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Organization Analytics: Taking Cost-per-Dollar-Obligated (CPDO) Measures to the Next Level in Defense Contracting

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Panel 19. Organizing for Success: Managerial and Staffing Considerations

Thursday, May 5, 2016	
1:45 p.m. – 3:15 p.m.	**Chair: Reuben Pitts,** President, Lyceum Consulting, LLC ***Organization Analytics: Taking Cost-per-Dollar-Obligated (CPDO) Measures to the Next Level in Defense Contracting*** Timothy Reed, Principal Director, Beyond Optimal Strategic Solutions James Keller, Business Center Head, USMC Operations Analysis Division John Fallon, Professor, Villanova University ***Assessment of Navy Contract Management Processes*** Rene Rendon, Associate Professor, NPS ***Designing and Managing Successful International Joint Development Programs*** Andrew Philip Hunter, Senior Fellow and Director, Defense-Industrial Initiatives Group, CSIS Gregory Sanders, Deputy Director and Fellow, Defense-Industrial Initiatives Group, CSIS Samantha Cohen, Research Assistant, Defense-Industrial Initiatives Group, CSIS

Organization Analytics: Taking Cost-per-Dollar-Obligated (CPDO) Measures to the Next Level in Defense Contracting

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James Keller—has served the DoD in various capacities for over two decades. He currently heads the OAD Business Center and is responsible for contracting, budgeting and finance, and studies system management. He was deployed to Afghanistan from 2013–2014, receiving CG MEB-Afghanistan commendation for his contribution to the retrograde and redeployment mission. Over the last decade, his analysis of Marine Corps issues has been instrumental in major force restructurings of personnel and equipment. Before coming to the Marine Corps, Keller performed a variety of analyses for the Army, Navy, and NASA.

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Abstract

Procurement efficiency measures were calculated for nine defense contracting organizations over three fiscal years. Cost per Dollar Obligated (CPDO) efficiency assessments were completed for the Air Force, Navy, Marine Corps, and non-military staff defense organizations. Trends were identified in various U.S. regions and in different military services. Efficiency measures were then compared to performance measures for cycle time (Procurement Administrative Lead Time [PALT]) and compliance (protests received and sustained). Comparison of these measures and CPDO provides insight into the relationships between cost efficiency and the quality and timeliness organization workload completion. In addition, the demographic makeup of organizations was captured to identify identified relationships between the performance measures and organization size, proportion of contracting officer warrants, percentage of military personnel, and average civilian pay level. This study provides acquisition leaders with actionable insight regarding organization efficiency, performance, and staff composition. An emerging typology is identified indicating different types of contracting organizations based on the characteristics of the portfolio they execute.

Introduction

How efficient is your contracting organization? How efficient should it be? How efficient are similar contracting organizations? Does paying a 3% assisted acquisition fee provide good value for your organization? How can workforce design improve efficiency, timeliness, and compliance? If you answered "I don't know," you are not alone. It is difficult

or impossible for most contracting leaders to answer these questions today due to the absence of essential information. In this study, we present benchmark findings that provide information useful to answering these questions and to meeting these and other procurement challenges.

Acquisition workforce performance measurement and workload assessment have been areas of study for at least 70 years (Monczka & Carter, 1978; McCampell & Slaich, 1995). However, a review of the government organization literature indicates that the question of workload assessment and organization efficiency have been given significantly less attention than output measurement, and that output measurement has been conducted primarily with overly broad and inappropriate measures such as dollars obligated and actions completed. Further, the preponderance of the workforce modeling activity has focused on (1) measuring the size of the macro organization (impacts of retirement, accessions, etc.), (2) measuring the descriptive statistics or demographics of the workforce, and, to a lesser degree, (3) attempting to measure the capabilities of the organization vis-à-vis competency assessments (Lamm & Reed, 2009). While these assessments present leaders with important pieces of information, they are incapable of answering the critical questions: “How much work will we need to do?” And “how efficiently can we expect to accomplish quality work in our organization?”

In 2010, Reed found that workload measurement in DoD contracting organizations is either performed inconsistently or not at all. This study measures contracting workload, organization efficiency in completing work, and benchmark comparisons; and it identifies opportunities to improve organization performance based on the research findings. We utilize Cost per Dollar Obligated (CPDO) as the assessment model to baseline organization workload and serve as a comparison with other similar organizations.

In essence, CPDO identifies the cost that an organization incurs while conducting its mission. The operating costs incurred are then compared to the total work accomplished by the organization. The resulting ratio is the CPDO, or the cost for the organization to obligate (and de-obligate) each dollar.

We completed CPDO assessments on contracting organizations over three years, in nine Air Force, Navy, Marine Corps, and Defense Management Agencies. This multi-service assessment allows us to compare trends in organization efficiency across services and in various U.S. regions. We also are able to compare performance in different types of contracting organizations grouped by the complexity of work in that organization.

While the efficiency benchmarks alone represent useful information for contracting leaders, we also measured performance measures for cycle time (Procurement Administrative Lead Time [PALT]) and compliance (protests received and sustained). Comparison of these measures with CPDO provides insight into the relationships between cost efficiency and the quality and timeliness organization workload completion.

Finally, we analyzed the demographic makeup of the participating organizations and identified relationships between CPDO and proportion of contracting officer warrants and percentage of military personnel.

This study provides acquisition leaders with actionable insight regarding organization efficiency, performance, and staff composition.

Methodology

The methods utilized to obtain each of the variables of interest are presented below.

Cost per Dollar Obligated (CPDO)

CPDO is a measure of how efficiently a procurement organization accomplishes its mission. CPDO captures the cost of operating the organization, and standardizes it with the amount of work accomplished by the organization. Past research in CPDO has found a range in procurement organizations (in both industry and government) from .002 to .05 (McCampell & Slaich, 1995, p. 34). While these numbers are interesting points of comparison, we were unable to determine the methodology utilized in those studies. It appears that burdened organization costs were not utilized. In this study, we did use fully burdened labor costs, which result in higher CPDO. We believe this will result in more accurate indicators of organization efficiency.

CPDO Methodology

In order to conduct a CPDO analysis, operating cost information was identified and captured. First, an examination of available operating expense data was required. In this study, we used fully burdened GS rates provided by OPM to account for the organization mission cost calculation. We also utilized standard military manpower labor rates. Second, a listing of all staff positions occupied during each of the study years, and the GS level and step for that position, as well as the grade and length of service for each military member. Midpoint or organization average was used for step determination if required.

The second portion of the CPDO calculation is the amount of work accomplished by the organization. Historically, organizations report the net value of their obligations, that is, obligations less de-obligations (funds removed from contracts). This traditional process fails to recognize the work involved in the de-obligation process, nor the work involved in zero dollar contract actions. The absolute value of de-obligations typically ranges from 5–15% of an organizations obligation total. In order to ensure all work of the organization was better accounted for, we calculated the absolute value of all obligations and de-obligations, and utilized the sum of those absolute values to identify the amount of work accomplished in each fiscal year (FY) by each organization. We acknowledge that using the absolute value of de-obligation actions may provide disproportionate credit for those actions (e.g., a one million dollar de-obligation action likely requires less work than a one million dollar initial contract award). However, we identified a large number of zero dollar actions in each data set. These zero dollar actions are often associated with necessary post-award contract administration activities. Using the traditional workload methodology, organizations receive no work credit for these actions. We believe using the absolute value for de-obligation actions accounts for the work required to accomplish the large number of zero dollar actions as well as the work required to complete the de-obligation contract action. Obligation data was collected from organization contracting writing and reporting data system archives (non-Navy) and from actual obligation reports (Navy).

PALT Data Element Development and Evaluation

PALT data was extracted from the official contracting writing systems for each non-Navy organization, and from verified Navy data sets. PALT is the number of days it takes from acceptance of a purchase request/requirement to the award of the contract/issuance of the modification. PALT is reported as the duration or number of days the process takes. From a customer perspective, higher PALT numbers indicates it takes relatively longer to complete the process. Lower PALT numbers (in comparison) indicate the process took less time to complete. We acknowledge that there is variability in the way that PALT is tracked in different organizations. This is due in part to a lack of awareness by leaders of the

usefulness of the measure, and subsequently a lack of awareness by staff of the importance of accurate data entry. Despite this variability, we believe PALT to be the most useful measure of contracting process time available.

We found the PALT classification systems in use varied by organization. Many recorded PALT in only two categories: those below the simplified acquisition threshold (SAT) of $150,000, and those above the SAT of $150,000. While some organizations measure PALT for multiple types of contract actions (e.g., orders off existing contracts, GSA schedule contracts, modification actions, etc.), all of the benchmark organizations measured PALT above and below SAT. As such, in this study, we were limited to the use of PALT either "Above" or "Below" the SAT. Capturing PALT in these two categories is useful as the contracting processes required for actions below the SAT is much more streamlined and can in most cases be accomplished in a timelier manner.

Protest Data Element Development and Evaluation

The second category of performance measures collected reflected the number of protests received and sustained. This information was provided by each organization. As protests are high visibility items that must be reported up the contracting and command chain, the documentation of protests is robust. In this study, each organization reported the number of protests that were filed either with the organization or with the GAO. Further, the organizations reported the number of those protests that were upheld, meaning the protest was recognized as valid and the organization was directed to take action. Based on interviews with senior leaders, protests received and upheld were identified as potential proxies for the quality of work accomplished by the organization, as well as the adherence to laws, regulation, and policy.

The data reported regarding the number of protests sustained yielded a much smaller range, with only a handful of protests upheld across the entire sample. The vast majority of protests are either dismissed or have some sort of corrective action taken in lieu of a final decision. The largest number of protests sustained in any organization in any FY was two. Having a protest sustained is clearly an indication of a need for attention in an organization. However, the small number of protests sustained in this sample made it difficult to utilize this measure. Many protests and contractor concerns are addressed via other corrective actions. Such actions are not currently tracked in a consistent manner. We believe standardizing the methodology for tracking corrective actions after protest to be worth consideration as a quality measure going forward.

Personnel Descriptive Data

Our senior leader interviews suggested that the type and mix of contracting personnel was an area of interest. To gain visibility into this area, several demographic personnel variables were added. Specifically, the *average GS grade* for each organization, the *total number of staff,* the *number of non-contracting personnel,* the *ratio of contracting officers to specialists,* and the *ratio of civilian to military personnel* were captured. These variables were compared to CPDO to determine whether any relationships exist. We report those findings in which we found a significant relationship.

Benchmark Organization Group Comparisons

This study was designed to identify benchmarks for contracting organizations. Through a combination of researcher colleagues and senior leader introductions, the following list of comparison organizations was identified:

- USMC 1
- USMC 2
- USAF 1
- USAF 2
- USAF 3
- A Civilian Defense Contracting Agency
- USN 1
- USN 2
- USN 3

CPDO Results

This section presents summary information for the benchmark organizations related to their CPDO ratios over time. In the first graph (Figure 1), a fairly consistent cluster of CPDO results is depicted, with most organizations achieving between .005 and .025. The notable exception is USMC 2, which ranges from .05 to .07.

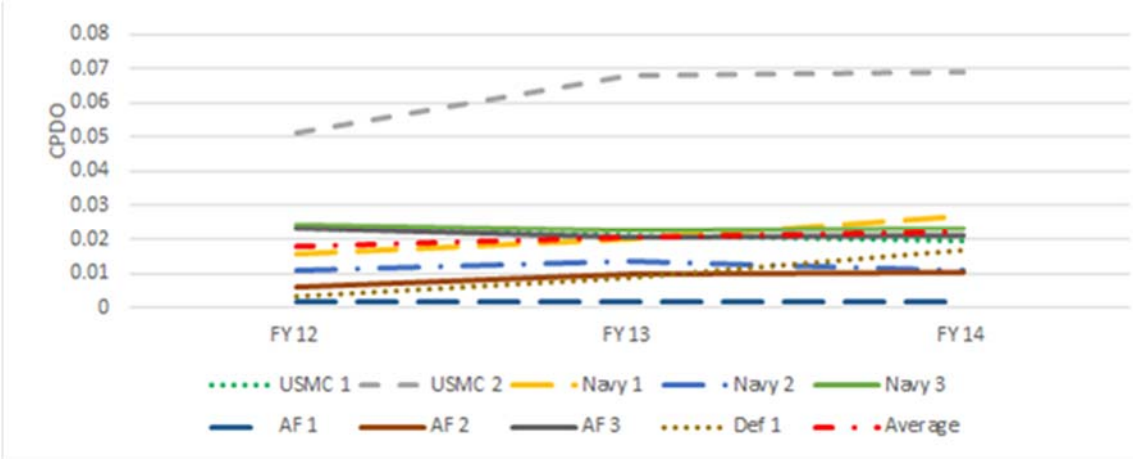

Figure 1. CPDO Results

We analyzed CPDO for each regional area represented by the benchmark organizations. The CPDO trend for all regions is up. The CPDO for organizations in the D.C. area (DC) and the rest of U.S. labor markets (ROUS) are plotted in Figure 2.

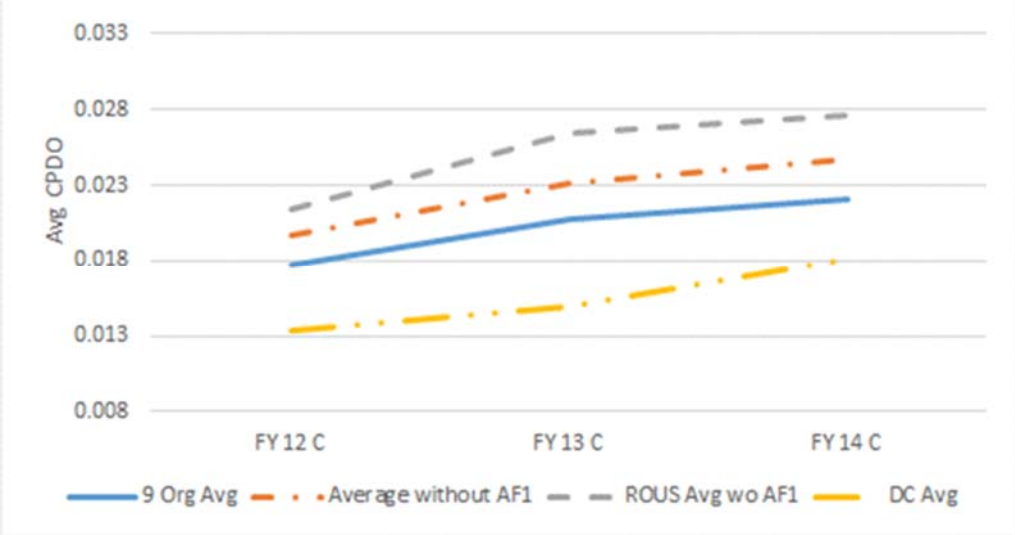

Figure 2. Average CPDO by Region

The study was designed to also analyze CPDO performance by service. Air Force CPDO averages .01, Navy .02, and USMC .045 (see Figure 3). While these results are from a small sample size, they identify differences in CPDO that warrant further examination in future research.

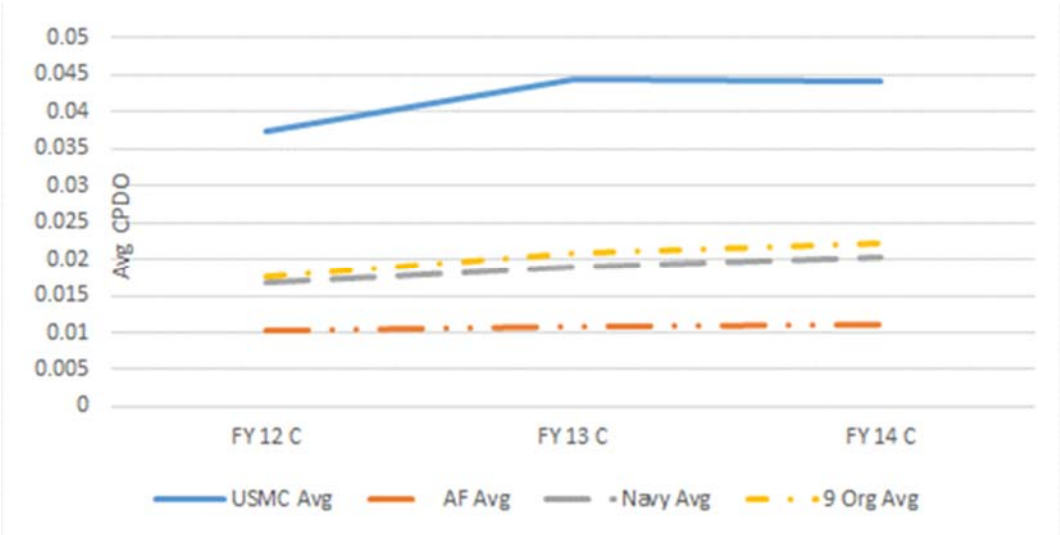

Figure 3. Average CPDO by Service

PALT

As discussed previously, PALT duration was identified by customers as the single most important performance measure. In this section, we present the benchmark comparisons for ASAT (over $150K) and BSAT (below $150K) contracting action PALT. The two charts that follow (Figures 4–5) show that USMC 1 and USMC 2 are the only two organizations with increasing PALT time durations in both BSAT and ASAT categories. All other organizations are either decreasing or flat.

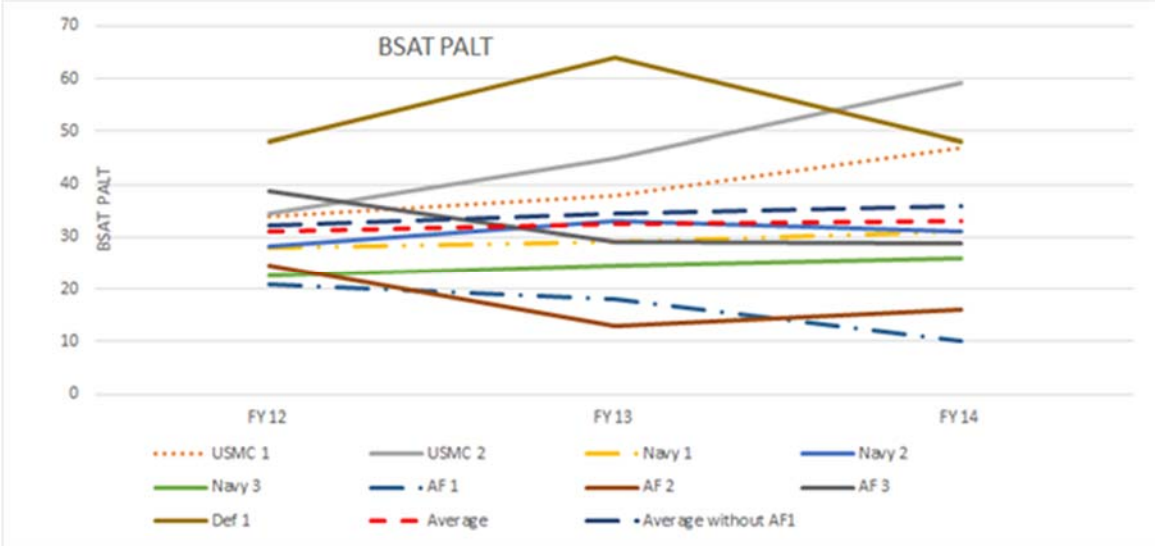

Figure 4. BSAT PALT

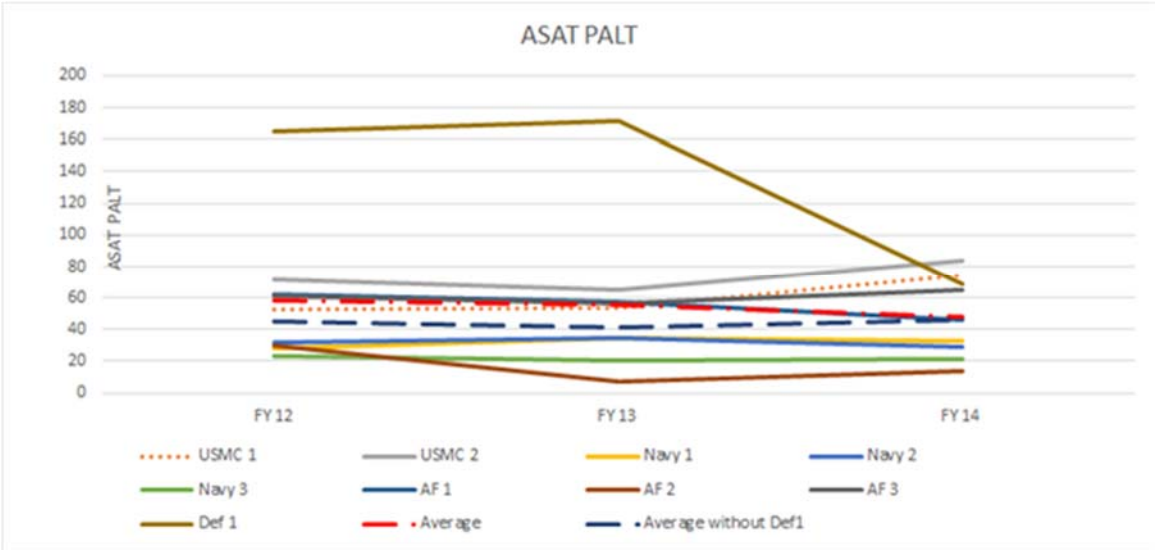

Figure 5. ASAT PALT

Relationship Between PALT and Other Variables

We analyzed the relationships between CPDO and PALT in order to identify correlations to provide insight into possible options for reducing PALT. In Figure 6, the analysis shows that BSAT PALT times rise as CPDO increases. This relationship may be a result of organizations dedicating new resources to high visibility ASAT requirements and staffing BSAT requirements with less-experienced, lower cost staff. Our analysis showed no consistent relationship between CPDO and ASAT PALT.

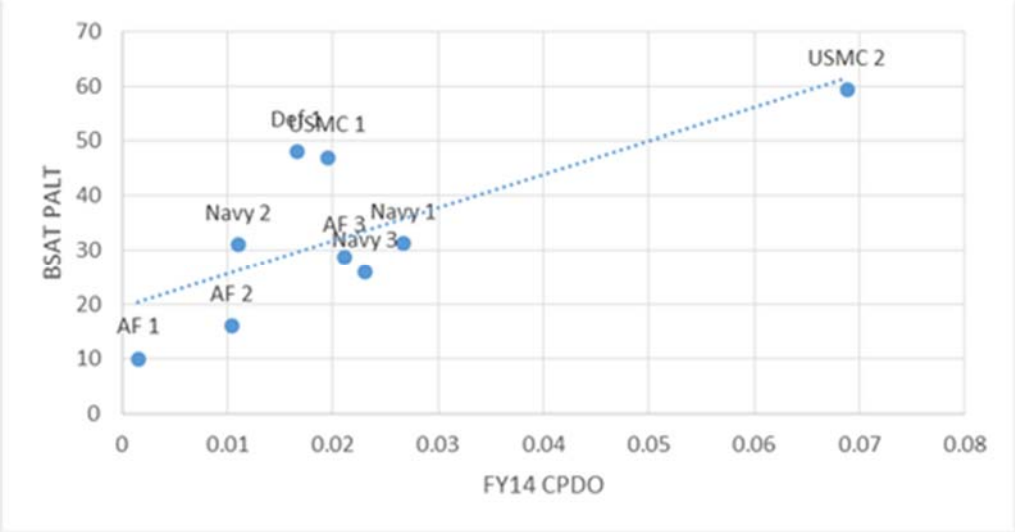

Figure 6. BSAT PALT by CPDO (FY14)

Statistical analysis of the relationship between CPDO and BSAT PALT for all benchmark locations over the three-year period confirms a significant relationship whereby BSAT PALT increases as CPDO increases.

$$PALT\ BSAT\ =\ 25.4\ +\ 341\ CPDO$$

$$(Significance\ Level\ =\ 98\%, df\ =\ 25) \quad (1)$$

Contracting Officer Warrants

We identified the number of core contracting personnel with contracting officer warrants at each benchmark organization. The roll of the contracting officer in completion of work is significant. The greater the number of contracting specialists assigned to each contracting officer, the more likely that there will be delays as contract documents queue waiting for contracting officer review. Contracting officer review delays extend PALT times and decrease customer satisfaction. We identified percentage of warranted contracting officers ranging from 24% to 91% of an organization's contracting staff.

Figure 7 depicts compelling relationships between higher percentages of warranted staff and lower CPDO. The graph shows the relationship between CPDO (along the horizontal axis) and contracting officer percentage (along the vertical axis). Our analysis found that CPDO decreases as the percentage of staff with warrants increase. A greater number of warrants results in the ability to complete contract actions in a more efficient manner, thus allowing the organization to accomplish more work with the resources allotted.

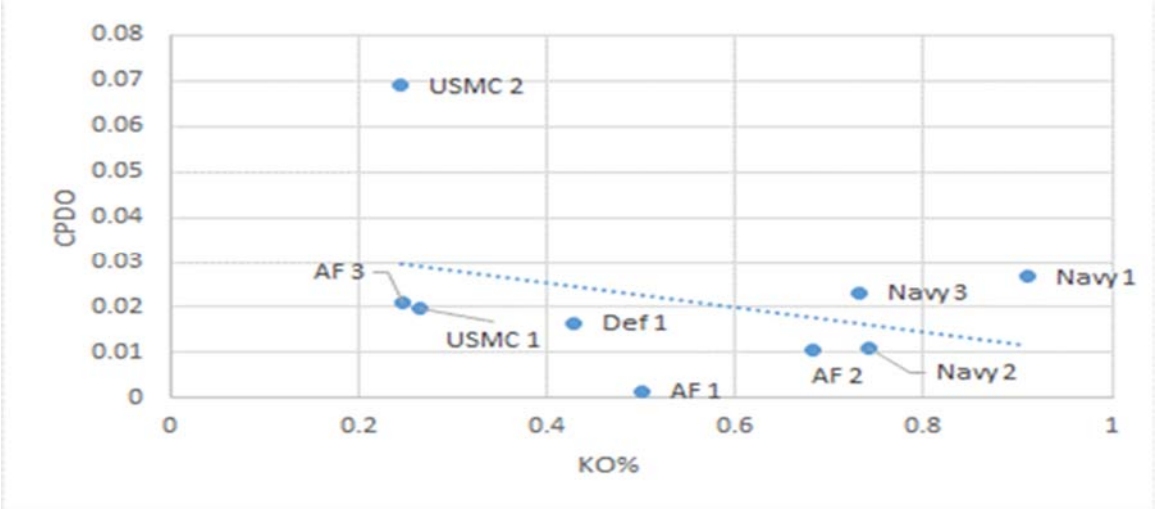

Figure 7. FY 14 CPDO and KO%

Statistical analysis of the relationship between CPDO and the percentage of contracting staff with warrants for all benchmark locations over the three-year period confirms a significant relationship whereby CPDO decreases as contracting officer percentage increases.

$$CPDO = 0.0337 + -0.0259\ Perc\ of\ contracting\ with\ warrants \quad (2)$$

$$(Significance\ Level = 90\%, df = 25)$$

While not a focus of this paper, we also found a significant relationship between higher percentages of staff with warrants and reductions in both BSAT and ASAT PALT times. The relationship between increased warrant percentages CPDO and PALT times are noteworthy. Beyond the impact on processing time, we believe there is also a potential secondary impact of increasing the number of warrants in that it stimulates workforce development as contracting specialists strive to gain the knowledge and experience necessary to earn a warrant. In addition, contracting professionals may take more ownership of a contracting action when they know that they will be signing the document.

We recognize that limiting the number of warrants in a contracting organization is one strategy to mitigate risk. We suggest that an alternate way to mitigate risk is to develop a contracting workforce in which more professionals maximize their experience and knowledge as they pursue and earn warrants. Limiting the opportunity to obtain a warrant may have the unintended consequence of decreasing the motivation of specialists to maximize knowledge, and instead rely on the limited number of contracting officers to review and "grade" their work. Further, limited warrant opportunities may contribute to higher turnover as specialists see little chance of the goal of many contracting professionals—earning a warrant. In such a scenario, the best and brightest seeking such a goal will depart the organization and seek the opportunity elsewhere.

Protests

While protests are often identified as a potential measure of work quality, we question the use of protests as a performance measure. In this study, we did analyze the relationships between protests received and other variables. We found no significant relationship between changes in CPDO and the number of protests. The only significant relationship detected was between the total workload of an organization and the number of protests received. In Figure 8, the trend line show that protests rise as obligations increase

in our benchmark sample. We identified a significant relationship in which an organization received an additional 3.24 protests for each billion absolute dollars obligated.

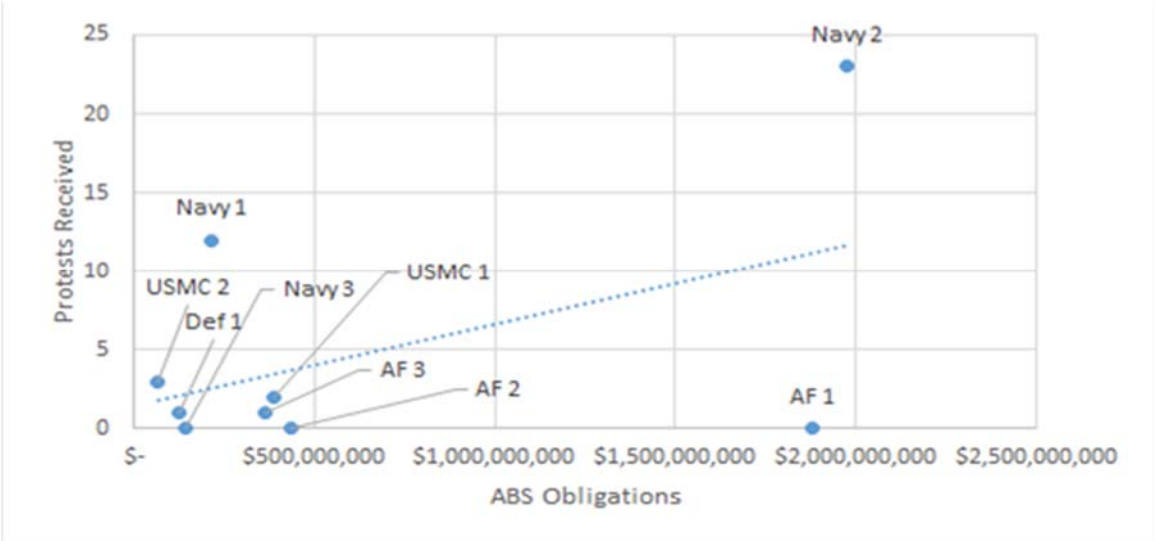

Figure 8. FY14 Protests and ABSO

$$Protests\ Received\ =\ 1.90\ +\ 3.24\ ABS\ Obligations\ (\$B) \quad (3)$$
$$(Significance\ Level\ =\ 95.94\%, df\ =\ 25)$$

Civilian–Military Staff Mix

In this section, we explore the relationship between the civilian–military mix in a contracting organization and key performance measures. As discussed previously, the additional training and availability impact that having military personnel in a contracting organization has been frequently mentioned in our stakeholder interviews.

The following charts indicate that the higher the percentage of civilians in a contracting staff, the lower the CPDO (on the horizontal axis). This may indicate that organizations with lower percentages of military staff are able to focus more on contracting activities with less competition from military readiness demands.

Statistical analysis of the relationship between CPDO and the percentage of civilians on the contracting staff for all benchmark locations over the three-year period confirms a significant relationship whereby CPDO decreases as the civilian percentage increases.

$$CPDO\ =\ 0.0516\ +\ -0.0372\ percent\ civ \quad (4)$$
$$(Significance\ Level\ =\ 95\%, df\ =\ 25)$$

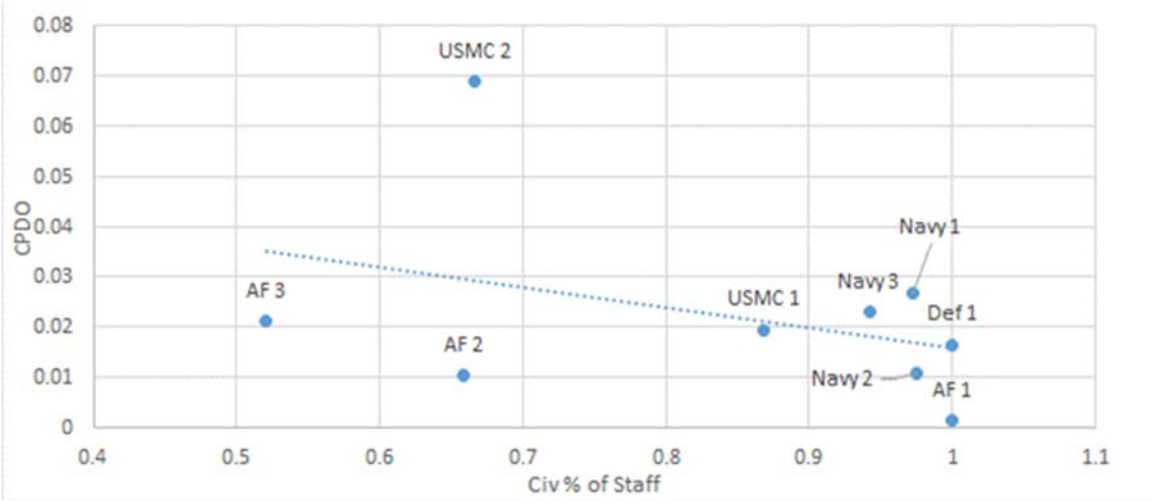

Figure 9. FY 14 CPDO and CIV%

The Emergence of a Contracting Organization Typology

As clusters of organizations began to emerge during our analysis, we noted that an organization portfolio typology facilitated comparison of organization performance to peer organizations with similar portfolios.

The two key characteristics that were utilized for this grouping were

- the percentage of actions accomplished by an organization that were below the SAT (actions lower than $150K)—the average of which was 74% for the benchmark group, and
- whether the median non-zero obligation action value was above or below the mean for the benchmark group ($54K).

Using these measures, we developed a 2x2 matrix and four potential contracting organization types. The distribution of our benchmark organizations is shown in Figure 10.

	Organization	Median value of contract action	Percentage of actions below the SAT
1	AF 1	$267K	46%
2	AF 2	$102K	71%
3	AF 3	$44K	79%
4	DEF 1	$24K	88%
5	USMC 1	$16K	90%
6	USMC 2	$12K	95%
7	Navy 1	$10K	73%
8	Navy 2	$22K	65%
9	Navy 3	$10K	69%
10	Average	$54K	74%

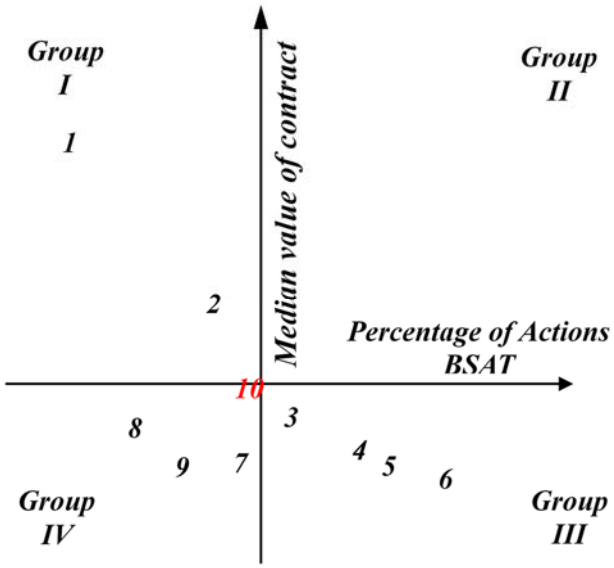

Figure 10. Peer Comparison Groups for Each Organization

Table 1. Peer Comparison Groups

Group I	Group II	Group III	Group IV
BSAT actions are less than 74% of all actions	BSAT actions are more than 74% of all actions	BSAT actions are more than 74% of all actions	BSAT actions are less than 74% of all actions
Median non-zero action value is higher than $54K	Median non-zero value is higher than $54K	Median non-zero value is less than $54K	Median non-zero value is less than $54K
These organizations do big dollar actions, and fewer BSAT actions than the average for the group. Requires special expertise to meet more complex actions	Big dollar actions, but still a higher level of BSAT actions than the rest of the group	Small dollar actions, and the vast majority of actions are BSAT. This organization should specialize in simplified acquisition procedures, organize to facilitate such actions, and implement warrants to support BSAT actions.	More of a mix of ASAT and BSAT actions than others in the sample. Requires a mix of contracting capability with a strong focus on the generally lower dollar levels for transactions. Of particular note, all the organizations in this group from our sample also used 1105 (procurement clerks) in their workforce staff.
AF 1, AF 2	No organizations were identified for this group in the benchmark study	AF 3, USMC 1, USMC 2, Def 1	Navy 1, Navy 2, Navy 3

The emerging typology allows for comparison of peer group organizations to within group averages on key performance measures. The average FY14 CPDO for each group is shown in Table 2.

Table 2. Benchmark Organization CPDO FY14

Organization	Group	CPDO FY 14
USMC1	3	.019
USMC2	3	.069
Navy 1	4	.027
Navy 2	4	.011
Navy 3	4	.023
AF 1	1	.002
AF 2	1	.010
AF 3	3	.021
DEF 1	3	.017
Average of Group 1 Peers	1	.006
Average of Group 3 Peers	3	.032
Average of Group 4 Peers	4	.020
Average of All	ALL	.022

Implications for Leaders and Practitioners

The contracting profession operates in a fast-paced, mission-critical environment and, as such, it is difficult to pause and consider changes and new ways of thinking. This has led to challenges and problems that remain largely the same over the past several decades. Whether it is PALT, resource constraints, or poorly written requirements, the retiring leaders of today are passing these same challenges to the millennials that will replace them. It is our collective opinion that the current environment is ripe for new analysis and thinking to better learn from one another to finally tackle and perhaps alleviate some of these decades-old challenges.

Comparing Contracting Organizations

Prior to illustrating the usefulness and applicability of the aforementioned study and related analysis, it is first useful to overcome the frequently held notion that each contracting organization is too unique for a comparative analysis. The claims that “My organization is not like the typical contracting shop,” or “Our mission makes it impossible to benchmark our statistics with other organizations,” or “What we do is so unique that I need an analysis independent of any other organization” have existed since the inception of the contracting profession and likely have never been as invalid as they are today. Significant efforts to streamline the profession regardless of the goods and services being procured have increased the similarity of the contracting profession across agencies and departments. For example, standardized contracting writing systems, government wide e-gov systems (e.g., FPDS, FBO, EPLS, etc.), heightened transparency, the increase in shared services, strategic sourcing, and, more recently, category management have all had a profound

impact on making the contracting profession more uniform and a lot less “unique.” Further validation that contracting organizations do lend themselves to a comparative analysis is offered in Table 1. This table uses the standard characteristics of median value of contract actions along with the transactions relative to the Simplified Acquisition Threshold, both common benchmarks in the contracting profession. The result of this analysis is that each of the nine participating organizations do indeed have peers when analyzed through the lens of these commonly accepted characteristics. In short, contracting organizations are not so unique that they cannot be compared to other, similar contracting organizations. Regardless of an agency or department’s overall mission, there are enough common traits and characteristics to make a comparative analysis not only worthwhile but, in today’s environment of data transparency and never ending budgetary challenges, essential.

CPDO Hypothesis, Insights, and Practical Applications

We posit that a comparative analysis is a worthwhile endeavor and that such comparisons offer practical application for contracting leaders.

BSAT PALT and CPDO

This particular comparison illustrated a direct correlation between Below the SAT PALT and CPDO. This resulting data offers that the higher the CPDO, the lengthier the BSAT PALT. At first glance, this seems to contradict conventional wisdom as one would logically assume that the higher CPDO, which may be driven by additional resources, would result in a shorter lead time (PALT), regardless of whether it was above or below the SAT. For BSAT, this analysis clearly illustrates a pattern that more resources does not equate to a decreased PALT for BSAT actions. In short, the old claims that “I need more resources if you want your PRs processed timely” are likely the wrong course of action, at least for BSAT contracting actions. Perhaps the additional resources were aimed towards ASAT contracting actions and the BSAT actions were secondary priorities for these commands with a higher CPDO thus leading to longer PALT durations.

Warranted Contracting Officer Percentage and CPDO

This particular comparison illustrated a direct correlation between the percentage of warranted contracting officers and CPDO. As the number of warranted contracting officers increased for each agency in the study, the respective CPDO of these agencies decreased. The implication here is straightforward: As warranted contracting officers are increased, the CPDO in that agency decreases. This has large implications for rightsizing staffing and how to approach warrant related policies, both important endeavors for contracting leaders. A larger number of warrants also implies that the related PALT should decrease, as there is an increase in the abilities of the organization to complete contract actions in a more efficient manner. In short, more warranted resources to complete actions translates into more work being accomplished with the resources allotted. This particular analysis and related findings offers a significant proposition that warrants further study as resource constraints and how to properly staff and right-size the workforce have been ongoing initiatives for decades in the contracting workforce with little to no agreement across agencies on how to move forward.

Admittedly, our analysis and research did not incorporate warrant levels (at or below SAP, certain dollar thresholds, etc.), the relationship between increased warrants and quality of work produced (measured by protests and/or other quality variables), impact on risk, and so on. These are all areas that demand further exploration. Conversely, examining the impact of increased warrant levels on employees ownership of their work given that they now sign the contracts, who receives a warrant (e.g., warrants are typically earned by the high performers in the organization), offers hypotheses that speak to the potentially positive outcomes related to workforce satisfaction in additional research.

Military Staff and CPDO

Many DoD contracting organizations have a blend of military and civilian staff. Like all things, this hybrid approach offers a myriad of pros and cons. For purposes of this discussion, the linkage between military and civilian staff and CPDO is evident in our study. The higher the percentage of civilians in a contracting staff, the lower the CPDO. This correlation/finding offers insight into the aforementioned importance of rightsizing an organization, thinking through the true costs of managing a hybrid organization, and trying to assess the proper mix of personnel.

Hypotheses stemming from this finding include that perhaps military readiness demands and other assigned duties detract from the position's primary focus of awarding contracts thereby requiring additional resources to backfill the military positions. Additionally, perhaps the constant turnover of military staff impacts training and organizational efficiencies thereby negatively impacting the agency's CPDO. Given that the organizations studied that offer nearly 100% civilian staff portray a range of PALT data, it is premature to add this critical variable into the discussion and further validates the need for additional research.

Using CPDO Moving Forward

This study and resulting analysis offers that CPDO can indeed be a useful tool in assisting leadership in how to properly structure contracting organizations as well as impact their efficiency. The implications and potential impact should not be taken lightly given that this particular workforce is responsible for executing the largest buying entity on the globe and doing so in an environment that offers little to no budgetary relief accompanied by unprecedented levels of scrutiny. While the various hypotheses beg for additional research, this study offers an encouraging and worthy starting point.

The final point to offer regarding CPDO is its rising importance in the current environment of shared services, fee-for-service organizations, federal-wide strategic sourcing and inter-agency agreements, and, most importantly, the OFPP sponsored category management initiative. As the government strives to "buy as one" and harness its collective bargaining power through centers of excellence and government-wide categories, leadership across the acquisition community (e.g., CAOs, CFOs, CIOs, Management Bureau leads, etc.) will all be keenly interested in how efficient the contracting organization is that is receiving government-wide funds. Prior to the DoD sending billions of dollars to the GSA for a category management initiative, an essential question that should be posed is what is the cost of the GSA's procurement activities compared to our own? While there are numerous, influencing variables that would inevitably find its way into this discussion, CPDO remains at the heart of the start of the conversation. Adding in PALT, warrants, and other variables mentioned above, the discussion becomes more sophisticated, leading to potentially sound, fact-based decisions that will inevitably produce not only a more efficient and effective workforce but, more broadly, savings to the taxpayer and a better use of the limited available dollars to support the warfighter.

Future Research

This study identified many opportunities for future research.

First, while the study sample does cover multiple services, the study sample size is small. The number of benchmark organizations should be increased to include

- additional Washington, DC, based organizations to confirm the lower CPDO identified for that area in this study,

- additional U.S. Army locations to complete the service comparison, and
- additional Group III organizations to further define the group of most significant interest to operational and base support contracting organizations.

Second, the significant differences between organizations on CPDO and other measures should be further studied. The differences may be attributable to the high percentage of "Below the SAT" transactions or other portfolio characteristics.

Third, the differences between each services' CPDO should be further assessed. Are there service policies or procedures that can be identified and leveraged by other organizations? Or are the differences driven primarily by portfolio type?

Fourth, the current study used a count of warrants to determine warrant percentage in each organization. Further study should be accomplished on the type and dollar level of warrants utilized by various organizations to provide a general roadmap of the most effective designation of warrants.

Fifth, the military–civilian mix in contracting requires more research—the benchmark sample indicates a significant relationship (e.g., 100% civilian organizations reduce CPDO from .051 to .014).

Finally, further analyze organization portfolio (percentage of actions that are task orders, delivery orders, full contracts, basic vehicles, etc.). A next level analysis of execution practices will provide insight into further optimizing CPDO and PALT.

This research provides insight into multiple uses of CPDO and other measures to optimize contract awards and meet the needs of procurement customers more effectively. Extending this research to a larger sample and with greater visibility into specific portfolio components will increase the precision of the findings and enhance the decision making of leaders throughout the contracting community.

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Appendix A. Acronyms

Acronyms

ASAT	Above the Simplified Acquisition Threshold (for this study, above $150,000)
BOSS	Beyond Optimal Strategic Solutions, the principal investigators for this study
BSAT	Below the Simplified Acquisition Threshold (for this study, below $150,000)

CPDO	Cost per Dollar Obligated, a measure of efficiency calculated by dividing the organization operating expense (cost) by the absolute value of obligations (work)
FY	Fiscal Year
GS	General Schedule, category of government civilian workforce
OPM	Office of Personnel Management
PALT	Procurement Administrative Lead Time, the duration of time required to accomplish a contracting action
PD2	Procurement Desktop Defense, the contract-writing system utilized by many contracting agencies to create and track contracting actions, also referred to as SPS
PR	Procurement Request, a form submitted by a requiring agency stating what needs to be purchased and providing documentation that funds are available
SAT	Simplified Acquisition Threshold, a threshold (for this study $150,000) below which streamlined, or simplified acquisition procedures are utilized to award contracts
SPS	Standard Procurement System, see PD2

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Organization Analytics: Taking Cost-per Dollar Obligated (CPDO) Measures to the Next Level in Defense Contracting

Tim Reed, Ph.D. James Keller, USMC John Fallon, Ph.D.

Agenda

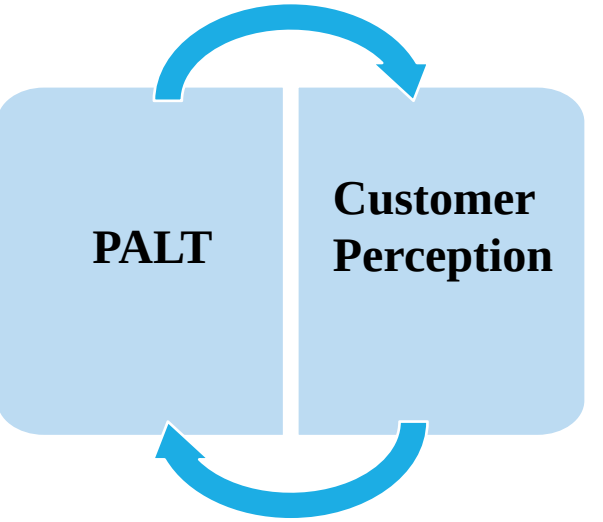
- Thanks
- Study Goals
- Cost per Dollar Obligated – Introduction
- Methodology
- Benchmark results
- Future Research

Key stakeholder interviews identified target areas

“a perfect contract that is late to need is a failure”

“we know the PALT times, contracting can’t meet the PALT times”

“contract award times are a moving target after they are communicated to the customer”



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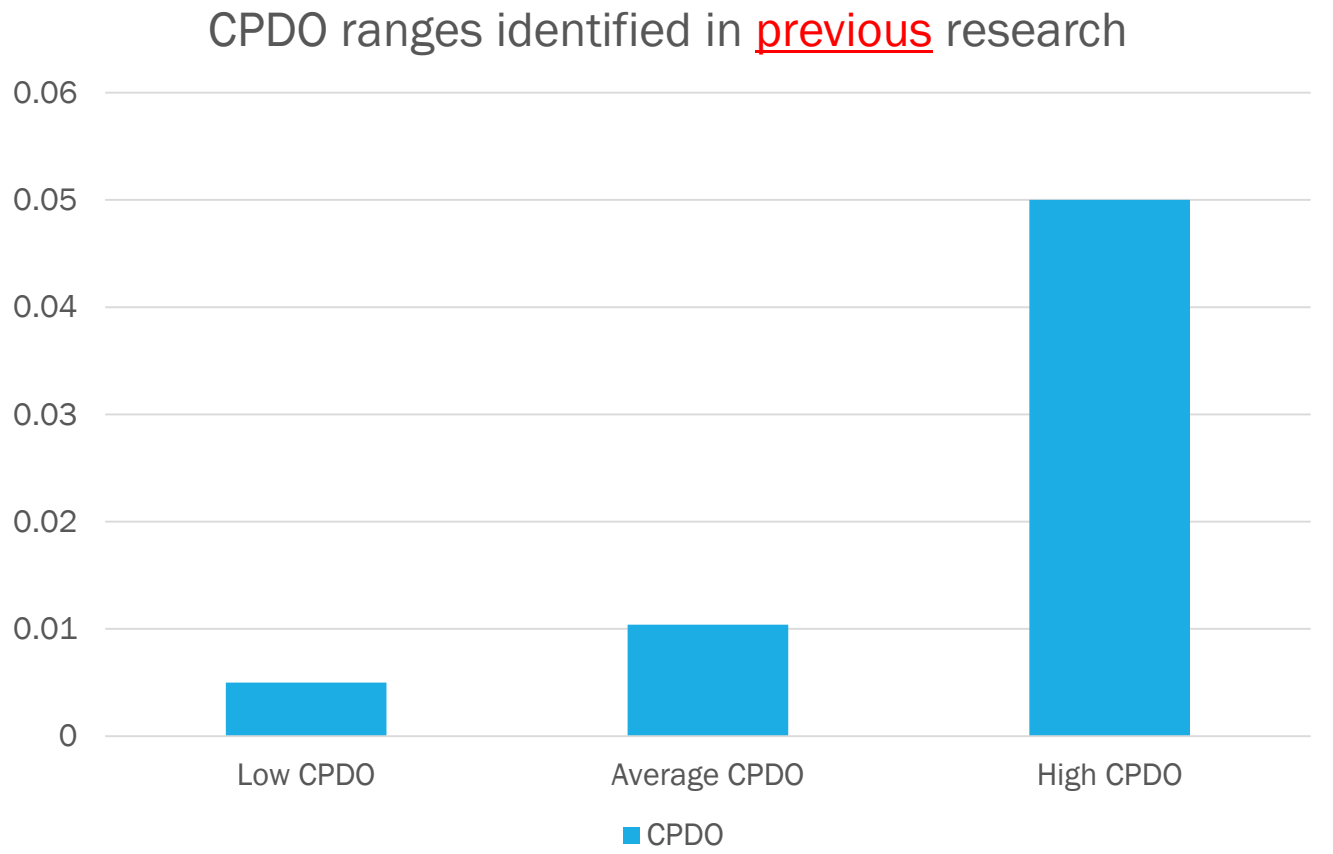
Cost per Dollar Obligated - Introduction

- "The most usable, useful measure of workforce alignment to workload…" [also referred to as Cost to Obligate (CTO)]
- Divide the total cost of operating the organization by the total obligations of the organization
  - Costs may include labor, infrastructure, IT, other support costs
  - We use the absolute value of obligations and de-obligations

Example: $1M in operating cost/$100M in obligations = CPDO of .01

- Works only at an aggregate level
- Variability depending on procurement type and industry complexity

Cost per Dollar Obligated



Average CPDO is .0104 [1]

Research range of CPDOs is .002 to .05 [2]

What about the quality of the action?

Which CPDO is the best?

[1] Reed, 2010, [2] Reed, 2011

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Key Performance Indicators

- In addition to CPDO, we sought performance measures that would provide insight into the two strategic intent focus areas
  - 1) timeliness
  - 2) adherence to law/compliance with regulation and policy (obey the rules)

Procurement Administrative Lead Time (PALT) methodology

- PALT represents the duration of time in days from purchase request acceptance and workload assignment, to contract award, or modification issuance.
- PALT category types vary by service
- We utilized PALT categories for:
  - actions Below the Simplified Acquisition Threshold (SAT) (avg)
  - actions Above the SAT (avg)

Staff mix and composition descriptive measures

- We collected other staff measures
  - Average GS grade for each organization
  - Total number of staff
  - Number of non-contracting personnel
  - Ratio of contracting officers to specialists
  - Ratio of civilian to military personnel

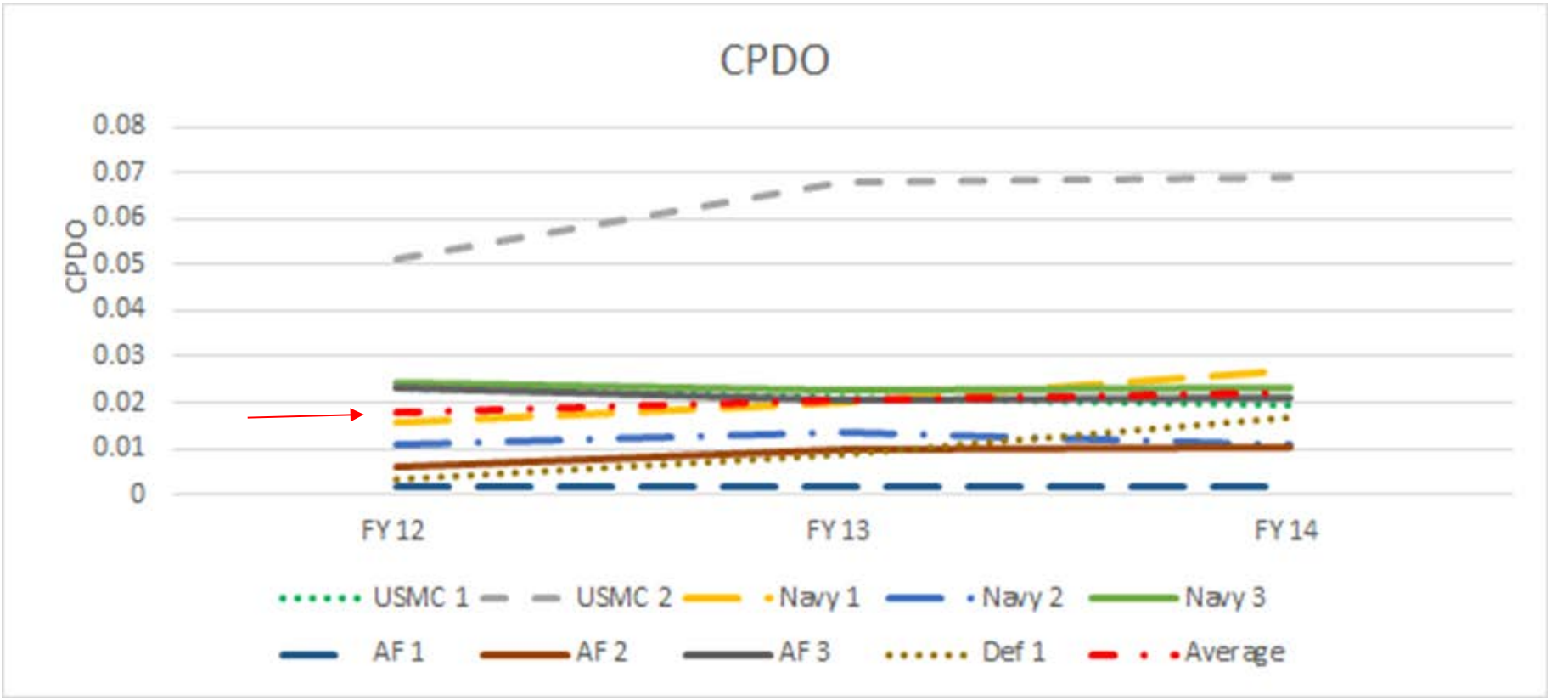
Benchmark organizations

- Through a combination of researcher colleagues and senior leader introductions, the following list of comparison organizations was identified:
  - USMC 1
  - USMC 2
  - USA 1*
  - USA 2*
  - USA 3*
  - USAF 1
  - USAF 2
  - USAF 3
  - Defense Agency 1
  - USN 1
  - USN 2
  - USN 3

*USA withdrew its support early in the study prior to quantitative data collection

Average US CPDO is increasing

CPDO for all organizations



Avg CPDO has increased from .018 to .022

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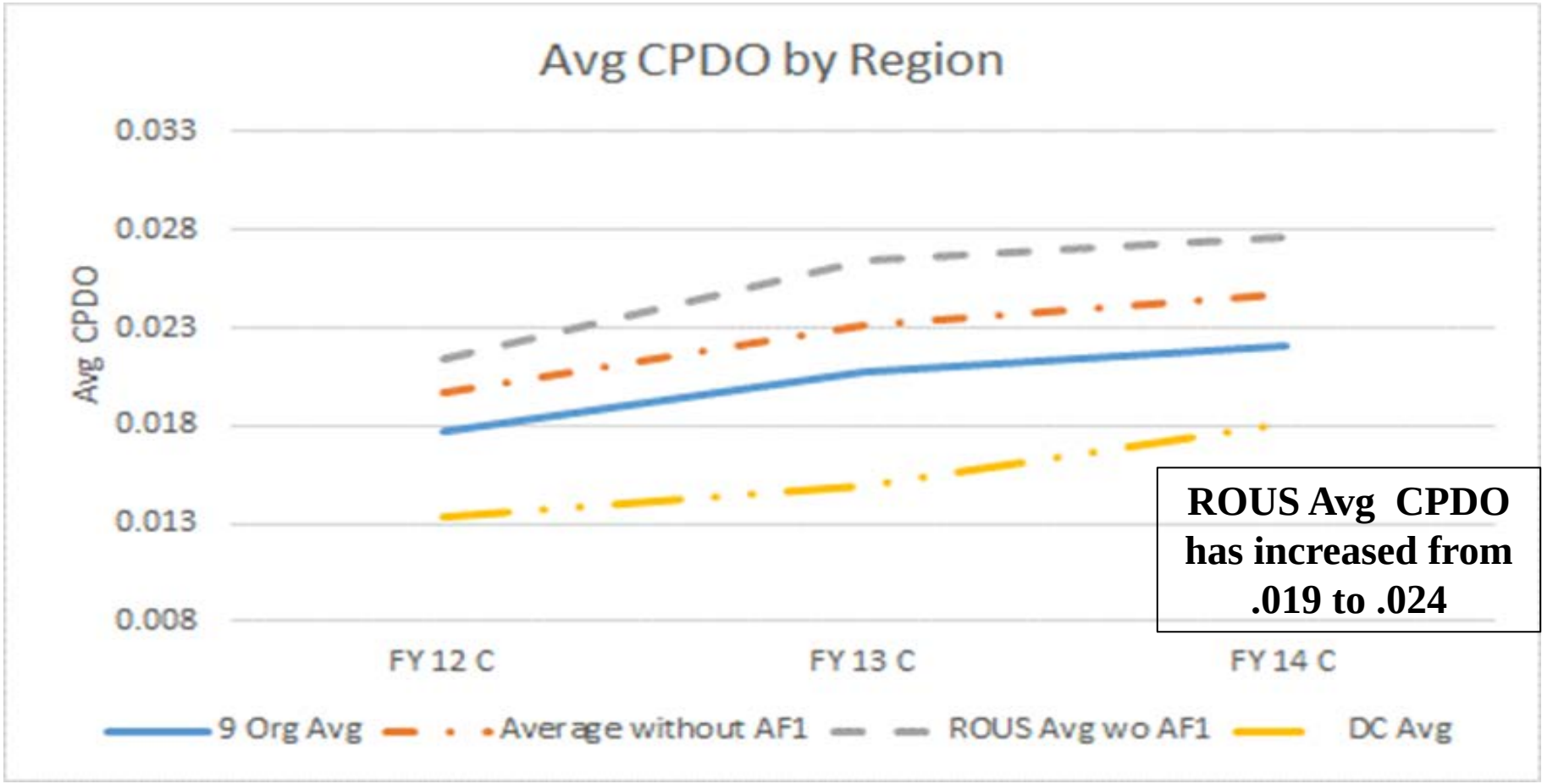
All regional CPDO averages are increasing

Average CPDO by Region



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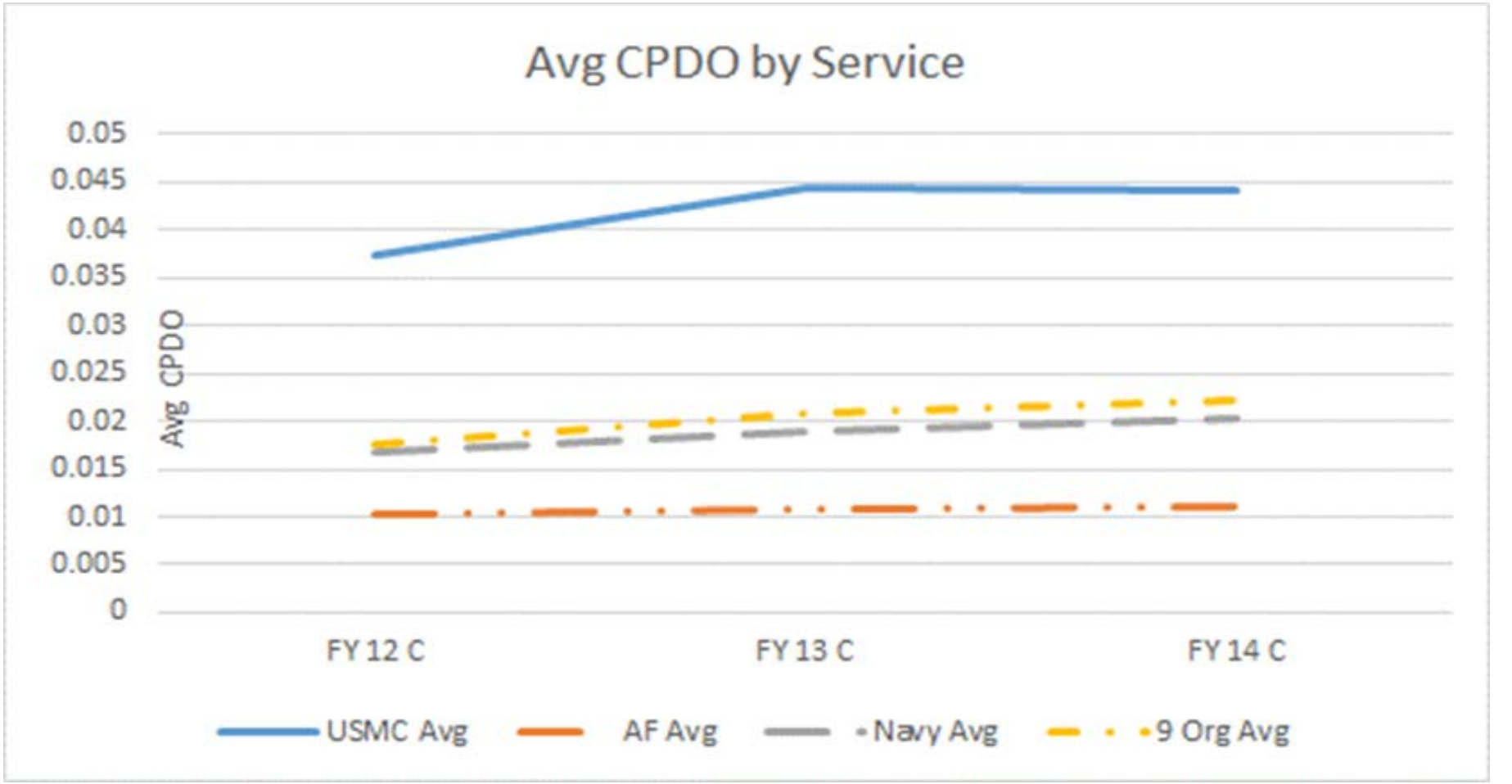
Average CPDO by Service



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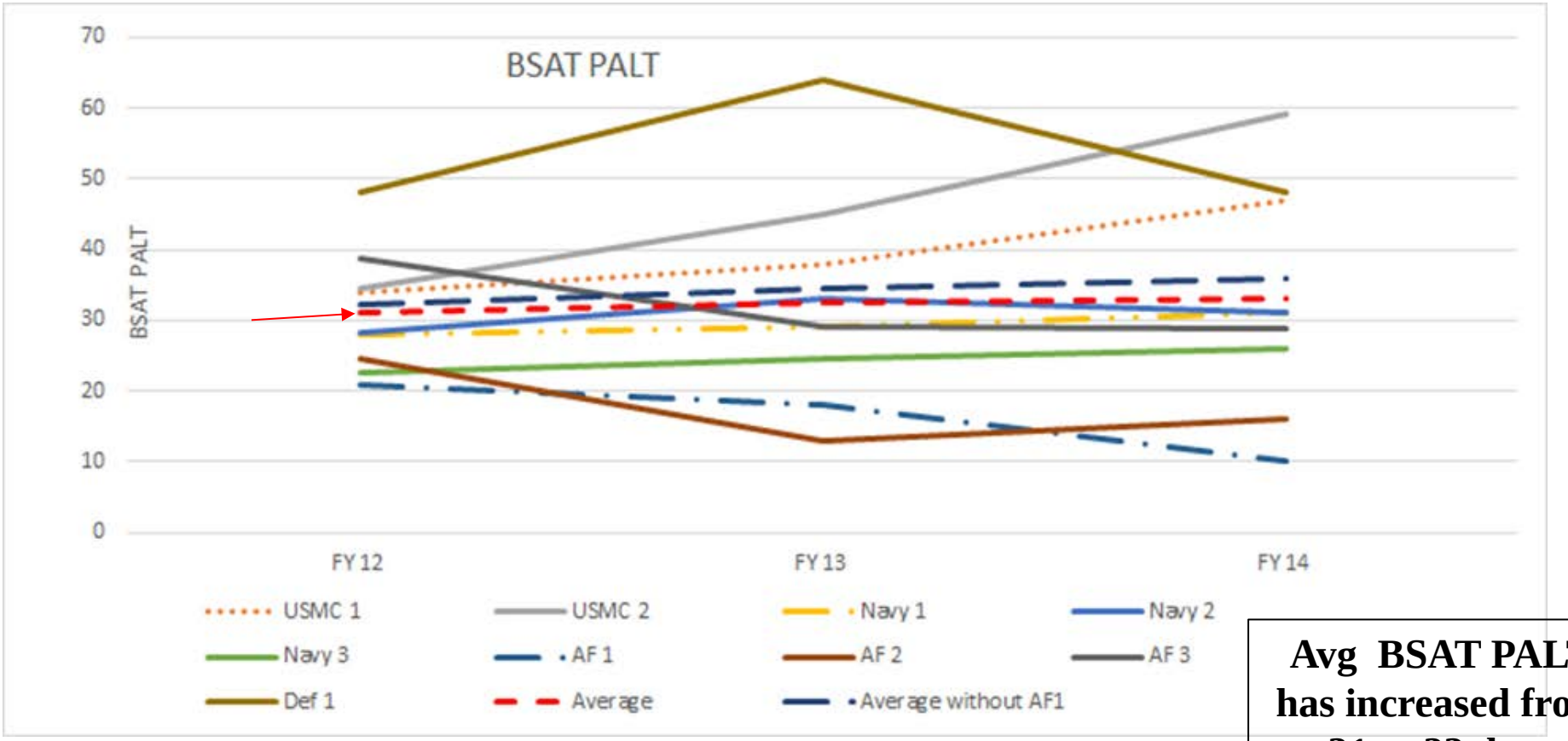
PALT Analysis

Average US BSAT PALT has increased slightly

Below the Simplified Acquisition Threshold PALT



Avg BSAT PALT has increased from 31 to 33 days

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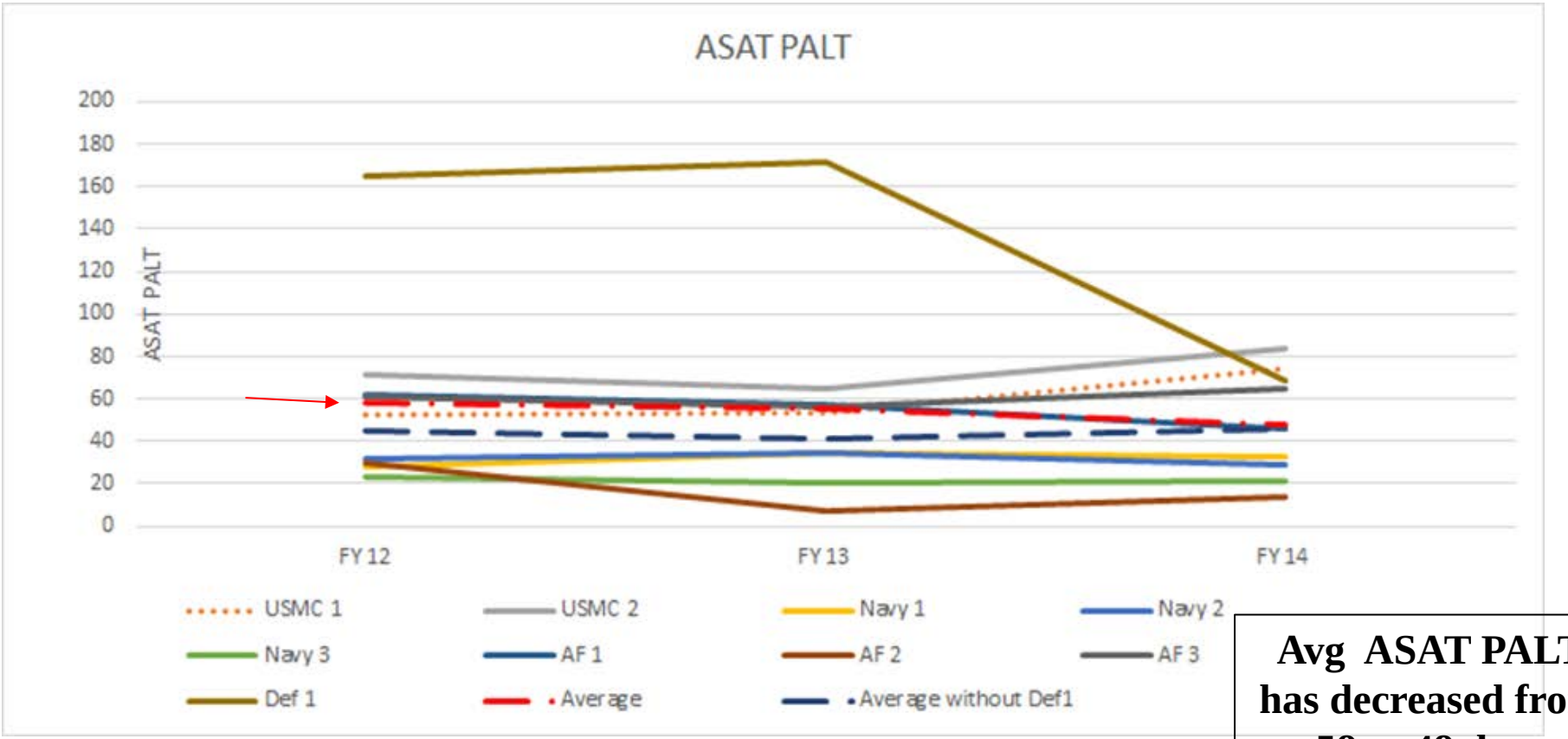
Average US ASAT PALT is decreasing

Above the Simplified Acquisition Threshold PALT



Avg ASAT PALT has decreased from 58 to 48 days

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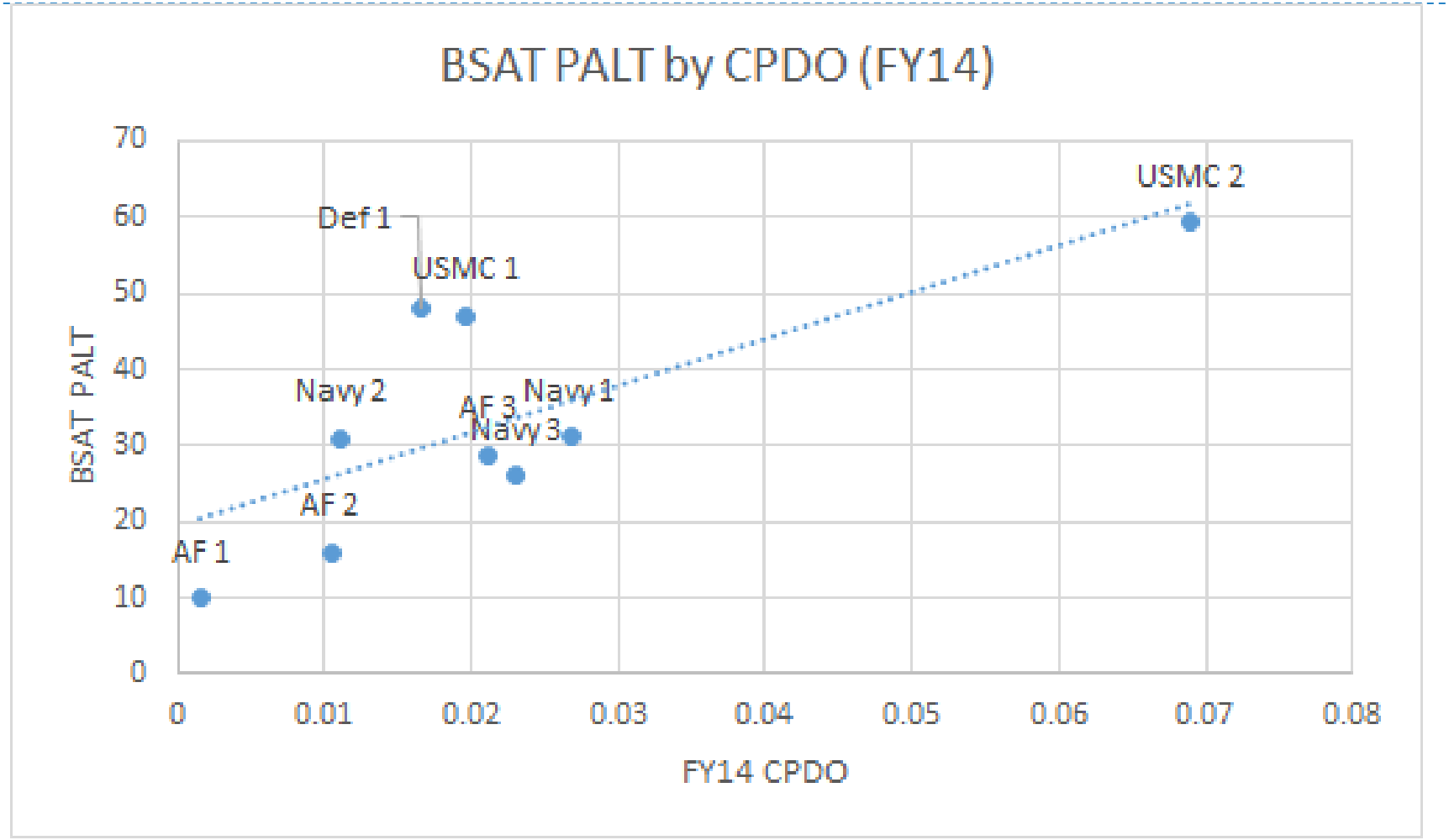
PALT Analysis

As CPDO increases, Below the SAT PALT increases.

PALT BSAT = 25.4 + 341 CPDO (Significance Level =98%, df =25

CPDO and Below SAT PALT (FY14)



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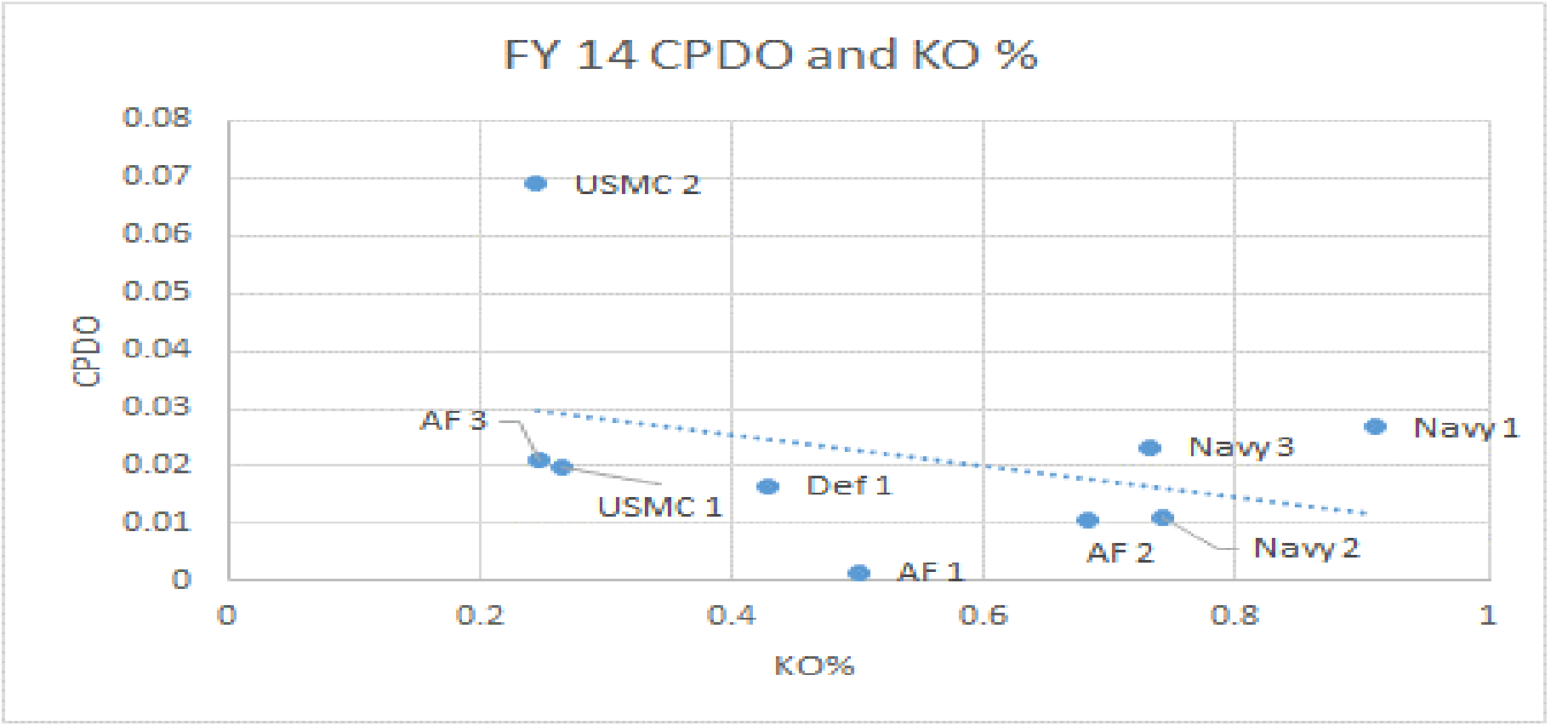
Organizations with a higher proportion of warrants have lower CPDO

CPDO = 0.0337 + -0.0259 Perc of contracting with warrants
(Significance Level =90%, df =25)

CPDO and Warrants as % of staff



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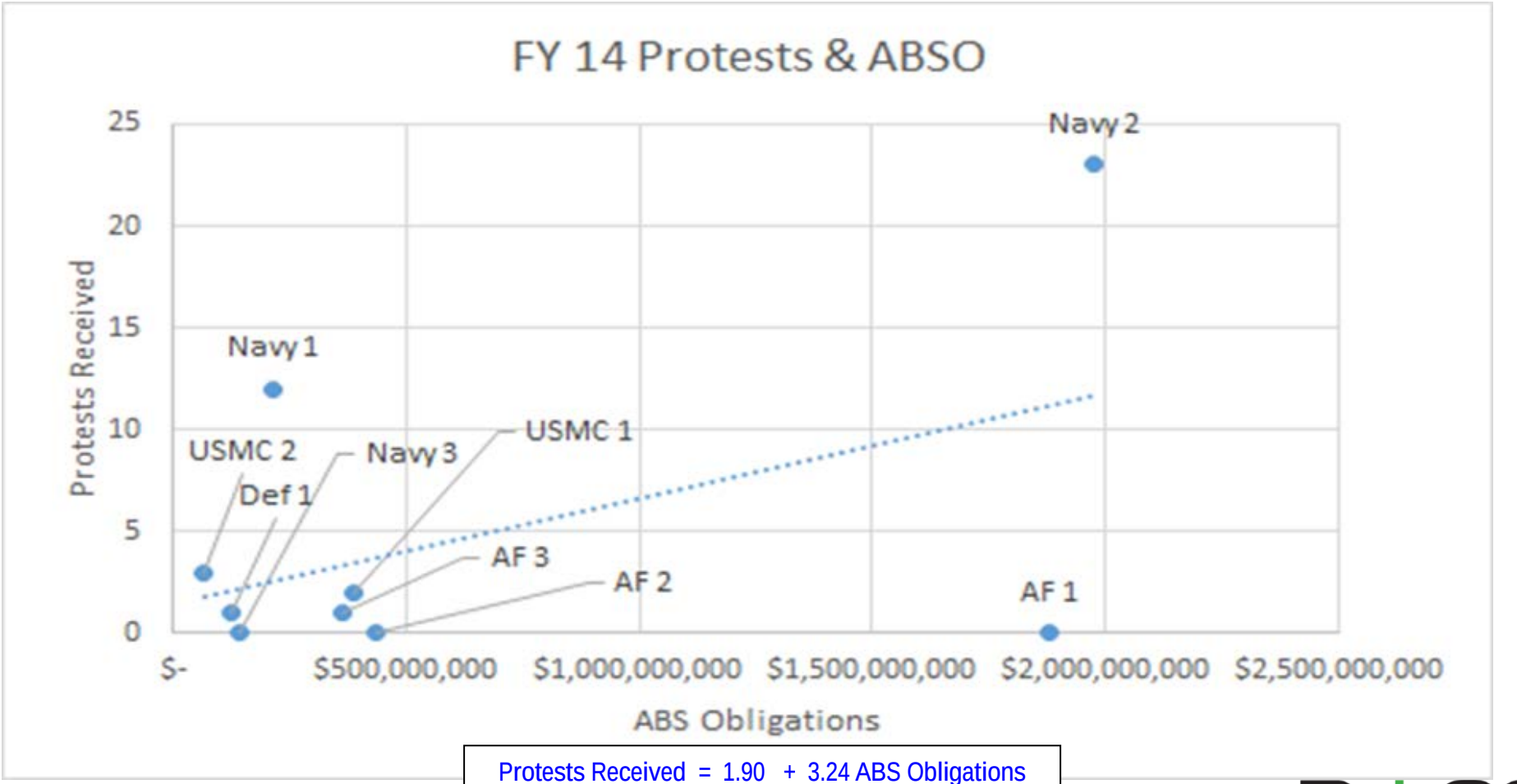
Obligations drive protests



Protests Received = 1.90 + 3.24 ABS Obligations ($B) (Significance Level =95.94%, df =25)

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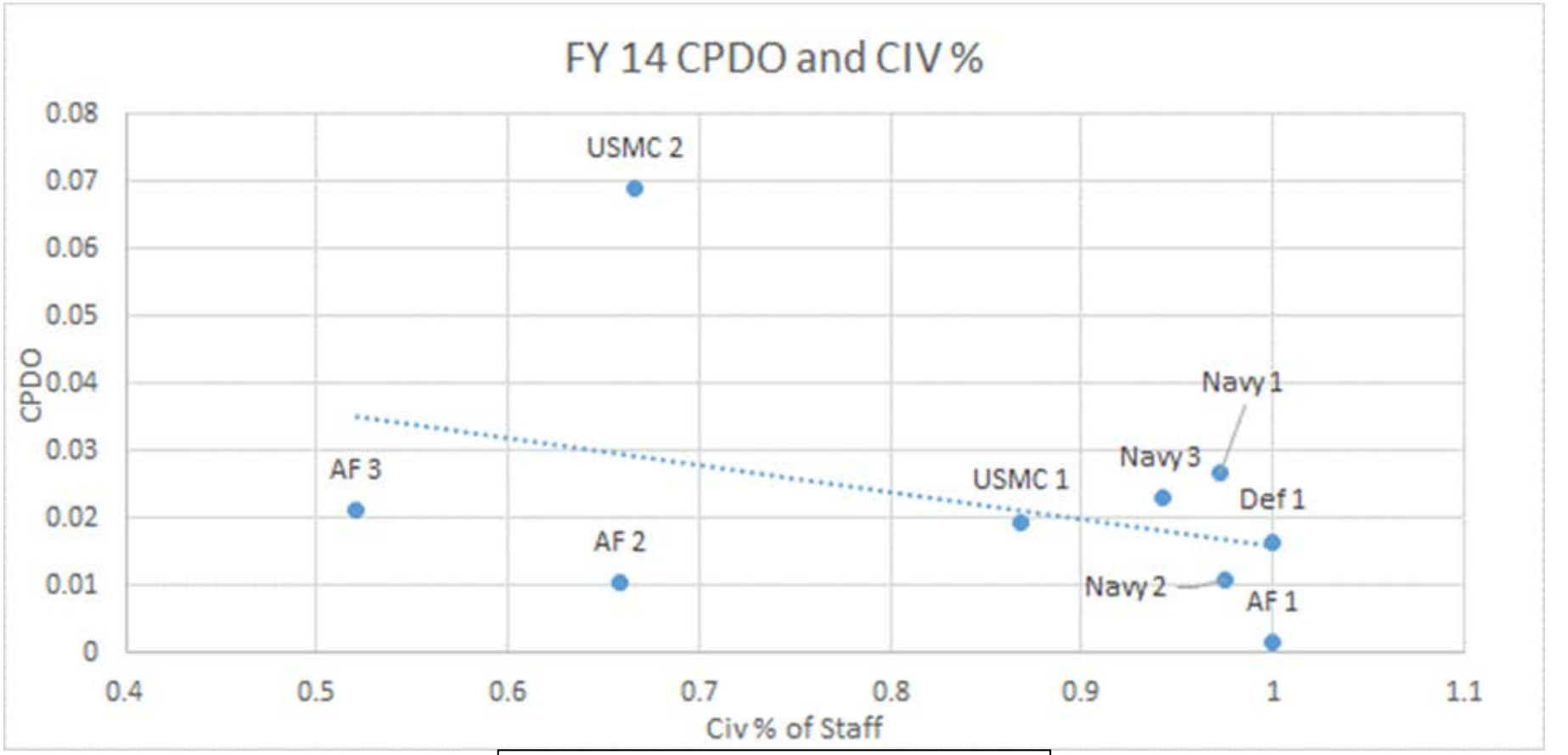
CPDO and Percentage of Civilians on Staff



CPDO = 0.0516 + -0.0372 percent civ
(Significance Level =95%, df =25)

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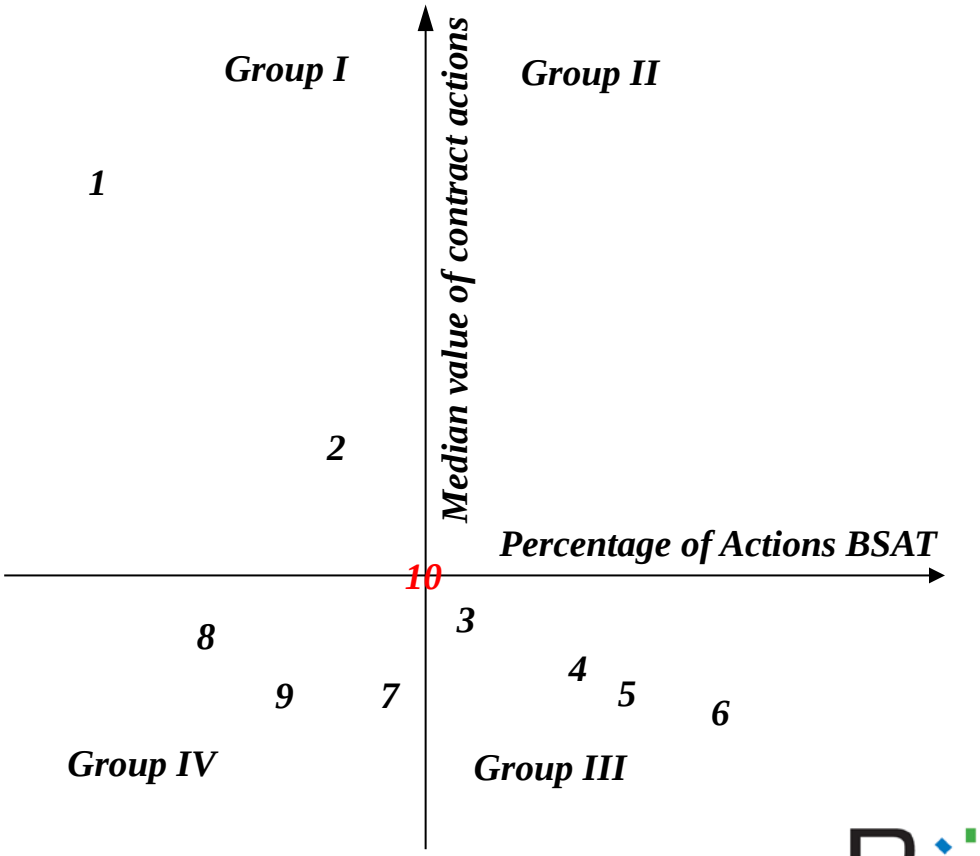
Emergence of a New Contracting Organization Typology

Emergence of a Contracting Organization Typology

	Organization	Median value of contract action	Percentage of actions below the SAT
1	AF 1	$267K	46%
2	AF 2	$102K	71%
3	AF 3	$44K	79%
4	DEF 1	$24K	88%
5	USMC 1	$16K	90%
6	USMC 2	$12K	95%
7	Navy 1	$10K	73%
8	Navy 2	$22K	65%
9	Navy 3	$10K	69%
10	Average	$54K	74%

Peer comparison groups for each organization



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Benchmark CPDO FY 14

"Every contracting leader should know their organization's CPDO, when it is too high, and when it is too low…"

Organization	Group	CPDO FY 14
USMC 1	3	.019
USMC 2	3	.069
Navy 1	4	.027
Navy 2	4	.011
Navy 3	4	.023
AF 1	1	.002
AF 2	1	.010
AF 3	3	.021
DEF 1	3	.017
Average of Group 1 Peers	1	.006
Average of Group 3 Peers	3	.032
Average of Group 4 Peers	4	.020
Average of All	ALL	.022

CPDO = 0.0337 – 0.0259 x Perc of Contracting with warrant [sig lvl 90.0]

In other words – @ KO 50% CPDO driven down by .013 to .021

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How contracting leaders can use CPDO

- Compare your organization(s) to other contracting organizations:
  - Within your Service
  - Within your region
  - Within your portfolio peer group
- Benchmark CPDO comparisons identify organizations with best-in-class processes which the agency can leverage
- Knowledge of CPDO facilitates leaders' decisions regarding the cost of assisted acquisition services, and the transfer (or assignment) of work to the appropriate execution organization
- CPDO assessments enhance leaders' visibility into the distribution of scare resources, including appropriate staffing of organizations by efficiency and portfolio type
- Organizational characteristic analysis identify opportunities to shape the organization (e.g. through warrant policy, GS grades, etc.) to influence CPDO and other performance measures

Future Research

- Verify the emerging typology and regional findings by increasing the number of organizations studied - further enhance the usability of benchmark CPDO findings
- Identify Service contract execution characteristics that are impacting differences in CPDO – share leverage points
- Examine warrant number and type in additional organizations – develop portfolio dependent models for KO warrants
- Investigate the impact of military-civilian mix on CPDO
- Further analyze organization portfolios (percentage of actions that are task orders, full contracts, basic vehicles, etc.) to optimize contracting organization typology

Thank you!

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