment decision. The guidance also provides additional details regarding considering return on investment when assessing program costs. In addition, the guidance states that organizational execution plans will be assessed from various perspectives, including progress toward the target environment, business value, cost, and risk.<br><br>Nevertheless, the guidance does not specify a process for conducting an assessment or call for the use of actual versus expected performance data and predetermined thresholds. In addition, the guidance does not call for documents provided to the Defense Business Council to include critical information for conducting assessments, such as information about system scalability to support additional users or new features in the future and cost in relationship to return on investment. |
| 10. The Secretary of Defense should direct the Deputy Chief Management Officer to implement and use the business enterprise architecture and business process reengineering compliance assessments more effectively to support | | **X** | The *2015 Congressional Report on Defense Business Operations* included some information consistent with our recommendation. For example, it contained information about weaknesses for systems that were certified with qualifications. In particular, the report stated that the department conditionally approved 29 military department and 30 |

| GAO Report | Implemented | Partially Implemented | GAO Assessment |
|---|---|---|---|
| organizational transformation efforts by<br><br>(a) disclosing relevant information about known weaknesses, such as business enterprise architecture and business process reengineering compliance weaknesses for systems that were not certified or certified with qualifications in annual reports to Congress;<br>(b) establishing milestones by which selected validations of business enterprise architecture compliance assertions are to be completed; and<br>(c) ensuring that appropriate business process reengineering assertions have been completed on all investments submitted for the FY 2014 certification reviews prior to the certification of funds. (Investment Certification and Approval) | | | defense agency requests pending Defense Business Council approval of their problem statements. The report also cited the specific systems that were conditionally approved pending approval of their problem statements. Nevertheless, it did not disclose the results of business enterprise architecture validations that were to occur as part of the certification and approval process for fiscal year 2015.<br>In addition, according to the April 2014 guidance for investment certification and approval, upon receipt of an organization's Organizational Execution Plan, the defense business council chair was to identify generally no more than three defense business systems to be assessed from a component's portfolio. Once notified, the pre-certification authority was to have 5 working days to provide the assessment documentation used to assert business process reengineering or business enterprise architecture compliance. However, the guidance does not specify time frames or milestones for completing these validations.<br><br>The Office of the DCMO also provided data from the system that maintains certification and approval information. These data showed that only two systems were certified and approved for FY 2014 without a business process reengineering assertion. The office also provided additional information about these systems explaining the rationale for not conducting business process reengineering. |
| 11. The Secretary of Defense should direct the Deputy Chief Management Officer to develop a skills inventory, needs assessment, gap analysis, and plan to address identified gaps as part of a strategic approach to human capital planning for the Office | | **X** | The Office of the DCMO has taken some steps to address this recommendation. For example, it has developed a draft resource allocation plan, which identifies staffing profiles for each of the office's directorates and their respective divisions. These profiles cite needed staff competencies and qualifications. However, the department has not |

| GAO Report | Implemented | Partially Implemented | GAO Assessment |
|---|---|---|---|
| of the Deputy Chief Management Officer. (Other – Human Capital) | | | developed a skills inventory, gap analysis, or plan to address identified gaps as part of a strategic approach to human capital planning. |
| 12. The Secretary of Defense should direct the appropriate authority to ensure that complete documentation, such as root cause analyses, assessments of existing interfaces for reuse opportunities, and performance metrics related to the reengineering efforts, is provided as part of FY 2014 certification and approval process for the Integrated Personnel and Pay System - Army (IPPS-A), Integrated Personnel and Pay System - Navy (IPPS-N), Air Force Integrated Personnel and Pay System (AF-IPPS), and Integrated Electronic Health Record (iEHR) investments. (Investment Certification and Approval) | | **X** | DOD has taken some steps to address this recommendation. For example, the department demonstrated that it had completed documentation, such as root cause analyses, assessments of existing interfaces for reuse opportunities, and performance metrics related to the reengineering efforts, and that the documentation was provided as part of the certification and approval process for the Air Force Integrated Personnel and Pay System investment. However, it did not demonstrate that such documentation was fully completed and provided as part of the certification and approval process for other systems. For example, DOD only demonstrated that partial documentation had been completed and provided for the Integrated Electronic Health Record investment. |
| 13. The Secretary of Defense should direct the appropriate authority to determine whether funds were properly obligated under 10 U.S.C. 2222(a)-(b) for systems for which appropriate business process reengineering assertions were not completed. (Investment Certification and Approval) | **X** | | Officials from the Office of the DCMO demonstrated that the department has addressed the intent of this recommendation. Specifically, while the department did not concur with the recommendation and did not make the recommended determination, it has taken mitigating steps to help ensure compliance with business process reengineering requirements. For example, officials stated that, as part of the FY 2013 certification and approval process, conditions were imposed by the investment review board requiring all components to submit a plan on how core defense business systems would become compliant with the act's business process reengineering requirement. These officials also provided documentation showing that the department tracked these conditions. |

| GAO Report | Implemented | Partially Implemented | GAO Assessment |
|---|---|---|---|
| | | | Article I. In addition, the department has reported much higher levels of compliance with the act's business process reengineering requirements in subsequent annual review cycles. For example, in May 2013, we reported that, according to DOD, appropriate business process reengineering had been undertaken on only about forty-one (41%) percent of the approximately 1,200 systems for the FY 2013 certification reviews. In contrast, officials from the Office of the DCMO stated that only two (2) systems were certified and approved during the FY 2014 certification and approval cycle and six (6) systems were certified and approved during the FY 2015 certification and approval cycle that did not have complete business process reengineering assertions. Moreover, these officials provided justifications for why each of these systems did not have complete business process reengineering assertions. |
| **GAO 14-486** | | | |
| 14. The Secretary of Defense should direct the appropriate DOD management entity to define by when and how the department plans to align its business system certification and approval process with its Planning, Programming, Budgeting, and Execution process. (Investment Certification and Approval) | **X** | | DOD has taken steps to align its business system certification and approval process with its Planning, Programming, Budgeting, and Execution process. For example, according to the department's February 2015 certification and approval guidance, Organizational Execution Plans are to include information about certification requests for the upcoming fiscal year as well as over the course of the Future Years Defense Program. All of this information is to be considered when making certification and approval decisions. In addition, the guidance states that the chair of the Defense Business Council will make programming and budgeting recommendations to the Office of Cost Assessment and Program Evaluation and the DOD Comptroller |

| GAO Report | Implemented | Partially Implemented | GAO Assessment |
|---|---|---|---|
| 15. The Secretary of Defense should direct the appropriate DOD management entity to define criteria for reviewing defense business systems at an appropriate level in the department based on factors such as complexity, scope, cost, and risk, in support of the certification and approval process. (Investment Management) | | **X** | According to officials from the Office of the DCMO, the Defense Business Council primarily focused its attention on the non-military department business systems during the FY 2015 certification and approval process. Accordingly, the council relied on military department precertification authority reviews of their respective system portfolios to support council decisions. However, the department has not defined criteria for reviewing defense business systems at an appropriate level in the department based on factors such as complexity, scope, cost, and risk, in support of the certification and approval process. |
| 16. The Secretary of Defense should direct the appropriate DOD management entity to develop guidance requiring military departments and other defense organizations to use existing business enterprise architecture content to more proactively identify potential duplication and overlap. (Investment Management) | **X** | | DOD has developed guidance requiring military departments and other defense organizations to use existing business enterprise architecture content to more proactively identify duplication and overlap. In particular, the department's April 2015 business enterprise architecture compliance guidance states that examining programs for potential duplication and overlap should occur during the problem statement requirements analysis process, which is to occur early in a program's life cycle. In addition, the department's December 2014 problem statement requirements validation guidance calls for an enterprise architecture analysis to be conducted that is to determine if a capability already exists within the organization or elsewhere across the DOD. If a solution already exists, the problem statement sponsor is to direct that the existing solution be reused. In addition, officials from the Office of the DCMO demonstrated that its new Integrated Business Framework-Data Alignment Portal tool can be leveraged to identify potentially duplicative systems based on business enterprise architecture compliance information that has been entered into the system. |
| **Total** | **5** | **11** | |

Source: (GAO 15-627, 2015b, pp. 35-44)

# APPENDIX B. DOTMLPF-P FRAMEWORK

Table 7. DOTMLPF-P Constraints, "As-Is" State

| Category | Impact |
|---|---|
| **Doctrine:** | • Federal Acquisition Regulation FAR<br>• Defense Federal Acquisition Regulation Supplement DFARS<br>• OSD, Procedures, Guidance, and Information (PGI)<br>• DOD Directives,<br>• Component FAR Supplements<br>• DPAP DCFO Joint Memo dated 9 Feb 2016 – DOD Standard Operating Procedures for Distribution of Contract Actions to Financial Systems<br>• DPAP DCFO Joint Memo dated 9 Feb 2016 – DOD Requirements Overview for Procure-to-Pay Data Exchanges One through Four<br>• DPAP Memo dated 27 Feb 2015 – Accounting and Reporting Contract Finance Payments<br>• DPAP Memo dated 22 Apr 13 - Implementation of Defense-Wide Contract Clause Logic Service<br>• DPAP Memo dated 23 Jan 13 - Release of Procurement Data Standard Version 2.4<br>• USD(AT&L) Memo dated 14 Mar 2013 - Traceability of Contract Execution Expenditures for Services<br>• DPAP Memo dated 23 Jan 13 - Release of Procurement Data Standard Version 2.4<br>• USD(AT&L) Memo dated 14 Mar 2013 - Traceability of Contract Execution Expenditures for Services |

| Category | Impact |
|---|---|
| | • DPAP Memo dated 12 Apr 2012 - Implementation of Defense Federal Acquisition Regulation Supplement Provision and Clause for Warranty Tracking of Serialized Items<br>• DPAP Memo dated 11 Apr 2012 - Implementation of Government Furnished Property Attachments to Solicitations and Awards<br>• DPAP Memo dated 26 Jan 2012 - Data Capture in Support of Contingency Planning<br>• USD(AT&L memo dated 21 Oct 2011 - Department of Defense (DOD) Functional Contract Writing and Administration Capabilities<br>• USD(AT&L/DPAP) memo dated 31 Aug 2011 - Defense-Wide Contract Clause Logic Capability<br>• USD(AT&L/DPAP) and USD(C/DCFO) Joint Memo dated 25 May 11 -Internal Controls for Procurement Systems<br>• DPAP Memo dated 23 Nov 10 - Publication of Draft Data Standards for Warranty Data and Government Furnished Property<br>• DPAP DCFO Joint Memo dated 8 Jul 10 - Action Plan for Automating Required Agency Report of DOD Expenditures Funded by the ARRA of 2009<br>• DPAP Memo dated 8 Jul 10 - Contract Indexing Standard<br>• ASD(A) Memo dated 18 May 10 - Publication of a Purchase Request Data Standard<br>• DUSD(AT&L) Memo dated 28 Jul 09 - Publication of Procurement Data Standard (PDS), Phase II<br>• USD(AT&L) and USD(C) Joint Memo dated 18 Mar 09 - Linking<br>• Financial Data to Contract Documents<br>• DUSD (A&T) Memo dated 21 Jul 08 - Publication of Procurement Data Standard |

| Category | Impact |
|---|---|
| | • Mandatory contracting procedures are locally interpreted and may contribute to inconsistent, or untimely, implementation of policy and regulation contributing to errors and use of non-standard processes |
| **Organization:** | • Local administration of contracting processes in legacy contract writing systems contribute to inconsistent interpretation of guidance and regulatory non-compliance.<br>• Headquarters organizations lack the ability to quickly assess the 'health' of the contracting process due to difficulty in rolling up and analyzing data from hundreds of contracting sites.<br>• Local control contributes to proliferation of local ancillary applications and workarounds leading to issues with data quality |
| **Training:** | • Functional training is fairly structured and taken in discrete steps during the career.<br>• "As Is" environment lacks on-demand training (particularly in the use of IT tools) limiting productivity and drives inconsistent application of rules and controls.<br>• The inability for contract specialists to move from one contracting organization to another without significant "retraining" due to the use of different contract writing systems and business processes at the gaining location.<br>• Training in basics of contract writing, historically provided as on the job training has suffered through lack of emphasis, workforce shortages, lack of training materials, and doctrinal gaps.<br>• Limited or no refresher training offered or required for legacy CWS<br>• Training material and business processes are created around existing system gaps and constraints resulting in the establishment of processes specific to each legacy system as work-a-rounds |

| Category | Impact |
|---|---|
| | • Numerous manual data entry points for same data field throughout multiple databases contributing to data integrity issue, transactional errors and poor documentation. |
| **Materiel:** | • The "As Is" environment is characterized by multiple legacy systems supporting portions of the contracting enterprise with limited interoperability, data integrity, and flexibility.<br>• Legacy contracting systems are technically fragile, will not support the user base, and have capabilities that are non-functional or lag the latest regulatory guidance given their posture of 'bare bones sustainment' for many years.<br>• Operational contracting mission will be adversely affected with Standard Procurement System (SPS) retirement (the only DOD enterprise CWS) given lack of suitable replacement in current systems environment thus characterizing the "As Is" as high risk after SPS retirement.<br>• In addition to SPS, legacy contract writing systems include: Contract Writing System (ConWrite), and Automated Contract Preparation System (ACPS) within the Air Force and for a limited set of DLA ACPS users in organizations formerly under the Air Force; SEAPORT, PRISM and ITIMP within the Navy; PADDS and SNAP within the Army, with DLA having a few PADDS users at formerly Army offices and SPS users at former Navy offices; several legacy DLA systems that are being replaced by EProcurement. |
| **Leadership and Education:** | • Knowledge of strategic objectives and availability of tools and job aids is spotty.<br>• High error rate due to manual data entry caused by limitations in interfacing systems, emphasis on functional rather than application |

| Category | Impact |
|---|---|
| | training, and lack of leadership emphasis on data quality across the enterprise results in erratic contract quality.<br>• Limitations of existing legacy systems, both in terms of technological fragility and overall capability results in multiple data entry, and shortcuts for system limitations.<br>• DOD has established working groups for Business Process Reengineering (e.g. Informational Line Items; information exchanges between financial management and contracting systems) to review and evaluate opportunities for standardization within electronic transactions and between processes that will improve data integrity and accuracy<br>• Procurement supports focused efforts to build upon and promote a collaborative relation between the financial, contracting, and customer communities to strengthen data exchanges to ensure efficient and effective outcomes that enable transparency and auditability of financial data linked to contract actions. |
| **Personnel** | • Changes in workforce demographics and experience have been exacerbated by extended periods of overseas deployment for a large portion of the enlisted contracting workforce, contributing to a highly stressed workforce severely impacted by vacancies, deployments, retirements, etc. |
| **Facilities:** | • Geographic dispersal of contracting workforce and specialization of the workforce at tactical locations impede workforce development and our ability to balance workloads across DOD contracting. |
| **Policy:** | • Policy stems from applicable law and emanates down through regulations and doctrine.<br>• Policy is managed at all levels of the contracting infrastructure with a reliance on periodic inspections, file reviews and other methods to |

| Category | Impact |
| --- | --- |
| | assess compliance, reliance on checklists leaves reviews subject to local interpretation since legacy has few internal controls and business rules enforced as part of implementation of existing material solutions. |

Source: Strategic Plan for Defense Wide Procurement Capabilities (A Functional Strategy), Version 2.1 page 22

# APPENDIX C. ENTERPRISE LEVEL SYSTEMS

Table 8. Enterprise Level Systems

| System or Service Name | Policy | Capability |
|---|---|---|
| Global Exchange Service (GEX) | DFARS PGI 204.201 (DFARS Case 2012-P016) requires use for distributing contract awards to EDA, accounting systems, entitlement systems, logistics systems, and MOCAS. | The Global Exchange Service (GEX) provides data transportation, translation, and validation services to business systems across DOD. The primary role of the GEX is to minimize the cost and complexity of interface management by providing a standards based mediation capability between systems. This enables systems using different generations of technology to communicate and eliminates the need for each system to build new interfaces for each trading partner. Instead, each system builds a standard interface to the GEX for each type of transaction, and all trading partners interface via the GEX with all systems engaged in that type of transaction. By limiting the number of interfaces each system needs to build, the GEX reduces costs exponentially. For example, if a dozen systems needed to interact with each other for a particular business process, the number of interfaces required without GEX is 132. With GEX this is reduced to one per system, for a total of twelve.<br><br>The second capability GEX brings to the Procure to Pay business process is the ability to centrally monitor certain aspects of contract quality. The Procurement Data Standard and Purchase Request Data Standard implementations reject transactions that fail to meet the requirements of the data standards. Each rejected transaction results in a detailed error message showing all the errors within that transaction. The PDS implementation also includes warning messages for problems that do not violate the standard but may violate other business rules. Weekly reports generated by GEX summarize the successes and failures by system and site to enable analysis of trends and corrective actions. |

| System or Service Name | Policy | Capability |
|---|---|---|
| PDS and PRDS validation service (GEX) | - | This service enables a contract writing system to use GEX to validate that the contract action conforms to all enterprise edits prior to award and validates data after obligation but prior to posting the contract action to EDA as data. |
| System for Award Management (SAM) | - | SAM converted three legacy systems to a new service in SAM called Vendor Management. These legacy systems were: Central Contractor Registration (CCR) (the primary database for business partners of the U.S. Federal Government); Excluded Parties List System (EPLS) (listed the parties excluded from Federal Procurement and Nonprocurement programs); and the On-line Representations and Certifications Application (ORCA) (electronic Representations and Certifications process).<br><br>All prospective contractors and awardees for assistance and grants must register in SAM. Within SAM, the Contracting Office reviews the offerors' information such as the offerors' Dun & Bradstreet Universal Numbering System (DUNS) number, Contractor and Government Entity (CAGE) code, and Taxpayer Identification Number (TIN). SAM also includes a vendor's size, type, category of business and financial and tax reporting information. In addition, parties excluded from receiving Federal contracts or certain subcontracts and from certain types of Federal financial and nonfinancial assistance and benefits are listed in SAM. Vendor Representations and Certifications are also available at SAM. |
| Clause Logic Service | Supports the FAR, DFARS, and any level of agency supplement, provided that the agency supplement is published in accordance with FAR 1.301 and 1.5. | A centralized clause-generating capability utilizing intelligent business logic has been developed for Defense Contract Writing Systems. The new service replaces the multitude of clause generating systems/processes currently in place within DOD. This service enables the functional community to directly manage the logic and business rules for applying clauses. |

| System or Service Name | Policy | Capability |
|---|---|---|
| | | The clause logic service can be used in either of two ways. A purely manual interface is available through which users answer a series of questions and are presented with a list of recommended provisions and clauses. An automated interface allows the contract writing system to answer most questions before passing the user to the service to complete the remainder and generate the clauses. |
| FedBizOpps (public) | FAR 5 and 6.305 | FedBizOpps is the Government wide point of entry for disseminating information on proposed contract actions. The system collects, maintains, and disseminates information on Federal procurement solicitations to the public. The system also collects voluntary contact information (email address) on individuals and company information on vendors who use FedBizOpps to find and respond to Federal business opportunities for their products and/or services. This information is used to administer and manage Federal buyer access, maintain interested vendor lists, and keep vendors informed of Federal solicitations of business interest. FedBizOpps is planned to be included in a future release of SAM. |
| Electronic Document Access | DFARS 204.201 requires that all contract writing systems send all contract actions electronically to EDA as Portable Document Format (PDF) files and as data in either the PDS, ANSI X12, or both. (The last option is being retained to provide a partial degree of data visibility for transactions | The Electronic Document Access system:<br>Is the Central contract document repository.<br>Stores Portable Document Format and PDS copies of contract actions.<br>Conformance engine to apply contract modifications to awards to create a view of the contract as modified. This includes routing the resulting modified contract to GEX to validate against PDS business rules. Draft contract modifications can be sent prior to signature via GEX to EDA to ensure the resulting modified contract will meet PDS rules.<br>Pre-populates invoices and receiving reports in Wide Area WorkFlow (see DFARS 252.232-7003).<br>Stores contract attachments and makes data available from attachments posted as structured data [Spring 2013]. |

| System or Service Name | Policy | Capability |
|---|---|---|
| | that fail PDS validation) | Stores contract documents intended for broad distribution.<br>Stores PRDS data. |
| EDA Administration Document Folder (contract parties only) | - | EDA Version 8.4 added the ability to store documents pertaining to a contract that are not part of the contract. This capability creates a separate "folder" in which to place documents that are intended to be shared by all parties participating in a contract, such as letters and progress reports. Documents can be sent to the administration document folder by either direct upload or via GEX. |
| FPDS | FAR 4.6 | FPDS receives and stores contract award reports. Contract writing systems create a contract award report based on data in the contract writing system, and then connect the user to FPDS to complete the report. FPDS provides the ability to look at data on contract actions awarded by the federal government. Further, it provides opportunity for the government to better assess where its money is being spent, thereby offering opportunities to better determine how to most effectively and efficiently expend those resources. It is also relied upon to create recurring and special reports to the President, Congress, Government Accountability Office, federal executive agencies and the general public. |
| Business Intelligence Reports posted to EDA | - | DPAP has developed a business intelligence system that brings together data from several enterprise systems to produce reports on individual contracts and on aggregated data from across many or all contracts. Business intelligence reports on specific contracts, such as a delivery status report showing scheduled deliveries from the contract in EDA and actual deliveries from WAWF will be posted to the EDA Administration Document folder on a scheduled basis. |
| MOCAS | | The MOCAS supports contract administration and payment when contract administration is delegated outside the procuring office. It is |

| System or Service Name | Policy | Capability |
|---|---|---|
| | | recommended for use as an entitlement system for complex contracts even in cases where administration has been retained because it is able to correctly pay contracts with cost type provisions, financing payments, and mixed funding that many other entitlement systems process manually or not at all. Contracts are provided to MOCAS via GEX as ANSI X12, either directly or by translation. There are a large number of contract and contractor status reports available in MOCAS. DPAP is reviewing which of those should be posted to the EDA Administration Document Folder to ensure dissemination to all parties who need access. |
| Wide Area Workflow (WAWF) eBusiness Suite / Invoice, Receipt, Acceptance, and Property Transfer (iRAPT) and myInvoice | FAR 32.7 and DFARS 232.70, 245.103-72 | The iRAPT application is part of the Wide Area Workflow e-Business Suite. (iRAPT was formerly known as WAWF.) iRAPT is a secure web based system for electronic invoicing, receipt, and acceptance. iRAPT allows vendors to submit and track invoices and receipt/acceptance documents over the web and allows government personnel to process those invoices in a real-time, paperless environment. It is also the only application used to capture the Unique Identification (UID) of Tangible Items information and Radio Frequency Identification information.<br><br>In 2015, the WAWF eBusiness Suite absorbed the functionality once hosted and maintained separately by DFAS' myInvoice system. Absorbing this capability as a module within WAWF, maintains a single face to industry (in terms of invoicing) and allows vendors to now login to WAWF to understand the status of their invoices based on information provided by the accounting and entitlement systems in a uniform standard fashion. |

Source: Department of Defense, Strategic Plan for Defense Wide Procurement Capabilities (A Functional Strategy), Version 2.1, 2016, p. 32.

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# LIST OF REFERENCES


Anthem medical data breach. (2016, May 20). Retrieved from *Wikipedia*: https://en.wikipedia.org/w/index.php?title=Anthem_medical_data_breach&oldid=721141619

Babou, S. (2008). What is Stakeholder Analysis? The Project Management Hut. Retrieved from http://www.pmhut.com/what-is-stakeholder-analysis

CACI International, Inc. (2016). Standard Procurement System Overview Brochure, PD2 v4.2.2. Retrieved February 2016, from https://www.caci.com/business/B014_C14_1102_SPSBrochure.pdf

Clinger-Cohen Act. (2015). Retrieved from *Wikipedia*: https://en.wikipedia.org/wiki/Clinger%E2%80%93Cohen_Act

CSC–St. Louis. (2013). ADSM 18-R19-JBL-ZZZ-UM-05. *User's Manual- Procurement Automated Data and Procurement System-- Solicitation and Award Preparation*. Retrieved from https://acc.aep.army.mil/sites/ACC-APG/Portal/Technology%20Logistics%20and%20Security%20Shared%20Documents/PADDS%20Manual%2016%20November%202013.pdf

Defense Business Council. (n.d.). Retrieved from Deputy Chief Management Officer: http://dcmo.defense.gov/Governance/DefenseBusinessCouncil.aspx

Defense Procurement and Acquisition Policy. (n.d.). *DPAP web page*. Retrieved January 2016, from http://www.acq.osd.mil/dpap/

Department of Defense. (2013). *Strategic Management Plan (SMP) for Fiscal Years 2014–2015.* Washington, DC: Department of Defense. Retrieved April 2016, from http://dcmo.defense.gov/Portals/47/Documents/Publications/ASP/FY1415_SMP.pdf

Department of Defense. (2014). *2014 Congressional Report on Defense Business Operations.* Washington, DC: Department of Defense. Retrieved April 2016, from http://dcmo.defense.gov/Portals/47/Documents/Publications/Congressional_Report/2014_Congressional_Report_DBO.pdf

Department of Defense. (2015a). *2015 Congressional Report on Defense Business Operations.* Washington, DC: Department of Defense. Retrieved April 2016, from http://dcmo.defense.gov/Portals/47/Documents/Publications/Congressional_Report/2015Congressional_Report.pdf

Department of Defense. (2015b). *Agency Strategic Plan Fiscal Years 2015–2018.* Washington, D.C.: Author.

Department of Defense. (2016). *Strategic Plan for Defense Wide Procurement Capabilities (A Functional Strategy), Version 2.1.* Washington, DC: Department of Defense. Retrieved March 2016, from http://www.acq.osd.mil/dpap/pdi/eb/docs/PDI_Functional_Strategy_(5-year_strategic_plan)_version_2.1.pdf

Deputy Chief Management Officer. (n.d.). *DCMO web page, About*. Retrieved January 2016, from http://dcmo.defense.gov/About.aspx

Deputy Chief Management Officer. (n.d.). *DCMO web page, Governance*. Retrieved January 2016, from http://dcmo.defense.gov/Governance/DeputysManagementActionGroup.aspx

*DOD Business System Modernization*. (2016). Retrieved from GAO: http://www.gao.gov/key_issues/dod_business_systems_modernization/issue_summary#t=0

DoDAF architecting. (n.d.). Retrieved from AcqNotes: http://www.acqnotes.com/acqnote/tasks/sv-8-systems-evolution-description

DODIG. (2012). *DODIG 2012-111 Enterprise Resource Planning Systems Schedule Delays and Reengineering Weaknesses Increase Risks to DOD's Auditability Goals.* Washington, DC.

DODIG. (2013). *DODIG 2013–111 Army Business Systems Information Technology Strategy Needs Improvement.* Washington, DC: Author.

FY 2014 Enterprise Transition Plan (ETP) Overview. (2014, May). Washington, DC: Department of Defense.

Gansler, J. S., & Lucyshyn, W. (2009). *Presidential Transition Series: Transformation of the Department of Defense's Business Systems.* Washington, D.C.: IBM Center for The Business of Government.

GAO. (2002). *GAO 02–392T DOD's Standard Procurement System: Continued Investment Has Yet to Be Justified.* Washington, D.C., Retrieved from http://www.gao.gov/assets/110/109087.pdf

GAO. (2009). *GAO 09-888 Information Technology DOD Needs to Strengthen Management of its Statutorily Mandated Software and System Process Improvement Efforts.* Washington, DC. Retrieved from GAO Case 09-888: http://www.gao.gov/products/GAO-09-888

GAO. (2010). *GAO 10–663 Business Systems Modernization Scope and Content of DOD's Congressional Report and Executive Oversight of Investments Need to Improve.* Washington, DC. Retrieved from GAO Case 10–663: http://www.gao.gov/assets/310/304589.pdf

GAO. (2011a). *GAO 11–318SP Defense: DOD Business System Modernization: Opportunities Exist for Optimizing Business Operations and Systems.* Washington, DC. Retrieved from GAO- U.S. Government Accountability Office: http://www.gao.gov/new.items/d11318sp.pdf

GAO. (2011b). *GAO 11-902 Organizational Transformation Military Departmetns Can Imrpove Their Enterprise Architecture Programs.* Washington, DC. Retrieved from GAO Case 11-902: http://www.gao.gov/products/GAO-11-902

GAO. (2012). *GAO 12-685 DOD Business Systems Modernization Governance Mechanisms for Implementing Management Controls Need to Be Improved.* Washington, DC. Retrieved from GAO Case 12-685: http://www.gao.gov/products/GAO-12-685

GAO. (2013). *GAO 13-557 DOD Business Systems Modernization Further Actions Needed to Address Challenges and Improve Accountability.* Washington, DC. Retrieved from GAO Case 13-557: http://www.gao.gov/assets/310/304589.pdf

GAO. (2014). *GAO 14-486 Defense Business Systems: Further Refinements Needed to Guide the Investment Management Process.* Retrieved from http://www.gao.gov/assets/670/663117.pdf

GAO. (2015a). *GAO 15-290 High-Risk Series An Update.* Washington, DC. Retrieved from GAO Case 15-290: http://www.gao.gov/products/GAO-15-290

GAO. (2015b). *GAO 15-627 DOD Business System Modernization Additional Action Needed to Achieve Intended Outcomes.* Washington, DC. Retrieved from GAO U.S. Government Accountability Office: http://gao.gov/assets/680/671452.pdf

LeGros, S. L. (2008, January 1). *Centralized Procurement Automated Data and Document System (PADDS) Clause Management Launched*. Retrieved from HighBeam Research: https://www.highbeam.com/doc/1P3-1418296761.html

Lloyd, R. E. (2012). Public Contract Writing Systems: A House Divided. *Journal of Public Procurement, 12*(3). Retrieved April 2016, from http://pracademics.com/attachments/article/561/Article%201_Lloyd.pdf

Naval Sea Systems Command . (n.d.). *SeaPort-e Harnessing Power, Navigating Change*. Retrieved May 2016, 3, from SeaPort-e Harnessing Power, Navigating Change: http://www.seaport.navy.mil/

Office of Personnel Management data breach. (2016, April 14). Retrieved from *Wikipedia*: https://en.wikipedia.org/w/index.php?title=Office_of_Personnel_Management_data_breach&oldid=715167407

OMB. (2015). *FY 2014: Annual Report to Congress: E-Government Act Implementation.* Washington, DC: Author.

Public Law 108-375. (2004, October 28). Retrieved from http://www.dod.gov/dodgc/olc/docs/PL108-375.pdf

Public Law 112-339. (2013, Jan 02). Retrieved from https://www.treasury.gov/resource-center/sanctions/Programs/Documents/pl112_239.pdf

Public Law 13-62. (1993, Aug 03). Retrieved from https://www.gpo.gov/fdsys/pkg/STATUTE-107/pdf/STATUTE-107-Pg285.pdf

Site purpose. (n.d.). Retrieved from PADDS: https://paddsweb.redstone.army.mil/padds_html/padds3.html

Stakeholder analysis. (2016, April 28). Retrieved from *Wikipedia*: https://en.wikipedia.org/wiki/Stakeholder_analysis

Status quo. (2016, April 20). Retrieved from *Wikipedia*: https://en.wikipedia.org/w/index.php?title=Status_quo&oldid=716268809

USD AT&L memorandum. (2014, September 25). Updated Procurement Functional Strategy. Washington, D.C., Retrieved from http://www.acq.osd.mil/dpap/pdi/eb/docs/USA004729-14_PDUSD_Signed_Memo.pdf

Government Performance and Results Act. (2015, August 6). Retrieved April 15, 2016, from *Wikipedia*, https://en.wikipedia.org/w/index.php?title=Government_Performance_and_Results_Act&oldid=674891887

Yoder, E. C. (2010). Phase Zero Operations for Contingency and Expeditionary Contracting - Keys to Fully Integrating Contracting Into Operational Planning and Execution (NPS-CM-10-160). Retrieved March 2016, from http://www.acquisitionresearch.net/files/FY2010/NPS-CM-10-160.pdf

Yoder, E. C. (2014). Performance Metrics - Analytical Frameworks for Policy and Process: Getting the Most from Contracting. Naval Postgraduate School Collaborative Learning Environment (CLE) - MN4371 Session #7 Sakai Folder. Retrieved March 2016, from https://cas.nps.edu

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