SYM-AM-24-062

Excerpt from the Proceedings of the Twenty-First Annual Acquisition Research Symposium

Acquisition Research: Creating Synergy for Informed Change

May 8–9, 2024

Published: April 30, 2024

Prepared for the Naval Postgraduate School, Monterey, CA 93943.

The research presented in this report was supported by the Acquisition Research Program at the Naval Postgraduate School.

To request defense acquisition research, to become a research sponsor, or to print additional copies of reports, please contact any of the staff listed on the Acquisition Research Program website (www.acquisitionresearch.net).

ACQUISITION RESEARCH PROGRAM
DEPARTMENT OF DEFENSE MANAGEMENT
NAVAL POSTGRADUATE SCHOOL

Commercial Solutions Openings: Innovative and Impactful

Mary Beth Colavito—is the Services Division Director and a Contracting/Agreements Officer with an unlimited warrant in the Contracts Management Office of the Defense Advanced Research Projects Agency (DARPA). She oversees a $2.5 billion ceiling portfolio with more than 100 active contracts/orders. She graduated with her Bachelor of Science from the University of Maryland–College Park and her Master of Science in Contract Management from the Naval Postgraduate School.

Eric W. Washburn— is a graduate of the Naval Postgraduate School and a Branch Chief with Air Force Test Center at Eglin Air Force Base, Florida. Washburn serves as Unlimited Contracting Officer, Agreements Officer, and Branch Chief for the Enterprise Services and Innovative Solutions Contracting Branch, managing a diverse portfolio of contracts critical to the national defense including Electronic Warfare Test Systems, Hypersonics, Artificial Intelligence, and F-35 support.

E. Cory Yoder—is a senior lecturer/professor at the Naval Postgraduate School. He holds an M.A. in National Security and Strategic Studies from the Naval War College, an M.S. in Management with a concentration in contract management, a B.S. in Business Management from Indiana University, and a Business Resource Management certificate from the University of Virginia–Darden. Yoder is a Beta Gamma Sigma honor society member and Rear Admiral John J. Schieffelin awardee.

Abstract

This research provides an analysis of the Department of Defense (DoD)'s use of the Commercial Solutions Opening (CSO), a new general solicitation technique to acquire innovative solutions. The purpose of this research is to identify strengths, weaknesses, and best practices of CSOs and make recommendations based on those observations. This research also analyzes the statistical difference in the procurement lead times of contracts awarded from CSOs compared to Federal Acquisition Regulation (FAR)–based solicitations by conducting a statistical analysis of Federal Procurement Data System (FPDS) data. We reviewed data from CSO Cross Talks, congressional briefings and reports, and protest filings to identify 27 strengths, seven weaknesses, and 43 best practices for CSOs. These findings were then categorized by topic areas for systematic analysis. We developed eight recommendations focused on training and development, policy changes, and tracking and reporting, each with their anticipated benefits and methods to implement. As a solicitation technique, the CSO is a valuable tool to achieve innovation, but prudent planning and application of this research's identified best practices are critical to ensure acquisition success. By implementing the recommendations provided in this research, the DoD will be postured to utilize the CSO solicitation technique to its fullest potential, closing the technological capability gap and providing for better defense capabilities to the nation.

Introduction

It is no secret that the Department of Defense (DoD) traditional acquisition process is slow. For the purposes of this research, "traditional" is defined as Federal Acquisition Regulation (FAR)–based solicitation and award techniques. Since the 1990s, the acquisition process has appeared in some form in the list of top DoD challenges reported by the DoD Inspector General (IG) and has been called "inflexible" (Section 809 Panel, 2018, p. 6), "inefficient" (DoD Inspector General [DoDIG], 2015, p. 10), and "slow" (DoDIG, 2022, p. 7). In 2019, the U.S. Government Accountability Office (GAO) issued the report *DoD Acquisition Reform: Leadership Attention Needed to Effectively Implement Changes to Acquisition Oversight*, which discusses congressional concerns over DoD's weapons acquisition process, citing the processes' bureaucracy and delays in fielding innovations (GAO, 2019). This same report discusses the DoD's intent to increase the speed of the acquisition process through pursuing legislative reforms and acknowledges that the DoD has begun to execute those reforms, including realigning certain

decision and oversight from the Office of the Secretary of Defense (OSD) to the subordinate military departments, as well as using more streamlined processes.

Regardless of these changes, the DoD still struggles to achieve rapid acquisition objectives, narrowing the strategic and defense capabilities gap between the United States and near-peer adversaries. Recent notable examples of this acquisition reform include the Middle Tier of Acquisition (MTA) Pathway for Rapid Prototyping and Rapid Fielding authorized by Section 804 of the Fiscal Year (FY) 2016 National Defense Authorization Act (NDAA, 2015), Awareness of Other Transaction (OT) Authority, and the adoption of industry standards in acquisition. Even with these reforms, the DoD acquisition process remains slow, expensive, and bureaucratic. In 2021, and in furtherance of rapid acquisition objectives, Congress codified Public Law 117-81, the NDAA for FY2022. Section 803 of the act provides permanent authority for a new type of rapid acquisition, the Commercial Solutions Opening (CSO). The CSO is a solicitation technique that is designed as an innovative means to solve the problem of slow government procurement. At its core, the CSO seeks to take a broadly identified objective, stated in a manner that allows for diverse solutions, and award a contract to meet those objectives within a matter of weeks, as opposed to the methods that now take months or even years using "traditional" models. A CSO can result in both FAR-based and non–FAR-based contracts and is used to acquire an innovative technology or an innovative means or method to accomplish the objective.

While innovation is specifically defined in the FY2022 NDAA (2021) as "(1) any technology, process, or method, including research and development, that is new as of the date of submission of a proposal," or "(2) any application that is new as of the date of submission of a proposal of a technology, process, or method existing as of such date" (p. 275), innovation does not require the solution be completely new or never-before attempted. In fact, the CSO community even refers to simple maintenance activities like grounds maintenance as candidates for CSOs, if the agency seeks an innovative means or method of achieving these common tasks (82d Contracting Squadron, 2020).

For the many flexibilities and efficiencies that a CSO provides, it is important to also recognize how not to use a CSO. Based on our collective research from various sources and experiences, a CSO is not a solicitation technique to obtain services where the government already has the requirement defined, a solicitation technique to obtain standard technological configurations or support where the government has a design specification, a solicitation technique to shortcut competition or except fair opportunity, or a quick sourcing solution for poorly defined requirements (Secretary of the Air Force Acquisition Office [SAF/AQCP], 2022). The next section describes the purpose of this research.

The primary purpose of this research is to identify the strengths, weaknesses, and best practices of the CSO as a solicitation technique leading to a contract award. This research intends to provide DoD organizations and their workforces with a consolidated report analyzing available data on the CSO solicitation technique and making recommendations based on the use of CSOs. Following the purpose of the research, the next section specifies the research questions with which we hope to achieve the purpose.

Research Questions

This research is framed by the understanding that traditional FAR techniques can be ineffective at acquiring innovative solutions (GAO, 2019). This research explores opportunities and flexibilities of CSOs as a solicitation technique to acquire innovative solutions and seeks to answer the following questions:

1. What are CSOs' strengths as a solicitation technique?

2. What are CSOs' weaknesses as a solicitation technique?

3. What are best practices for utilizing the CSO solicitation process?

4. What is the statistical difference, if any, in the procurement lead times of contracts awarded from a CSO and those awarded from a FAR-based solicitation, and what inferences can be made of this difference?

Methodology

This research assesses the strengths, weaknesses, and best practices of CSOs as a solicitation technique in acquiring innovative solutions. Extensive direct feedback will be captured from CSO Cross Talk meetings among DoD agency points of contact who have previously conducted CSOs and/or are working to develop CSO policies/procedures at their individual agencies. These feedback meetings are led by the Secretary of the Air Force Acquisition Office (Contracting; SAF/AQC). This information is reviewed for strengths and/or weaknesses regarding training and information sharing, internal agency processes, solicitation definition, and industry interaction. Assessment of different individuals' varied interpretation and implementation of the flexible process to meet their specific program and agency goals informs the categorization of strengths, weaknesses, and best practices. Similar direct user feedback is discussed as compiled for and documented in other published briefings and reports. The research also attempts to quantify DoD's procurement lead time using data from the FPDS and determines if there is a statistical difference in the procurement lead time of contracts awarded from a CSO and those using a FAR-based solicitation. The results are presented in the form of recommendations that the DoD and its contracting offices can use to best implement CSOs. Following the research methodology, the next section provides the intended and anticipated benefits of this research.

Innovation Theory and Commercial Solutions Openings

Innovation in business is the foundation for examining CSOs and their benefits. CSOs present an opportunity for the DoD to make critical investments in technology and capability by leveraging the technological capabilities of the department's industrial base. In fact, the adoption of CSOs as a permanent authority is itself, innovative. To understand how these innovative capabilities can shape the DoD, it is important to understand the theory supporting innovation in business, including the different paradigms that are found in literature. First, we must consider the DoD as a type of knowledge management (KM) firm with "roles and processes to support decision-making" (Neary, 2018. p. 1). The DoD as a KM firm is comprised of individuals with tacit, explicit, and implicit knowledge of the military's operations, from munitions flight trajectories to the ideal length of a blade of grass along a flightline. Within this construct, the DoD is operating as a firm competing with other nations; this defines the marketplace within which innovation leads to competitive advantage and provides a framework against which innovation theory can be applied.

Deeper View of Research Methodology

With strengths, weaknesses, and best practices at the core of this research's primary questions, it is important to define those terms. A *strength* indicates an aspect of the CSO solicitation technique that has benefited the government, industry, or both. Examples could include an easier process to contract award than FAR-based procedures, reduced risk of protest, contracts for more innovative solutions than the government could have defined in a requirements statement, and so forth. A *weakness* would indicate an aspect of the CSO that has hindered the government, industry, or both. Examples could include a more confusing process than FAR-based procedures, difficulty in securing a fair and reasonable price for the government, uncertainty for how to award follow-on contracts to initially innovative solution

contracts, and so forth. An observation may have attributes that result in both a strength and weakness.

A *best practice* is defined by Merriam-Webster (n.d.) as "a procedure that has been shown by research and experience to produce optimal results and that is established or proposed as a standard suitable for widespread adoption." Examples could include implementing an agency-specific CSO guidebook, using a gated/phased approach for CSO proposal submissions, advertising CSOs through unconventional means, and so forth. Not all observations may qualify as a strength, weakness, or best practice but still enhance or contribute to this research or areas for future research; those observations are captured as "other observations" later in this paper. The next section describes the methodology for gathering CSO Cross Talk data.

Commercial Solutions Opening Cross Talks

CSO Cross Talk meetings started being held quarterly in April 2022 as a forum for the DoD contracting workforce to share "CSO policy changes, training, and success stories/best practices" (DoD, 2022). DoD agency points of contact who have previously conducted CSOs share varied interpretation and implementation of the flexible solicitation technique to meet their specific program and agency goals. This is to benefit all those working to develop CSO policies/procedures at their individual agencies, whether they have used them yet or not. Participants are encouraged to ask questions and suggest hot topics surrounding CSOs. SAF/AQC representatives organize and facilitate the meetings, and afterwards, they draft CSO Cross Talk Bulletins to summarize the meetings. These bulletins are disseminated with guidance for meeting attendees to share among their respective DoD agencies' acquisition workforces.

For this research, the contents of these bulletins, primarily based on the feedback provided by DoD agency points of contact who have previously conducted CSOs, will be reviewed and analyzed, particularly regarding CSO strengths, weaknesses, and best practices. While a policy analyst or contracting officer may just read these bulletins and try to take mental notes for potential future use, this research will systematically break down all feedback data and categorize it by topic area to lend itself more readily to making strategic recommendations about actions that can be taken regarding CSOs. The four overarching categories are

- **training and information sharing:** how the workforce is educated on this solicitation technique,
- **internal agency processes:** how individual DoD agencies structure their facilitation of evaluating and awarding CSOs,
- **solicitation definition:** how various contracting officers draft individual CSOs, and
- **industry interaction:** how the government advertises to and receives information from potential offerors.

These four categories are purposely broad to accommodate finding space for a diverse range of feedback since the DoD agency points of contact were not required to structure their Cross Talk presentations in any way. Once the feedback is separated into these categories, then strengths, weaknesses, and best practices can be identified among them. Further, commonalities and focus areas for recommendations can be consolidated. The next section discusses the research methodologies to be used in analyzing other published briefings and reports.

Other Published Briefings and Reports

Published briefings and reports are reviewed from various sources including congressional committees and GAO reports. The contents of the reports are analyzed for strengths, weaknesses, and best practices, and then categorized accordingly. The GAO and U.S. Court of Federal Claims (COFC) archives are also reviewed for protest reports. The contents of these reports are analyzed for strengths, weaknesses, and best practices, and then categorized accordingly. The next section discusses the methodologies to analyze data about CSOs and resulting contract awards.

Procurement Lead Time Data Analysis

The Defense Innovative Unit has realized notable decreases in their acquisition time lines by using CSOs. This research attempts to quantify DoD's procurement lead time efficiencies using data from the FPDS. The FPDS is a data reporting tool that captures contract data about each reportable contract action, that is each contract action over the micro-purchase threshold, including awards, modifications, and orders (FAR 4.6, 2023). Data are then made available through the System for Award Management (SAM) reporting tools and can be analyzed across a myriad of data fields. SAM reports can produce standard reports containing predefined criteria, or a user can create ad hoc reports within which the user can define the specific criteria, including filters, reported fields, and format. To support reporting, the General Services Administration (GSA) maintains a Data Element Dictionary that explains each available data element collected through contract action reporting (GSA, 2023). This research uses ad hoc reports of contract data with the report criteria as provided in Table 1.

Table 1. SAM Ad Hoc Report Criteria (GSA, 2023)

Field	Description[a]	Criteria
Date Signed	"The date that a mutually binding agreement was reached" (p. 23)	Oct 1, 2019 ≤ date signed ≤ Jan 1 2023
Solicitation Date	The date the solicitation was issued	Oct 1, 2019 ≤ solicitation date
Base and All Options Value (Total Contract Value)	"The mutually agreed upon total contract value including all options (if any)" (p. 30)	<$100,000,000
Contracting Agency ID	"The code for the agency of the contracting office that executed or is otherwise responsible for the transaction" (p. 37)	Equals 1700 (Navy), 2100 (Army), and 5700 (Air Force)
Solicitation ID	"Identifier used to link transactions in FPDS to solicitation information" (p. 20)	Is Not Null
Modification Number	"An identifier … that uniquely identifies one modification for one contract, agreement, order, etc." (p. 17)	Equals 0

We conducted two-sample *t*-test analyses of procurement times for each population set. Through the analyses we attempted to determine whether a significant difference in procurement times exists between the CSO solicitation process and the FAR-based solicitation approach. Procurement time was defined as the days from the solicitation issuance date to the date of award, comparing mean procurement times for acquisitions that use CSOs with that of

requirements sourced through FAR-based means such as requests for quotes and requests for proposals. As multiple awards can be made from a single CSO, only the days-to–first award were considered. Days-to–first order were determined by considering the total set of awards issued pursuant to a CSO solicitation and selecting the earliest award date to include in the CSO sample. Only FAR-based awards made between October 1, 2019, and January 31, 2023, were considered. Data were segregated into eight distinct populations in sets of two, resulting in one population set for actions below the Simplified Acquisition Threshold (SAT), one population set for actions between the SAT and $4.99 million, one population set for actions between $5 million and $99.99 million, and one population set for all actions below $100 million. CSOs were identified by the inclusion of "S" and "C" in the ninth and 10th positions of the solicitation ID, allowing for the segregation of the data into the two distinct population sets.

Table 2. Description of Populations and Notations for Statistical Analysis

Population Set	Population	Criteria	Notation Example
(i) Below SAT		Contracts with award value < $250,000	
	Awards from CSO solicitation		$N_{CSO(i)}$
	Awards from FAR solicitation		$N_{FAR(i)}$
(ii) Between SAT and $5 Million		Contracts with award value ≥ $250,000 and < $5 million	
	Awards from CSO solicitation		$N_{CSO(ii)}$
	Awards from FAR solicitation		$N_{FAR(ii)}$
(iii) Above $5 Million		Contracts with award value ≥ $5 million and < $100 million	
	Awards from CSO solicitation		$N_{CSO(iii)}$
	Awards from FAR solicitation		$N_{FAR(iii)}$
(iv) Total Population		All contracts with award value <$100 million	
	Awards from CSO solicitation		$N_{CSO(iv)}$
	Awards from FAR solicitation		$N_{FAR(iv)}$

Table 3. Description of Population Justifications

Population Set	Justification
(i) Below SAT	Acquisitions under the SAT are generally expedited when compared to non-SAT acquisitions, regardless of the solicitation methodology chosen; therefore, the SAT provides a logical cutoff for the first set population set.

(ii) Between SAT and $5 Million	Acquisitions of $5 million and above have additional reviews and approvals required by many agencies. For example, the Air Force, which has executed the preponderance of DoD's CSOs, requires additional clearance reviews starting at $5 million. To ensure parity in the data, $5 million is used as the demarcation point to segregate the data samples.
(iii) Above $5 Million	CSOs above $100 million require special approval from the Under Secretary of Defense for Acquisition and Sustainment (USD[A&S]); therefore, the procurement time is elongated through additional reviews and oversight. There are many additional factors for these larger-dollar procurements that challenge comparison with the data presently available through SAM. Analysis of actions above $100 million requires a level of analysis that exceeds the scope of this research; therefore, these actions are excluded from the statistical analysis.
(iv) Total Population	The total population sets of CSOs and FAR solicitations resulting in award below $100 million, enabling a wholistic analysis of the two distinct populations.

Collectively, each population set was tested against the following hypothesis with a confidence interval of CI = .90 (α = .10).

H_0: $\mu_{CSO} = \mu_{FAR}$ (1)

H_1: $\mu_{CSO} \neq \mu_{FAR}$(2)

As discussed earlier, data quality and quantity are limitations of this research. The quantity of CSO data may not be sufficient to test the hypothesis for each population set; in those instances we made informed inferences from the available data. Further, the quality of FPDS data may necessitate the elimination of outliers from the data sets; in the event outliers are removed, they are addressed in the capstone project in detail.

Once the *t*-test analysis is complete, it may be possible to further subdivide the data into individual agencies to aid future research.

Author's note: Please see the NPS capstone project for a complete description of methodology, framework for analysis, results, and findings.

Implications of Findings

Most of the listed CSO Cross Talk comments were categorized as best practices since the agency representatives primarily framed their feedback as subjective recommendations to other agencies. Objective strengths and weaknesses may have been few because of the noted lack of accurate CSO data reporting. It is possible to infer that some of the best practices could be due to a strength being the flexibility of the CSO solicitation technique. Alternatively, a weakness being ambiguity or confusion could also be inferred when considering the extensive best practices, with the majority regarding Internal Agency Processes, being recommended to ensure efficiency and successful contracts, which may otherwise not be achieved. The most comments being categorized under Internal Agency Processes is also notable in the types of recommendations that the acquisition community feels are needed and will be well-received and utilized. Finally, it is noted that a few of the observations are duplicative, but they were all left in to highlight how multiple agencies made similar comments as that could influence prioritization of recommendations at the end of this

paper. Expanding beyond just the limited number of strengths and weaknesses identified in the CSO Cross Talk feedback, the other findings discussed in this paper capture that there are overall many more strengths than weaknesses regarding CSOs at this point.

In total, we made 66 individual observations of strengths, weaknesses, and best practices. Within those observations we identified 27 strengths, seven weaknesses, and 43 best practices in the documented findings of the CSO data. Some of these observations were assigned to multiple categories or were defined as both a best practice and a strength or a weakness. These findings were also categorized across 10 categories according to their central theme(s), with some findings falling into multiple categories. The total quantities of strengths and weaknesses by category were captured. The protest findings, especially, are a very telling representation of the significant advantage that CSOs may have over FAR-based solicitation techniques in that so few protests have been filed, and none have been sustained that were filed based on the CSO process itself. Additionally, the process flexibility and limited scope of litigation that comes from judicial deference are strengths that merit prudent planning and potential opportunities which contracting activities can embrace in their own solicitation planning process.

Category	Strengths	Weaknesses
Training and Information Sharing	1	1
Internal Agency Processes	2	4
Solicitation Definition	2	0
Industry Interaction	1	0
Expanded Solution Horizons	4	0
Industry Participation and Competition	3	0
Cost/Price/Budgeting	1	1
Schedule and Planning	1	1
Process Flexibility	7	0
Scope of Litigation	5	0

Figure 1. Quantity of Strengths and Weaknesses by Category

The procurement lead time analysis results are provided in Table 3. Upon reviewing these results, one may surmise that the CSO solicitation process is wholly inefficient at expediting the time to contract award; however, this analysis is a singular facet of the total research and is constrained by factors that preclude definitive decision-making regarding the procurement lead time. Regardless, the procurement lead time analysis does not support that CSOs are an expedited acquisition technique. The analysis of procurement lead time discussed in this is constrained by the quality and quantity of the available data. For this research, we performed a statistical analysis of the CSO procurement lead time by quantifying the days that elapsed from the CSO issue date to the earliest date of contract award made from the CSO. This analysis relied on the data input to FPDS by contracting activities reporting contract awards. While we recognize that some CSO models allow for initial responses to be received many days or even months after the CSO is issued, the data available in FPDS does not provide for a means to identify the elapsed time between CSO responses and contract award. Further, the solicitation date is manually entered into the system by the contracting activity, leaving room for user error and misreporting. These factors exemplify the quality and quantity constraints identified in this research and do not provide for an infallible method of testing the CSO process as compared to the FAR solicitation techniques. Even so, our

procurement lead time analysis provides for a foundational baseline and analytical model against which future analysis may be conducted, once more reliable data can be obtained through implementing the recommendations discussed in the next section. With improved data quality and reliability, the model we established in this research will facilitate a more robust and reliable comparison of the CSO process and FAR solicitation techniques, allowing for validation, verification, and representative quantification of the strengths and weaknesses identified in this research.

Table 4. Procurement Lead Time Analysis Results (Statkat, n.d.)

Population Set	*df*	*t*	*t*-critical[a]
(i) Below SAT	6.020	.294	1.942
(ii) Between SAT and $5M	17.020	1.701	1.739
(iii) Above $5M	5.006	.872	2.015
(iv) Total Population	30.015	2.412	1.697

[a]Retrieved from statkat.com, (Online calculator, n.d.)

Given the totality of the research we have conducted, we believe that the CSO process should be embraced by agencies seeking to expand their technological horizons and capabilities. The strengths we identified in this research greatly outweigh the weaknesses. Using the best practices and observations we have noted in our research, agencies can equip themselves with the best means and processes to execute successful CSO solicitations. From the data, we find that the CSO solicitation technique also has applications beyond the research and development arenas and can be used to identify innovative means to accomplish operations, sustainment, and even maintenance tasks, potentially providing total life-cycle cost savings to the government as a result. As discussed throughout this research, we also note that the CSO process and procedure is relatively immature and rapidly evolving as compared to other solicitation methodologies. To ensure the continued success of the CSO as a solicitation technique to achieve innovation, we provide targeted recommendations in the areas of training and development, policy changes, and tracking and reporting, which are contained in the next section of this research.

Recommendations

This section presents focused recommendations based on the results of the analysis found in this research. In total we provide eight recommendations, each with their anticipated benefits and methods to implement. The recommendations encompass three categories: training and development, policy changes, and tracking and reporting.

Federal Procurement Data System Modification

The first recommendation involves both a policy change and a tracking and reporting change. We perceive this recommendation to be the simplest to implement. FPDS data are collected through contract action reporting. This reporting is completed by individual contracting activities completing a form in the system, which provides data about the contract(s) reported. To meet the government's reporting needs and requirements of the time,

these form fields are often updated and changed, and new fields are added as necessary. This includes the addition of new data elements, new reporting options, and temporary instructions through special coding in the description field. These changes are executed by a team of support contractors.

We propose a two-part modification to the FPDS contract action report. The first modification is to include Solicitation Technique as a reporting criterion. This field would capture the solicitation technique used to acquire the contract award being reported and should include a drop-down selection for CSO as well as ones for other solicitation techniques such as request for proposal, request for quote, BAA, invitation for bid, and others. With the addition of the Solicitation Technique reporting criterion, the government and future researchers will be able to analyze specifics about solicitation methodologies and the contract awards that follow in a manner like the analysis we conducted in this research. The inclusion of the Solicitation Technique reporting criterion will also allow for the analysis of other areas that extend beyond the scope of our research, such as industry involvement across differing solicitation techniques, cost/price history and modification metrics, small business participation across solicitation techniques, and targeted areas to bolster training in solicitation techniques. Absent a dedicated field to report solicitation technique, we recommend the government modifies the action description field to enable reporting of the solicitation technique, which would still present opportunities for future reporting, analysis, and informed decision-making.

The second modification to the FPDS contract action report we recommend is the inclusion of Initial Proposal Receipt Date as a reporting criterion. This new field should be a date field that reports the date the initial proposal was received for all new awards being reported into the FPDS. The FPDS contract action report currently includes a field to report the solicitation date; however, this is not necessarily a useful data point for general solicitations, which can be open for long periods of time and which can invite multiple proposals during its open period(s). Absent this modification to the FPDS, there is no discernable means to distinguish the procurement lead times between a contract action where the proposal was received 1 day after the CSO was issued, and a contract action where the proposal was received 1 year after the CSO was issued. The addition of proposal receipt reporting will enable future analysis of procurement lead time for both contracts awarded from CSO solicitations, and those awarded by other means.

Expand Contract Type Options

The next policy change recommendation involves a more material revision to the CSO authority by expanding the available contract types for awards to include time and materials or labor hour. Since CSOs are soliciting innovative solutions, it is reasonable to assume that offerors may not always be able to precisely estimate the work required to achieve their potentially groundbreaking goal. It would be doing a disservice to the government to lose the possibility of awarding a contract for that product, technology, or service because the offeror did not want to submit a fixed price proposal and risk its profit potential if it took more effort or resources to complete the contract objectives than the contractor had proposed. This recommendation could be considered by Congress to expand the language of Section 803 of the FY2022 NDAA (2022) to include provisions of expanded contract types in awards from CSOs. The Office of Defense Pricing and Contracting could then issue a new class deviation recognizing the expanded authority. While this research only considered data and literature available as of January 31, 2023, it is noted that on that day, DoD proposed amendments to the Defense Federal Acquisition Regulation Supplement (DFARS) to add the preponderance of Class Deviation 2022-O0007 into DFARS Part 212, with public comments due April 3, 2023 (Defense Federal Acquisition Regulation Supplement [DFARS] PGI, 2023).

We note that the DFARS has been revised. Class Deviation 2022-O0007 no longer provides the authority for CSOs. CSOs are now included at DFARS 212.70 with slightly different language (e.g., funds availability is no longer required to be a primary evaluation factor).

Formal Training through the Defense Acquisition University

For the first training and development recommendation, we recommend the Defense Acquisition University (DAU) develop and offer a standalone training course on CSOs. It should begin with comparing the differences from FAR-based solicitation techniques and identifying the processes and/or documentation that it bypasses for the special purpose of streamlining contract awards for innovative solutions, like how we have conducted our research. Our research and findings can even be used as a starting point to develop the course material, or our research could be included in its entirety to facilitate critical thinking and analysis through the DAU course. Since there are so many different uses under the CSO authority's definition of "innovative," it would be prudent for more contracting officers to have the opportunity to learn about the authority and its opportunities, add it to their contracting toolbox, and champion for its implementation when possible and appropriate at their individual agencies. The course can also provide its students with solicitation and evaluation templates and plain language documentation to use as a resource. As highlighted often in the CSO Cross Talks, while CSO flexibility is appreciated, there is great value in standardization and uniformity for repeatable processes. As a future evolution of this training and development recommendation, the DAU, or some other activity, could develop a comparative tool that includes decision logic to guide future procurement teams through a methodical decision process of choosing the most advantageous solicitation technique for their requirement(s), whether that be a CSO or some other solicitation technique.

Invest in Commercial Solutions Opening Center of Excellence

This recommendation expands upon the original recommendation by Washburn and Colavito (2023) and recognizes that the U.S. Air Force (USAF) has adopted Washburn and Colavito's original recommendation to "Establish Commercial Solutions Opening Center of Excellence." We recommend that the USAF fully invest in the CSO Center of Excellence and take the DoD lead in consolidating CSO DoD guidance documents, best practices, and procedures in furtherance of the DoD's KM environment. These resources could be documented and catalogued through a virtual site with appropriate access controls, perhaps as a resource open to all DoD access card holders under the USAF Innovation Toolbox (United States Air Force, n.d.). A similar website after which to model itself could be the "Acquisition Innovation" site created and maintained by the Defense Advanced Research Projects Agency, which features history, training, samples, and other resources for the acquisition of innovative technology using the award of OTs (Defense Advanced Research Projects Agency, n.d.). As the CSO Center of Excellence, the USAF should maintain flexibility in remaining current with best practices regularly being discovered and shared as more CSOs are being utilized. The CSO Center of Excellence should also explore opportunities to develop meaningful data analytics and metrics to measure CSO utilization and effectiveness as resulting contracts are performed. Furthermore, the CSO Cross Talks should be continued for which policy advisors and experienced practitioners can still directly contribute, but their resultant summary bulletins and other guides, samples, and so forth can be shared for any DoD acquisition personnel on the recommended virtual site.

Addressing Resource Strain through Organizational Structuring

Beyond the individual contracting officer training and development, a key recommendation is for senior contracting officials to recognize the resource strain that may result in the use of CSOs and to develop organizational structures accordingly. While the CSO is touted as an easy and streamlined process, it has been anecdotally proven in the CSO Cross

Talks and our own observations to become administratively cumbersome to manage when there is a high likelihood of strong interest from industry to submit proposals. Depending on the agency's structure, separate CSO divisions and additional personnel may be necessary to ensure the potential efficiencies can be maximized. Contracting offices must also ensure they achieve buy-in from their agency's technical subject matter experts and all necessary agency stakeholders, such as information technology, cybersecurity, and logistics, to facilitate prompt proposal review, operational feasibility, and close collaboration with the contracting officer(s) to draft successful contracts.

Publication of Requirements and Industry Involvement

Another recommendation is regarding industry engagement as numerous findings point to the need for creative means to interact with potential offerors. To successfully reach the often-nontraditional companies that may otherwise be intimidated or discouraged by FAR-based solicitation techniques, DoD agencies need to make effort to advertise their CSOs beyond the GPE. Links to the CSO posted on LinkedIn or industry-specific websites would be helpful. Beyond that, technical subject matter experts or contracting personnel could attend industry conferences to have one-on-one networking opportunities with the types of companies they think could have government-applicable innovative ideas. This recommendation can be categorized under training and development as it deviates from traditional solicitation publication methods, and the acquisition workforce will need education on the value of taking these extra steps beyond the usual process. As discussed previously, the posting of the CSO mimics a combination of market research techniques and the solicitation; embracing this recommendation takes advantage of this opportunity for efficiency and evolves it through combining additional pre-award elements of information sharing (FAR 5.1, 2023), leading to further opportunities for efficiency.

Improve Reporting of Negotiation Documentation to Capitalize on the Department's System of Systems

Our penultimate recommendation addresses a final policy, tracking, and reporting change. When conducting negotiations of noncompetitive contract actions valued above $25 million, contracting officers are required to upload approved negotiation documents, such as price negotiation memorandums, into the Contract Business Analysis Repository (CBAR) tool in the government's Procurement Integrated Enterprise Environment (PIEE) suite of applications (DFARS PGI, 2023). The results of the negotiations are then made available to other contracting personnel to prepare for future negotiations. Further, when uploading the negotiation documents, users are required to enter basic information about the agency, contractor, contract, and negotiation process. Unfortunately, to retrieve details about the negotiation and reasonableness determination process(es), users must scour the tool, download, and read through negotiation documents individually to understand the negotiation history. As part of the PIEE suite, the CBAR tool connects to the Electronic Document Access application, which provides for post-award administrative reporting. CBAR could also connect to other applications and tools within the PIEE to form a system of systems and enable robust reporting and business analytics.

Considering CBAR's utility as a tool to assist future negotiations, and in acknowledgement of the CSO process, which is considered competitive, we first recommend a policy change that expands the mandatory reporting requirement and upload of cost/price negotiation documents for *all* contract actions valued above $25 million *regardless of the competitive nature of the requirement*. The requirement to determine a price fair and reasonable is universal and does not distinguish between whether the action is competitive or noncompetitive. Our recommendation recognizes that when negotiations occur, FAR 15.406-3 requires that those negotiations be documented in some form. CSOs are not exempt from this

documentation requirement when the contracting officer engages in negotiations. This change will provide additional resources to contracting officers in developing future negotiation objectives for both CSOs and those using FAR-based techniques by expanding the pool of available resources useful for preparing for and establishing negotiation objectives.

Expanding the reporting requirements does not address the accessibility flaw of the CBAR tool. Acknowledging the scalability of the PIEE suite, we further recommend the CBAR tool be modified to include a field that requires solicitation and evaluation methodology when uploading a negotiation document. Including this field will enable a more streamlined method to conduct reviews and analyses of how fair and reasonable pricing is achieved for both CSOs and all other reportable contract actions. Further, even for contracts that do not exceed the minimum reporting threshold established in the DFARS PGI, the DoD should consider requiring reporting of the process(es) used to determine fair and reasonable pricing, especially for commercial acquisitions, including those that used the CSO solicitation technique. This requirement will provide an array of valuable data, bolstering the negotiating process and lessening the narrow reliance on business acumen to determine price reasonableness. Scaling the CBAR tool could then lead to further applications to support negotiations, such as connection points with the USAF's weighted guidelines online tool and others, but those applications are beyond the scope of this research and its recommendations.

Caution Against Wide-Sweeping Changes in Policy

As a final recommendation, we recommend constraining future policy regarding the CSO solicitation technique to only those necessary to execute legal contracts and agreements. As reflected in this research, innovation requires flexibility and freedom to engage in continuous improvements and limit imitation. To maintain the flexibility of CSOs, future policy should avoid unnecessary restrictions in the CSO process. Rather than policy that constrains or restricts the CSO solicitation process, the government should instead invest in its KM environment and bolster the government workforce's knowledge and understanding of CSOs to facilitate further innovation in the procurement process. Doing so will equip the DoD workforce with the "best weapons with which to compete … knowledge and service" (Johannessen et al., 1999, p.132). This will lead to increased learning capacity of the DoD's knowledge workers and secure a competitive advantage of defense superiority. The CSO process and this recommendation, taken collectively with our other recommendations, will facilitate the DoD securing this competitive advantage through KM.

Summary and Conclusion

The goal of this research was to answer four research questions. The questions were intended to explore the opportunities and flexibilities of CSOs as a solicitation technique to acquire innovative solutions. This information could then be used to frame DoD agencies' utilization of the CSOs to support their individual missions. While not definitively answered due to limitations in the research, the following conclusions to the research questions have been made based on our findings:

1. What are CSOs' strengths as a solicitation technique?

Through this research, we identified 27 strengths of the CSO process. These fell across 10 distinct categories:

- training and information sharing (number of findings = 1),
- internal agency processes (2),
- solicitation definition (2),

- industry interaction (1),
- expanded solution horizons (4),
- industry participation and competition (3),
- cost/price/budgeting (1),
- schedule and planning (1),
- process flexibility (7), and
- scope of litigation (5).

Some strengths were assigned to multiple categories. The most telling and compelling strengths were identified in the GAO and COFC protest findings, namely that CSOs may have a significant protest-risk advantage over FAR-based solicitation techniques as there have been zero sustained protests that challenged the CSO process itself. Additionally, the judicial deference provided to the CSO process by GAO and COFC appreciably enhance the protest-risk advantage of using CSOs to acquire innovation.

2. What are CSOs' weaknesses as a solicitation technique?

Through this research, we identified seven weaknesses of the CSO process. These fell across four distinct categories:

- training and information sharing (number of findings = 1),
- internal agency processes (4),
- cost/price/budgeting (1),
- schedule and planning (1).

Though few compared to the total strengths, the CSO weaknesses point to the need to engage in prudent planning and develop sound processes when planning a CSO solicitation. Particularly, we find the absence of weaknesses identified in the GAO and COFC protest decisions to be noteworthy.

3. What are best practices for utilizing the CSO solicitation process?

Through this research, we identified 43 individual best practices for implementing the CSO process. These best practices involved the planning process, the soliciting process, and the evaluation process. We recommend adoption of the entire catalogue of best practices when planning future CSO solicitations. Of note are the best practices regarding internal agency processes, as this category had the most robust list of recommendations from early CSO users. As CSOs become a more popular solicitation technique for both the government to use and industry to respond to, agencies will need to recognize the importance of properly scaling up in their preparation of the planning, soliciting, and evaluation processes surrounding it.

4. What is the statistical difference, if any, in the procurement lead times of contracts awarded from a CSO and those awarded from a FAR-based solicitation, and what inferences can be made of this difference?

Taken individually, the procurement lead time data analysis suggests that no significant difference exists between the procurement lead times of contracts awarded from a CSO and those using a FAR-based solicitation when examining them in three distinct groups of (1) less than the SAT, (2) SAT to less than $5 million, and (3) $5 million to $100 million. Considering the data as a collective of all actions less than $100 million, however, the analysis found that a

statistical difference does exist in the procurement lead times of contracts awarded from a CSO and those using FAR-based solicitations. This finding, in conjunction with the finding that the mean procurement lead time of contracts awarded from a CSO is longer than the mean procurement lead time of those contracts awarded using a FAR-based solicitation, suggests that the procurement lead time for contracts awarded from a CSO is significantly longer than those using FAR-based methodologies when considering the totality of all actions less than $100 million.

Considering these findings, one might surmise that the CSO process is wholly inefficient at expediting the time to contract award; however, this analysis is a singular facet of the total research and is constrained by factors that preclude informed decision-making regarding the procurement lead time. As discussed previously, our statistical analysis of procurement lead time is constrained by the quality and quantity of the available data. Due to these constraints, we were unable to make reliable, informed inferences about the procurement lead times; however, we postulate that our analysis provides for a foundational baseline and analytical model against which future analysis may be conducted, once more reliable data can be obtained through implementing our recommendations contained in this research. With improved data quality and reliability, the model we established in this research will facilitate a more robust and reliable comparison of the CSO process and FAR solicitation techniques, allowing for validation, verification, and representative quantification of the strengths and weaknesses identified in the research.

Call to Action

In summary, CSOs provide an opportunity for the DoD to capitalize on the innovative capabilities and advances of industry, propelling the DoD to expanded solutions horizons, improving industry participation and competition, providing process flexibility, and securing against protest risk. As a solicitation technique, the CSO is a valuable tool to achieve innovation, but prudent planning and application of this research's identified best practices are critical to ensure acquisition success. Further, by implementing the recommendations provided in this research, the DoD will be postured to utilize the CSO solicitation technique to its fullest potential, closing the technological capability gap and providing better defense capabilities to the nation.

References

82d Contracting Squadron. (2020, June 3). *AF customer education program - CSO: Overcoming barriers* [Video]. https://www.milsuite.mil/video/watch/video/31919

Defense Advanced Research Projects Agency. (n.d.). *Acquisition innovation*. Retrieved May 7, 2023, from https://acquisitioninnovation.darpa.mil/

Defense Federal Acquisition Regulation Supplement PGI, 48 C.F.R. 215 (2023, May 4).

DoD. (2022, April 27). DOD quarterly commercial solutions opening cross talk (Issue 1) [Bulletin].

DoD Inspector General. (2015). *Inspector General's summary of management and performance challenges for Fiscal Year (FY) 2015*. https://media.defense.gov/2017/Apr/14/2001733120/-1/-1/1/FY2015_DODIG_SUMMARYMANAGEMENT_CHALLENGES.PDF

DoD Inspector General. (2022). *Fiscal Year 2023 top DOD management challenges*. https://media.defense.gov/2022/Nov/16/2003115791/-1/-1/1/MANAGEMENT%20CHALLENGES%20FY2023.PDF

Federal Acquisition Regulation, 48 C.F.R. 4 (2023, January 31).

Federal Acquisition Regulation, 48 C.F.R. 5 (2023, May 8).

GAO. (2019). *DOD acquisition reform: Leadership attention needed to effectively implement changes to acquisition oversight*. https://www.gao.gov/assets/gao-19-439.pdf

GSA. (2023, January 28). *GSA Federal Procurement Data System (FPDS) data element dictionary*. https://www.fpds.gov/downloads/Version_1.5_specs/FPDS_DataDictionary_V1.5.pdf

Johannessen, J.-A., Olsen, B., & Olaisen, J. (1999). Aspects of innovation theory based on knowledge-management. *International Journal of Information Management*, 121–139.

Merriam-Webster. (n.d.). Best practice. In *Merriam-Webster dictionary*. Retrieved April 15, 2023, from https://www.merriam-webster.com/dictionary/best%20practice

National Defense Authorization Act for Fiscal Year 2016, Pub. L. No. 114-92 § 804 (2015). https://www.congress.gov/114/plaws/publ92/PLAW-114publ92.pdf

National Defense Authorization Act for Fiscal Year 2017, Pub. L. No. 114-328 § 879 (2016). https://www.congress.gov/114/plaws/publ328/PLAW-114publ328.pdf

National Defense Authorization Act for Fiscal Year 2017, Pub. L. No. 114-328 § 880 (2016). https://www.congress.gov/114/plaws/publ328/PLAW-114publ328.pdf

National Defense Authorization Act for Fiscal Year 2018, Pub. L. No. 115-91 § 867 (2017). https://www.congress.gov/115/plaws/publ91/PLAW-115publ91.pdf

National Defense Authorization Act for Fiscal Year 2020, Pub. L. No. 116-92 § 861 (2019). https://www.congress.gov/116/plaws/publ92/PLAW-116publ92.pdf

National Defense Authorization Act for Fiscal Year 2022, Pub. L. No. 117-81 § 803 (2021). https://www.congress.gov/117/plaws/publ81/PLAW-117publ81.pdf

Neary, S. (2018). *Knowledge and information management*. Joint Staff J7. https://www.jcs.mil/Portals/36/Documents/Doctrine/fp/knowledge_and_info_fp.pdf?ver=2018-05-17-102808-507

Secretary of the Air Force Acquisition Office (Contracting Policy / Regulation). (2022, November 2). *Is a CSO right for you* [Video]. https://usaf.dps.mil/sites/AFCC/KnowledgeCenter/Documents/Forms/AllItems.aspx?id=%2Fsites%2FAFCC%2FKnowledgeCenter%2FDocuments%2FCSO%5FLibrary%2FIs%20a%20CSO%20Right%20for%20You%2Emp4&parent=%2Fsites%2FAFCC%2FKnowledgeCenter%2FDocuments%2FCSO%5FLibrary&p=true&ga=1

Section 809 Panel. (2018). *Report of the Advisory Panel on Streamlining and Codifying Acquisition Regulations*. https://discover.dtic.mil/wp-content/uploads/809-Panel-2019/Volume1/Sec809Panel_Vol1-Report_Jan2018.pdf

Statkat. (n.d.). *Critical t value given significance level alpha—Online calculator*. Retrieved from https://statkat.com/online-calculators/critical-t-value-given-alpha.php

United States Air Force. (n.d.). *Innovation toolbox*. Retrieved May 6, 2023, from https://usaf.dps.mil/sites/AFCC/AQCP/OI/Innovation%20Toolbox/SitePages/Solicitation.aspx

Washburn, E., & Colavito, M. (2023). *Analysis of Department of Defense commercial solutions openings* [Capstone applied project report, Naval Postgraduate School]. NPS Archive: Calhoun. https://calhoun.nps.edu/handle/10945/72289

Acquisition Research Program
Department of Defense Management
Naval Postgraduate School
555 Dyer Road, Ingersoll Hall
Monterey, CA 93943

www.acquisitionresearch.net