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Evaluating the Impact of Contracting "Tripwires" on Service Acquisitions

By

William Lucyshyn and Samuel Quist

CENTER FOR PUBLIC POLICY AND PRIVATE ENTERPRISE

SCHOOL OF PUBLIC POLICY

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The Center for Public Policy and Private Enterprise at the University of Maryland's School of Public Policy provides the strategic linkage between the public and private sector to develop and improve solutions to increasingly complex problems associated with the delivery of public services—a responsibility increasingly shared by both sectors. Operating at the nexus of public and private interests, the Center researches, develops, and promotes best practices; develops policy recommendations; and strives to influence senior decision-makers toward improved government and industry results.

Abstract

Service contracts are a significant component of DoD spending. The DoD relies on the private sector for a wide range of services (e.g., consulting and administrative support, information technology services, product management services, and base operations support) in order to facilitate the delivery of important defense capabilities.

In an effort to better monitor performance of service contracts, the DoD has implemented a program of contracting "tripwires." These are defined as "pre- and post-award metrics that provide visibility into areas of vulnerability and risk in the acquisition of services that require greater visibility and decisions by higher levels of management" (OUSD [AT&L], 2016). The report evaluates how tripwire implementation, on the whole and in specific instances, has impacted acquisition outcomes, examines the empirical basis for specific tripwire thresholds and their approval authorities.

DoD leadership was careful to clarify that "tripwires are not intended to restrict execution, but instead to alert and require higher-level awareness and action to remedy potential cost, schedule, or performance issues." This clarification proved necessary yet insufficient, and shortly after their introduction, reports surfaced that contracting officers were taking pains to avoid 'tripping' any of the thresholds.

Tripwires implementation has resulted in mixed reviews. Those related to cost, specifically tripwires placing limits on labor rates, have caused some challenges. Data on the other tripwire categories shows a positive impact. Tripwires related to bridge contracts provided insight into their use and reduced the total amount of bridge contracts used, leading to better acquisition planning. Tripwires relating to one bids also led to better acquisition outcomes by providing greater insight into why only one bid was being received for a proposal. And tripwires related to best value procurements provided important insight into whether or not the best value was being attained as a result of paying more for a contract.

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About the Authors

William Lucyshyn is the Director of Research and a Research Professor at the Center for Public Policy and Private Enterprise in the School of Public Policy at the University of Maryland. In this position, he directs research on critical policy issues related to the increasingly complex problems associated with improving public-sector management and operations and with how government works with private enterprise.

His current projects include modernizing government supply-chain management, identifying government sourcing and acquisition best practices, and analyzing Department of Defense business modernization and transformation. Previously, Mr. Lucyshyn served as a program manager and the principal technical advisor to the Director of the Defense Advanced Research Projects Agency (DARPA) on the identification, selection, research, development, and prototype production of advanced technology projects.

Prior to joining DARPA, Mr. Lucyshyn completed a 25-year career in the U.S. Air Force. Mr. Lucyshyn received his bachelor's degree in engineering science from the City University of New York and earned his master's degree in nuclear engineering from the Air Force Institute of Technology. He has authored numerous reports, book chapters, and journal articles.

Samuel Quist is a Graduate Research Associate at the Center for Public Policy and Private Enterprise at the University of Maryland School of Public Policy. He will be completing his Master of Public Policy with a specialization in International Security and Economic Policy in May 2019. Mr. Quist received his Bachelor of Arts in Political Science from American University in 2015. Following graduation, he will begin work as a Performance Management Program Analyst with the state of Maryland.

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Table of Contents

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Introduction

Since FY 2015, substantial shifts in the defense acquisition system have occurred as contract obligations have increased following a period of sequestration and the defense drawdown. In addition to topline contract growth, changes in administration have created new priorities and policies at the Department of Defense (DoD). These changes will influence what the DoD buys and what strategies contractors will use to meet these requirements.

In particular, service contracting will continue to remain a significant component of DoD spending. The DoD relies on the private sector for a wide range of services (e.g., consulting and administrative support, information technology services, product management services, and base operations support) in order to facilitate the delivery of important defense capabilities. Although most public attention to defense acquisition focuses on Major Defense Acquisition Programs and R&D contracts, service contracts make up a significant share of DoD contract obligations, averaging 42 percent since FY 2000 (McCormick, et al, p. 6).

Although growth in service contract obligations have lagged behind topline growth, falling from 44 percent of total contract obligations in FY 2015 to 41 percent, they have continued to grow in recent years. From FY 2015 to FY 2017, obligations for service contracts increased 5 percent, from $125.5 billion to approximately $132.1 billion (McCormick, et al, p.6). Because service contracting is such a significant component of total DoD spending and is continuing to grow, several initiatives have been implemented in an effort to improve its efficiency. One such initiative has been the introduction of contracting “tripwires.”

The DoD defines tripwires as “pre- and post-award metrics that provide visibility into areas of vulnerability and risk in the acquisition of services that require greater visibility and decisions by higher levels of management” (OUSD [AT&L], 2016). Some areas of risk that tripwires address include performance, cost, schedule, and fraud. Tripwires vary by DoD component as do threshold values and approval authorities for each tripwire category. These categories include labor rates, best-value source

selection premiums, bridge contract lengths, subcontractor additions, acquisitions in which only one offer is received, "other direct costs," and the award of interagency agreements pursuant to the Economy Act[1]. Crossing or "tripping" a tripwire generally requires prior approval by the procuring contracting officer and the program manager or, in some instances, the chief of the contracting office.

In January 2016, a binding instruction issued by the undersecretary of defense (AT&L) mandating that all organizational entities within the DoD employ tripwires "to the maximum extent practical." Anticipating how the 2016 mandate might be perceived by front-line contracting personnel, DoD leadership was careful to clarify that "tripwires are not intended to restrict execution, but instead to alert and require higher-level awareness and action to remedy potential cost, schedule, or performance issues." This clarification proved necessary yet insufficient. Shortly after tripwires were introduced, reports surfaced that contracting officers were taking pains "to avoid 'tripping' any of the thresholds that require[d] higher level oversight, even when they believed it was the right action for the Navy" (Chvotkin, 2012).

Tripwire implementation has also raised some concerns. Tripwires vary by DoD component as do threshold values and approval authorities for each tripwire category. In some instances, it is unclear whether threshold values have an empirical basis (e.g., the post-award limitation on subcontracting or the constraint on selecting best value); in others (e.g., burdened labor rates) the thresholds may be the result of faulty reasoning.

Report Roadmap

In light of current fiscal and conditions and budget projections, the government must ensure that its acquisition rules, policies, and processes are having the intended effect- achieving the best value for the American people. The objective of this report is to determine how tripwire implementation, on the whole and in specific instances, has impacted services acquisition outcomes. It seeks to answer the following questions: Do service contracting tripwires improve performance and reduce costs? Have tripwires measurably improved service acquisition outcomes, or have they added to the rigidity

[1] The Economy Act (31 U.S.C. 1535) authorizes agencies to enter into agreements to obtain supplies or services from another agency.

already present within the acquisition system? Is there an empirical basis for existing tripwire thresholds and how are they approved by authorities? We begin with a brief background of service contracting and the different tripwire categories that can be applied. We include a literature review of relevant principle agent theory literature. Next, we examine the use and outcomes of several different tripwire categories. We then summarize our findings and list recommendations, before providing closing remarks.

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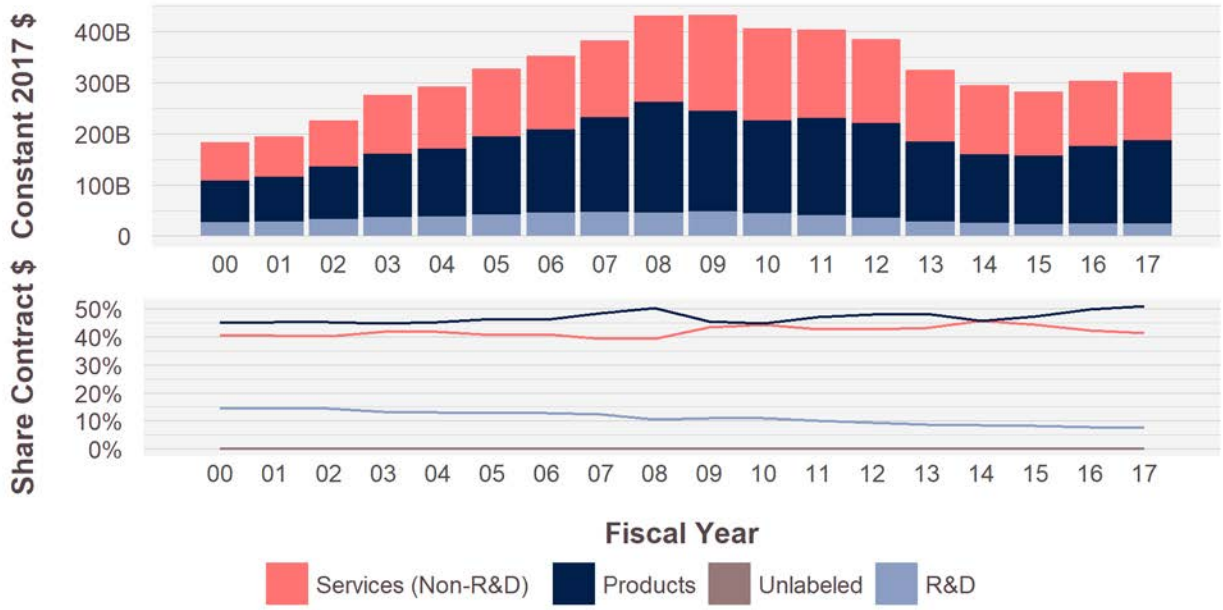
Background

The DoD is the federal government's largest buyer of contracted services, which include maintaining infrastructure, consulting, administrative, medical, and information technology work. Since fiscal year 2000, 42 percent of the Department of Defense's contracting obligations went to services (McCormick, et al 2018). Spending on contracted services more than doubled from the period beginning in fiscal year 2000 to fiscal year 2012, when obligations reached $186 billion (GAO, 2013 p.1). Contracting decreased in the years after as part of overall cuts in defense spending, but from FY 2015 to FY 2017, service contract obligations saw a 5 percent increase, from $125.5 billion to $132.1 billion.



Defense Contract Obligations by Area, 2000-2017 (McCormick, et al. 2018)

According to the U.S. Government Accountability Office (GAO), the increase in the use of contracted services is the result of a lack of strategic planning across the DoD, leading to thousands of individual decision being made through buying activities across individual military commands, weapon system program offices, and functional units on military bases (GAO, 2013 p.1). As a result, the management of service

contracts has been reactive in nature, ignoring key avenues for success at the strategic or transactional level (GAO, 2013 p.4).

By focusing on service acquisition reforms at the strategic level, which includes such actions as capturing knowledge to enable more informed management decisions, determining what the agency needs and how to meet those needs, and assessing what resources are needed to achieve desired outcomes, more sound decisions can be made for individual acquisitions at the transactional level (GAO 2013, P.4).

As part of this focus, the DoD and Congress have passed several measures and implemented policies to improve the defense acquisition process and the management of contracted services. In a 2010 USD (AT&L) memorandum, the DoD established its Better Buying Power Initiative, which called for the need to "do more without more" and obtain greater efficiency and productivity (GAO, 2013 p. 4). A 2013 update to Better Buying Power identified service acquisition as one of seven key areas to focus on.

The DoD also implemented policies prior to the conception of tripwires that were focused on placing greater attention on the review process for service acquisition and their management. In a 2002 memorandum by USD (AT&L), service acquisitions were required to be reviewed and approved based on dollar thresholds, as well as by acquisition strategy. Initially, all proposed service acquisitions that were valued at over $2 billion were acquired to obtain this review, and in 2006 this threshold was lowered to $1 billion (GAO 2013, p. 6).

Furthermore, DoD Instruction 5000.02 was issued in 2008 to expand upon these review requirements, and listed several factors of service acquisitions that should be considered as part of the review process, including:

- The source of the requirement
- The previous approach to satisfying the requirement
- The total cost of the acquisition
- The competition strategy
- The source selection planning

A subsequent 2009 memorandum included criteria to be used to evaluate and review acquisition strategy, including use of the appropriate contract type, maximization of competition, and measurement of contractor performance using objective criteria (GAO 2013 p. 7). As part of this push to improve the service acquisition process, tripwires were later conceived in order to serve as indicators of risk that would warrant further review when triggered. By outlining performance indicators or established thresholds of measurable risk, USD (AT&L) officials intended to "assess the health of service acquisition, across the military departments, potentially down to the program office level" (GAO, 2013 p. 19).

A tripwire is defined by NAVAIR Instruction 4200.61 (2014) as "a threshold metric that warrants further explanation to ensure the proper attention and decision making rigor are present for specific actions." In the most basic sense, tripwires are parameters set in order to achieve the greatest amount of value from contracts. They can measure cost, performance, or both, and tend to fall into two main categories: pre-award cost ceilings, such as limits on labor rates and other direct costs, and post-award thresholds that can be tripped due to performance, such as the use of bridge contracts or additional subcontractors not listed on the initial award.

In the case of a tripwire for cost, for example, hypothetical limits would be set such as establishing a price ceiling above an independent government cost estimate (IGCE) for the procurement of that service (PSC 2016, p.1). If a price exceeds this limit, the tripwire has been 'tripped,' and an additional review is triggered before the proposal can be approved. Generally, the review process requires a higher level organizational leader to approve a waiver for the tripwire before the contract is allowed to proceed.

The process used to establish and implement tripwires has been unclear in the past. The Professional Services Council (2016) suggests that "establishing trip wires can and should be a natural outcome of determining acquisition risk, acquisition strategy, and contract type, and IGCE" (PSC 2016, p. 1). While in theory this should lead to tripwire thresholds that have an empirical basis, sometimes this is not always the case due to faulty reasoning.

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Tripwire Origins and Categories

The first service contracting tripwires were implemented by the Navy in 2012 in the aftermath of a 2010 scandal in which illegal actions were taken by both government officials and contractors in the Naval Sea Systems (NAVSEA) Command (Chovotkin, 2012). In an effort to provide new visibility into Navy contracting transactions, NAVSEA augmented its management controls and increased oversight. Part of this initiative entailed the implementation of a series of "tripwires" that required "conscious decisions" by progressively higher levels of Navy management. The initial series of service contracting tripwires was released by NAVSEA in May of 2012 and included the following parameters:

- Burdened hourly labor rates exceeding $125
- Excessive variation between proposed and actual rates (>15%)
- The addition of subcontractors not listed in the initial award
- Excessive "Other Direct Costs" (>10% of total labor value)
- "One bids" received under a competitive solicitation
- Bridge contracts valued at more than $12.5 million or exceeding a six month period of performance
- A best value source selection in which the price is greater than 10% over the lowest acceptable offeror's (Marcinko, 2012).

Crossing any of these tripwires would require approval by the procuring contracting officer and the program manager or chief of the contracting office.

Tripwire use spread to Space and Naval Warfare Systems (SPAWAR) Command in late 2012, to Naval Air Systems (NAVAIR) Command in May of 2014, and then to other DoD components' contracting offices. In January 2016, the Office of the Undersecretary of Defense (AT&L) issued instruction 5000.74, stating that DoD components were henceforth required to "employ performance management metrics and tripwires to the maximum extent practical" to signal areas of potential risk.

The tripwire categories listed above is not an exhaustive list, and specific tripwires and metrics should be tailored depending on the contract and the unique

requirements and services needed. According to DoD Instruction 5000.74, tripwires that are implemented must: "track and measure performance effectively, support and inform acquisition planning for new contracts, contract renewals, and contract re-competes, and be considered during the SRRB review and approval process" (2016).

Industry Perception of Tripwires

DoD leadership was careful to clarify in instruction 5000.74 that "performance metrics and tripwires are not intended to restrict execution, but instead to alert and require higher-level awareness and action to remedy potential cost, schedule, or performance issues." Similarly, the Office of the Chief of Naval Operations (OPNAV) asserted that "tripwires are not intended to preclude execution, but instead to require a higher level concurrence or notifications before continuing to execute" (OPNAV Instruction 4200.7, 2012). In July of 2016, the Office of Defense Procurement and Acquisition Policy asserted that tripwires were not "a policy brick wall," nor was their use "a reflection of poor performance." And a 2013 GAO report cited USD officials' assertions that "tripwires alone are not sufficient to assess service acquisition performance."

In a system dominated by rules, processes, and binding instructions, these types of caveats and qualifications often prove necessary, yet insufficient. Indeed, shortly after tripwires were introduced, reports emerged that contracting officers took pains "to avoid 'tripping' any of the thresholds that require[d] higher level oversight, even when they believed it was the right action for the navy" (Chvotkin, 2012). Recently, ReliaAscent (2016), a government contract accounting firm, summarized what it believed to be the reality of tripwire implementation:

> *What really happens is contractors are warned not to exceed these costs and pricing parameters. Government buyers down in the trenches are already spread thin and do what they can to keep the wheels turning. It's natural for them to want to avoid the paperwork and exposure to higher level scrutiny. This causes contractors to capitulate to these limitations for fear of losing out on a project.*

This may be an imperfect characterization; nevertheless, it is clear that some segment of the acquisition workforce views service contracting tripwires as "brick walls" –despite the insistence of DoD decision makers to the contrary.

There has also been criticism from the industry that there has been too little guidance on how and where tripwires are working (Soloway 2016). Writing shortly after instruction 5000.74 was issued, Soloway noted, "When we see procurements that result in high level engineering skills being procured at the tripwire for administrative support (or about 1/3 the tripwire prescribed hourly rate for the relevant skills) that becomes an important and highly relevant question."

Because of this lack of guidance, Soloway argues that instruction 5000.74 was a missed opportunity for the DoD to improve the services acquisition process. Simply outlining requirements for tripwires and other acquisition processes was not enough:

> *In a system dominated by rules and process, too often at the expense of a focus on outcomes, the workforce is far more likely to read and pay attention to a binding instruction than it is to anything else. Thus, while it is important to clearly lay out all the process and review requirements, that is far from enough. We simply cannot afford to miss any opportunity to stress the themes, strategies, and concepts that will, in the end, be most central to success.*

Preliminary guidance on tripwire implementation, such as in instruction 5000.74, was not the first occasion that DoD mandates have had the unintended effect of constraining the ability of acquisition professionals to "think critically" (Kendall, 2014). In a related episode, early in this decade the military services and DoD agencies increased their reliance on Lowest Price Technically Acceptable (LPTA) criteria in assessing offeror's submissions. According to the GAO, use of LPTA within the DoD rose by 38% between 2009 and 2013 (Goodman, 2015). The common view within the defense industry is that Better Buying Power's emphasis on reducing costs led contracting personnel to interpret the guidance as a mandate to use LPTA to the maximum extent possible. Indeed, in many organizations LPTA became the default source selection strategy, even when it was clearly inappropriate.

The second iteration of Better Buying Power (BBP 2.0), released in November 2012, asserted that "technically acceptable" must be better defined in order to ensure that when it is used, the government customer receives the required quality of service (OUSD [AT&L], 2013). In the 2017 National Defense Authorization Act, Congress, in an effort to curb LPTA overuse, went a step further, declaring that LPTA is inappropriate "in

circumstances that would deny the department the benefits of cost and technical tradeoffs in the source selection process," effectively limiting the use of LPTA to commodity procurements.[2]

As with LPTA, similar questions must be asked when evaluating the effectiveness of service contracting tripwires. Have they measurably improved service acquisition outcomes? Or have they instead only added rigidity and further complexity to the federal acquisition system?

Tripwire Metrics

In some cases, it is unclear whether the initial threshold values outlined by NAVSEA in 2012 have an empirical basis (e.g. the post-award limitation on subcontracting or the constraint on selecting best value), or if in other cases they are the result of faulty reasoning. The burdened labor rate of $125 per hour, for instance, is coincidentally just under the DoD's top billable rate to other federal agencies for military pay grade level 0-10, for a four-star general or admiral ($143 per hour or $297,624 per year) (OUSD, 2012). Even if the DoD believes that no contractor should make more than a general, the fact remains that this billable rate reflects little more than then a general's salary, healthcare, and housing allowance ($290,762 per year or $140 per hour) (OUSD, 2012).

A more realistic burdened hourly labor rate for a contractor would account for all associated indirect costs, including training, recruiting, infrastructure, management, administration, security, capital equipment, facilities, as well as many other factors (Gansler, J.S. et al., 2011). Even then, it is unclear whether the rate would be competitive with commercial market rates to recruit and retain the best and brightest individuals, especially in high demand service industries such as systems engineering, information technology, cybersecurity, and advanced electronics testing, for example.

[2] The 2017 NDAA specifically recommends against the use of LPTA for the following acquisitions: (1) information technology service, cybersecurity services, systems engineering and technical assistance services, advanced electronics testing, audit or audit readiness services, or other knowledge based professional services; (2) personal protective equipment; or (3) knowledge based training or logistics services in contingency operations or other operations outside the United States, including in Afghanistan or Iraq.

Literature Review

There have been many studies on principal agent theory analyzing the effects of control and monitoring of the agent by the principal, specifically related to cost. There is evidence to suggest that implementing controls like those found in tripwires related to costs, such as the labor rate tripwire, may have unintended adverse outcomes. Falk and Kosfeld (2006) find that there is a hidden cost to control, specifically that when performance thresholds are implemented, the agent will choose a performance level that exceeds the threshold, but one that is at a lower level than if no control at all were exercised (p. 1612). This is because the control and performance thresholds can be interpreted as a lack of trust from the principal, and that they are being implemented due to an expectation of low performance. A more effective way to manage performance, according to the authors, is to use a well-structured incentive contract that will penalize opportunistic agents and increase their motivation to perform at a high level.

Decarolis (2014) researches some of the potential consequences of focusing too heavily on achieving lower costs, specifically at the award stage of a contract. By studying the impacts of the use of first price sealed bid auctions (FPAs) in Italy to award contracts for public works, Decarolis concludes that these efforts to achieve cost savings resulted in lower winning prices for the contracts, but at least half of these initial cost savings were erased due to ex-post renegotiations of the contract due to low quality work, cost overruns, and time delays. A major implication of focusing on low priced bids outlined by the author is that bidders will be incentivized to estimate an optimistically low cost initially to win the contract, and then "gamble" on the actual final cost of the project being similar to the original price (p. 113). As seen with LPTA, effective bid screening is crucial in order to prevent offers that are "too good to be true."

Cameron (2000) makes similar conclusions, specifically that when RFPs contain very specific and very strict criteria relating to price, desired experience, technical characteristics, control over output, and location, contractors will be constrained in their use of discretion to benefit contract performance. Too rigid performance evaluation

criteria will cause overall cost and risk to increase. According to Cameron, using this approach will achieve cost savings initially, as it will cause reductions in initial bid prices, but in the long run the probability of a costly breach of contract will increase significantly (p. 279).

Kagel and Levin (1986) conduct a similar analysis as Decarolis, focusing on the "winners curse" phenomenon and outlining how auctions in which there are a large number of bidders can result in less ideal outcomes due to the occurrence of more aggressive bidding. In order to formulate bids, firms must obtain an unbiased estimate of the value of the contract, and then come up with an amount that is a function this estimate. According to the authors, the winning bid will therefore be the one that is based off of the most optimistic value estimate, which can result in below normal or negative profits for the winning firm (p. 894). The authors conclude that, especially in auctions with a larger number of bidders, these conditions exacerbate adverse selection problems and other issues mentioned in previous literature (p. 917).

Additional evidence suggests that instead of monitoring inputs and costs, focusing on outputs is more effective. Zhao (2008) argues that because agents have private information on how their actions will affect the objective of the principle, contracting based on output is a better way to elicit some of this information (p. 1620). Zhao argues that a performance contract that awards incentives based on measures of output is more effective than separately monitoring and compensating for individual tasks within a contract (p. 1625).

Spilbur (1990) focuses on the necessity of implementing the proper incentives and enforcement measures to ensure that the contract is carried out properly after award. If contracts are not enforced, according to Spilbur, the auction and bidding mechanism will unravel because there will be no incentive not to bid low and break the contract in the case of a cost overrun. If the most qualified firm is not selected from an auction, problems will arise due to the private information possessed by the firm about their costs and ability to perform. High-cost-overrun firms will be unable to perform if a cost overrun occurs, so they will bid low to cover their costs of performance and if necessary, breach the contract if the appropriate incentives for performance do not

exist. Low-cost-overrun firms are also forced to lower their bids in order to stay competitive, also to protect against cost overruns (p. 326). This illustrates the need for proper contract enforcement mechanisms to ensure that contractual performance remains at an acceptable level.

The level of uncertainty and risk present in a contract also influences what type of monitoring and control should be used. Prendergast (2002) argues that when a contract has a higher level of certainty, individual inputs can be more easily monitored, but when situations are more uncertain and contain a higher level of risk, outputs should be observed and compensation should be based accordingly (p. 1072). In more stable scenarios, the principal has a much better idea of what the agent should be doing and how much it should cost, but in situations that are more uncertain, the principal has less of an idea of which specific inputs and activities the principal should be focusing their time on. In these cases, paying based on contract performance can be necessary to induce the appropriate actions by the agent, since measures of inputs are less likely to be effective (p. 1100).

The problem of information asymmetry during the bidding process for government contracts is analyzed by McAfee and McMillan (1986). The two main issues they outline are adverse selection on the part of the government, who cannot directly observe the production costs of the bidding firms and therefore cannot always know which is in fact the most efficient choice, and moral hazard on the part of the bidder, who knows it must keep its bid low in order to maintain competitiveness with its rivals and knows that the government does not know what actions it is taking to keep costs low (p. 326).

As a result, McAfee and McMillan conclude that it is necessary to structure a contract with the proper incentives in order to balance the desires of stimulating competition between bidders and ensuring that risk is shared between the contractor and government (p. 327). When it is possible to observe the true valuation of the work needed to complete a contract, payments can be made based on both the bid price and the true valuation. Since it may not be possible to monitor the subsequent actions of a winning bidder, making payments based on valuation can introduce the moral hazard

problem, so the benefits from making payments based on valuation should be weighed against the potential losses from moral hazard (p. 336).

Amirkhanyan (2008) outlines how greater collaboration between the principal and agent can lead to better forms of performance management than through control alone. The author analyzes collaboration in state and local government contracts and suggests that better performance outcomes can be achieved when collaboration exists between both parties. Collaboration is defined in this study as “the prevalence of input seeking, negotiations, and other joint activities used to enhance or modify contracts” (p.524).

According to the author, both the principle and the agent play an important role in the collaborative process. The principle enforces the contract terms and compliance, but the agent retains the ability to maintain flexibility, discretion, negotiation, and collaborative problem solving. Amirkhanyan notes that “if good will and trust exist between the agency and the contractor, then the parties will often proceed with the understanding that performance expectations will be negotiated, and if necessary adjusted, as the program unfolds” (p. 527).

As a result, collaboration, performance standards and measures can be examined jointly by both the principle and agent, both at the time of the contract award and periodically afterwards, creating a process where both parties are actively involved in the process. This eliminates the need for other types of strong control by the principle. By focusing on collaboration rather than control, Amirkhanyan argues that “collaboration creates a positive and open culture and helps avoid generic, formalistic, and unreasonable procedures” (p. 547). When used correctly, collaboration can be a useful tool to facilitate better contract outcomes.

Tripwires Related to Cost

Pre-award tripwires related to cost include those related to labor rates, other direct cost, and best value procurements. Labor rate tripwires are defined as any proposed fully burdened labor rate bid on a cost plus or time and materials contract that exceeds $260,000, which is equivalent to $125 an hour. Labor rate tripwires may also apply post award if labor rates above this threshold are charged to the contract without being including in the bid proposal, or if the amount charged exceeds the bid rates by more than 10 percent. If the amount charged exceeds 15 percent, a higher level review is required (Marcinko 2012).

Tripwires related to Other Direct Costs (ODCs) require approval and monitoring of charges when ODCs are estimated to exceed 10 percent of the contract value or $3 million dollars per year, whichever is lower. The FAR defines ODCs as costs that are not identified as direct labor costs or direct material costs. An example would be computer services, consultant services, travel, etc. (Marcinko 2012) (USD AT&L Chapter 8). In some cases, the tripwires for ODCs have been recently tightened from 10 percent of the value of the labor of the contract to 5 percent.

Tripwires related to best value procurements provide oversight into the variation between price of a contract awarded through a best value source selection process, and the other bids that were received. Best value tripwires require review and approval for the award of a contract valued at over 10 percent of the lowest bid that is technically acceptable, as well as for contracts that are valued at over $10 million.

Best Value Procurements

The DoD has several source selection processes that are used to evaluate contract proposals. When using a best value tradeoff process, the relative importance of cost or price and technical capability and past performance can be weighed against each other in order to determine which proposal delivers the greatest benefit to the contract. The DoD often indicates in tradeoff solicitations that non-cost factors such as ability to meet a deadline, understanding of complex technical issues, or proposal of an

innovative approach would be more important than price in making the award decision. In these cases, a contract may be awarded to a higher priced proposal if it is determined that it provides greater benefits and is worth paying an additional cost.

The price differential is the difference in price paid to the offeror awarded the contract and the next best offeror in line for the award. In a 2010 GAO study into the use of best value tradeoff processes by the DoD, a price differential was paid in 21 out of 68 contracts in which a price differential was considered. The majority of these price differentials paid were less than 5 percent (GAO 2010, p. 11). In 29 out of these 68 contracts, the awarded offeror had both the lowest price and the highest non-cost factor technical rating. In the remaining 18 contracts, it was decided not to pay a price differential, due to the determination that a lower price in those cases outweighed the advantages of a higher technical rating (GAO 2010, p. 15).

The largest price differential in this sample was a contract with one of 48 percent, or $13.6 million greater than the next offerors price. In this case, a contract awarded by the Marine Corps for burn resistant clothing for soldiers in Iraq, contracting officials determined that paying a much greater price was worth it due to the contract's ability to provide much greater burn protection than the other contract proposals. (GAO Chart on p. 16)

Although DoD officials acknowledged specific challenges associated with the use of best value source selection, including the need to develop meaningful evaluation criteria, the additional time needed for evaluation, and the additional business judgement needed, it is seen as a valuable tool that provides insight into the ability of a contractor to meet the government's needs and the reasonableness of their approach (p.16.17).

Contracts are often awarded to a contractor whose proposal is not the lowest price, using best value criteria. Some commands have implemented tripwires to highlight these cases. NAVSEA tripwires, for example, require notification and approval for a contract awarded to a bid that is greater than 10 percent of the next lowest bid.

Analysis of Tripwires Focusing on Cost

While tripwires based on cost seek to improve performance and acquisition outcomes due to the intuitive idea that placing limits on cost will facilitate a better value for the government, related literature suggests that implementing controls such as these may actually result in the opposite, and less desirable outcomes. This is due to the fact that discounts and costs savings at the contract award stage and at individual points within the contract do not always translate to the same level of savings throughout the life of the contract. Because of issues related to adverse selection and moral hazard, the lowest priced bid will not necessarily result in the best value for the government, especially if work quality is sacrificed or lower qualified contractors are used in order to achieve a lower overall cost.

Initial criticisms of tripwires related to cost mirror some of the similar early criticisms of the use of LPTA, particularly that tripwires may be having the unintended consequence of placing a greater emphasis on cost, resulting in sacrifices to quality. At a recent National Contract Management Association (NCMA) panel, it was suggested that the government was seeing more low quality proposals for RFPs due to the perception that higher quality, higher priced proposals would not be competitive during the bidding process. Because of the fear that rates exceeding tripwire thresholds would not win contract awards, there was concern that in the future, highly experienced personnel would be passed over due to a lack of support for paying them higher rates.

As in the case of LPTA, the concern is that programs can be underbid and put at risk when employees are hired at lower salaries and forced to “make it work” (The Percell Group LLC, p.2). As a result, these lower bid prices and their subsequent quality would be costlier in the long run due to increased risk exposure and the negative impacts of cutting costs. According to The Percell Group, in cases such as these innovation and technology development investments are also likely to be cut, and the initiation of a “death spiral” can occur as more experienced and qualified individuals leave to find higher paying positions in other industries, leaving less experienced, less productive, and less expensive individuals to do the job. Due to these concerns, it is

important that tripwires are structured properly so that they do not result in higher exposure to risk and restrict room for innovation.

Initial concerns were also raised that even in cases where higher rates that exceed tripwire thresholds were justified and necessary to facilitate higher quality work, less experienced acquisition personnel would be hesitant to request approval of these rates. Additionally, the issue was raised of whether small business in particular would be negatively impacted, as the resulting cuts to subcontracting rates would make it even harder for them to compete with larger prime contractors (NCMA p.4-5).

Leading Indicators, Price Reasonableness, and Price Realism Analysis

One of the main initial criticisms of tripwires was that they are based on arbitrary thresholds. One way in which tripwires can be developed on an empirical basis rather than on arbitrary thresholds is to use leading indicators and other analysis on the price for a contract. Leading indicators in particular, when implemented properly, can identify problems before they occur by monitoring several different metrics that allow for better control of costs, schedule, and performance.

As previously researched by Gansler and Lucyshyn, leading indicators can be designated as pre-contract award indicators used to shape the development of the program, and post-award indicators used to manage performance. Leading indicators can be used in two distinct ways:

- To reduce the number of programs that begin development on a weak case, in order to avoid initiating a costly program that should not have been initiated.
- To provide program managers with early warnings of impending difficulties as the program progresses, so that minor issues can be corrected before they turn into larger, costly problems (Gansler and Lucyshyn, p. 41).

Pre-award leading indicators identified by Gansler and Lucyshyn include analyzing initial program requirements, technological readiness, senior leadership support, program manager capabilities, and the presence of an experience supporting organization. Post-award leading indicators used to monitor program performance

include requirements volatility, contract changes, budget stability, funding flexibility, and manufacturing readiness (p. 52).

These leading indicators seek to impact the “iron triangle” of schedule, cost, and quality goals for large projects. Similar to other literature that concludes that focusing on controlling for cost does not necessarily lead to better outcomes, Gansler and Lucyshyn argue that projects that ‘fail’ in meeting schedule, cost, or quality thresholds may still end up delivering beneficial results in the long run. Rushing to complete a project on time and under budget may result in failure to meet the expectations of the stakeholders. The cases of the construction of the Sydney Opera House and the DoD’s development of the F-111 Aardvark program are two examples cited of programs that were completed significantly behind schedule and over budget but ended up being regarded as highly successful programs (p. 62).

The case of the F-111 Aardvark is a specific example of a highly successful DoD program that might never have been completed if leading indicators or tripwires would have been in place during the 1960s. In the end, the F-111 became one of the most effective all-weather interdiction aircraft ever built, capable of conducting precision, long-distance airstrikes in any weather condition. At the time of development, however, the numerous unprecedented technologies of the F-111 made calculating accurate cost estimates difficult, and costs increased rapidly. This makes it necessary to find the proper ways to define and measure program success. Leading indicators and tripwires may have the proper intentions, but if they are not defined and implemented in the correct ways, they could lead to adverse outcomes and negative impacts on important DoD programs.

Turner and Zolin (2012) specifically examine the development and use of leading indicators for large projects with multiple stakeholders. They also suggest that measuring project success in terms of cost, schedule, and quality thresholds should receive less emphasis, in favor of focusing instead on a project’s outputs, outcomes, and impacts in order to more accurately measure the achievement of the desired objectives of multiple stakeholders. Because large, complex projects can have meaningful outcomes long after their immediate completion, Turner and Zolin argue that

"the perception of success by a project's stakeholders often has little to do with whether the project was completed on time, at cost, and with the desired quality" (p.1).

Price reasonableness and price realism parameters for a contract can also be used to establish effective tripwires based on cost. While cost-based tripwires mainly focus on limiting prices so they do not exceed a certain amount, analysis of costs that are too low can also be valuable. A price reasonableness analysis is required by the FAR for every procurement, and focuses on whether an offeror's proposed price is higher than what is expected to be a reasonable cost. On the other hand, a cost realism analysis, which is not mentioned in the FAR and not required by every contract, focuses on whether an offeror's proposed price is lower than what is expected for satisfactory performance or to meet the technical requirements of the procurement (Tucker, 2016).

When a price reasonableness analysis concludes that an offered price is not too high, it is said to be "fair and reasonable." A price realism analysis is independent from these findings and is only conducted if it happens to be explicitly mentioned by the agency in the solicitation. While price reasonableness looks for prices that are unreasonable, price realism looks for prices that are unrealistic, which demonstrate a lack of technical understanding of the project requirements, or pose a performance risk (Lasky 2017).

In some cases, bid protests have been filed with the GAO because competitors to the awardee viewed the winning offer as so unreasonably and unrealistically low that it would not be possible to compete. The GAO has clarified that it is not "inherently improper" for a contractor to make an offer on a fixed-price contract that is so low it would result in little to no profit, or even a loss (King 2013). There may be purely business decisions behind the decision to do this, and unless a price realism analysis is specifically required in the contract proposal to ensure technical and performance requirements are met, the GAO will not generally accept these types of protests as valid.

Whether or not price realism or price reasonableness is the most important concern depends largely upon the risks associated with a specific contract. The Professional Services Council (PSC) has developed a methodology relating to the risk

levels present in service contracting (DoD service contract spending grow in cost and complexity). This approach may be helpful for guiding critical thinking about tripwire implementation (PSC, 2016).

The Professional Service Council suggests tripwires should be implemented in response to an analysis of the risk assessment of the contract, the contract type, and the acquisition strategy that is being used. Their suggestion for service contracts is to use a price reasonableness ceiling tripwire above an independent government cost estimate (IGCE) or price realism tripwire floor below the IGCE. In source selection evaluation, if a selected awardee's proposed price is above or below the pre-defined trip wire, the selection triggers an additional review before being finalized. Specifically, emphasis should be placed on the total labor components across prime contractors and subcontractors, and the risk levels quantified through an independent government cost estimate (IGCE) (PSC, 2016). This guidance recognizes that there are risks posed to the government from underpriced bids, as well as those that are overpriced, and suggests tripwires to focus on these as well.

While all tripwires focus on facilitating the achievement of the best value for the government from its spending on contracting, some tripwires focus on other criteria besides strictly cost levels. For example, tripwires related to contract performance that regulate the use of bridge contracts, one bids, and excessive variation between rates can also be used to achieve cost savings, and may be more effective than focusing on cost alone. NAVAIR, OPNAV and SPAWAR each issued memos in 2012 and 2014 expanding upon different tripwire categories.

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Tripwires Related to Contract Performance

Other tripwires related to contract include those related to the addition of subcontractors, the use of bridge contracts, one bid procurements, and excessive variation between proposed and actual rates. Tripwires related to the addition of subcontractors state that review and approval is required for any subcontractors added to the contract following its award. Tripwires related to bridge contracts require review and approval for the use of all bridge contracts, as well as additional approvals if the bridge contract value exceeds $10 million or if a second bridge contract is required. Tripwires related to one-bid procurements require the reporting of any instance where only one bid was received for a competitive proposal, and requires approval if this procurement is valued at over $150,000. Tripwires related to excessive variation between rates requires review and approval of actual rates that are over 15 percent of what was originally proposed. (Marcinko 2012) (ReliAscent 2016)

Bridge Contracts

Contracting arrangements referred to as “bridge contracts” are used to ensure that there is not a gap in services in a situation where an original contract is set to expire, but a succeeding contract has not yet been awarded. When the federal government contracts for services, it is sometimes necessary to continue those services after the expiration of a contract. Bridge contracts can serve as a useful tool to bridge the gap while a subsequent contract is being awarded. However, bridge contracts have also been associated with negative effects such as a lack of planning in the acquisition process and higher prices due to an absence of competition. This is important because it requires that staff must devote resources to awarding a bridge contract at the same time that they are preparing to award a subsequent contract.

Across the federal government, bridge contracts are awarded for a wide variety of service contracts. (GAO, 2015 Chart on p. 11) 26 percent of bridge contracts, the largest category, were awarded for professional or administrative services. The next largest category, at 23.3 percent, was for IT services. Other categories include utilities, housekeeping, research and development, and maintenance.

The need for a bridge contract can arise from a number of delays in the acquisition process, including:

- Changes in contract requirements or delays in the requirements being submitted by the requiring agency.
- Discovery that the planned contract vehicle cannot be used, or other problems at the contracting office relating to the review and approval boards.
- Bid protests of the contract award (IDA p. 33).

One of the most common causes of delays resulting in the use of bridge contracts is late completion of acquisition planning documents needed to solicit a follow-on contract, such as statements of work (GAO 2015, p. 21). Some of the main causes of these delays in acquisition planning include understaffing issues for contracting staff or staff that are inexperienced, a lack of clarity about contract specifications due to a lack of training in writing requirements, and a lack of acquisition planning, such as underestimating how long the competition or negotiation process will last (IDA p. 34). Issues related to coordination between program offices and contracting offices were also highlighted by the GAO, particularly that program offices do not allow contracting officials enough time to conduct an acquisition planning process that would include the desired level of opportunities for competition, and that statements of work were often submitted late and required extensive revision before being published (GAO, p. 23).

When it becomes apparent that a base contract will expire before a follow-on contract to meet the same requirements is awarded, two main types of bridge contracts are considered by contracting officers in the face of time constraints posed by the expiration of the contract:

- Extend the current contract for up to 6 months
- Award the incumbent contractor a short term, stand-alone contract on a sole-source basis

While a single formal definition of a bridge contract does not exist, they can be established under several authorities, including the Federal Acquisition Regulation (FAR) part allowing for an “option to extend services clause” in the contract (GAO 2015, p. 4). Although sole-source contracts such as these are an important tool for many

federal agencies in times of emergencies or time constraints, there have been concerns that poor acquisition planning has resulted in bridge contracts being used too frequently. This often results in limiting (albeit temporarily) competition.

There is, however, no requirement in the FAR to track bridge contracts. According to a 2015 GAO report, none of the federal agencies reviewed had agency-level policies to track their use of bridge contracts, and limited or no insight into their use existed. Particularly within the DOD, policies at the department level did not exist because previous concern over the use of bridge contracts had not been raised (GAO p. 6).

However, within the DoD, the Navy through its tripwires, and also the Defense Logistics Agency (DLA) implemented policies regarding the use of bridge contracts. The Navy process requires a justification and approval (J&A) document and a request for authorization to award a bridge contract. This documentation requires an explanation for the rationale behind the award of the bridge contract, the urgency of the requirement, and the signatures of the program manager and the contracting officer (GAO p.8).

Navy officials reported that the total value of bridge contracts awarded in FY 2014 exceeded $1.6 billion. While it is too early to quantify, Navy officials found that the implementation of the tripwire policies regarding bridge contracts has resulted in "a cultural shift away from more frequent use of bridge contracts and helped significantly curb prolonged use of bridge contracts" (GAO p.9). Data from NAVSEA supports this conclusion, and reflects a decline in bridge contract usage. In FY 2016, 23 instances of bridge contracts were reported across the NAVSEA command. This subsequently dropped to 15 in FY 2017 and 7 in FY 2018. 1 bridge contract was reported during the first quarter of 2019. The DLA awarded $1.3 billion in bridge contracts in FY 2014 and saw similar reductions in their use following the implementation of internal review processes. DLA officials found that requiring approval for the award of bridge contracts is an effective deterrent to their use when there is not a good reason to do so.

This goes along with the conclusions of a study by IDA into the use of sole-source contracts, that bridge contracts are not a problem because of a lack of competition, but because of issues with acquisition planning. According to IDA, nearly

one in four sole-source service contracts awarded by the DoD was a bridge contract. While the total contract value for these bridge contracts was relatively small, about 10 percent of the total of sole-source contracts, costs to the DoD for their administration where much more significant. The main issue with bridge contracts, therefore, come from process inefficiencies, particularly the costs for preparing and administering them by the requiring agency, the contract officer, and the administrator. The use of bridge contracts, except when they are absolutely necessary, places unnecessary strain on the DoD contracting workforce, who at the same time must plan for a follow-on contract for the required services (IDA, p. 39-40).

Another issue with bridge contracts identified by the GAO is the use of one or more subsequent "bridges" lasting longer than the typical period of performance of six months or less (GAO, p. 12). This creates additional challenges and inefficiencies, as in some cases the full length and cost of the bridge contract is not clearly documented by J&A statements. Because of this, agency officials signing off on bridge contracts only see the estimated value and length at the time of its award, rather than the full time and cost if multiple "bridges" are required (GAO, p. 14).

The GAO found that although the Navy had similar uses of bridge contracts to other agencies, the Navy documentation of bridge contracts was much stronger and identified the reasons for the use of each bridge contract and detailed their full length and cost (GAO p. 16). The management of bridge contracts by the Navy tripwires and DLA were both concluded to be important steps toward achieving better insight into their use. Better tracking and managing of bridge contracts across the federal government can result in their use only when necessary for a short period of time, reducing the likelihood that the government overpays for services due to a lack of competition (GAO, p. 28).

Sole-Source Procurements (One Bids)

While awarding contracts through full and open competition is one of the main goals of the federal acquisition system, in some circumstances this is not practical or does not occur. In FY 2013, the Department of Defense awarded 43 percent of its contracts for products and services without competition (GAO 2014, p. 1). Written

justifications that outline a specific exemption to the full and open competition rules are generally required by the FAR for these procurements.

Some examples for instances when contracting without full and open competition is justified include when there is only one responsible source that can satisfy the agency requirements, in the case of an unusual or compelling urgency, or when it is in the interest of national security. “Only one responsible source” is a common justification across the DOD, particularly for weapons systems or specialized equipment that is at a stage in its lifecycle where competition is not economically viable (GAO 2014, p.5).

Sole source procurements may also occur unintentionally, such as when only one bid is received for an RFP. Tripwires can provide additional review and oversight in these cases. If it is too late to cancel the RFP and resubmit it, the contract can still be awarded following proper notification that only one bid was received and if the proposal is found to be reasonable and technically acceptable. Further review is then required in order to provide insight into why only one bid was received, for example by analyzing the RFP for any issues that may inadvertently limit competition.

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Findings and Conclusions

Our research outlines that there are important distinctions to be made between the different tripwire categories, and that the effectiveness and challenges associated with each varies. An important distinction to be made is that although tripwires related to cost, specifically tripwires placing limits on labor rates, have caused some challenges, others such as tripwires for bridge contracts, best value premiums, and one bids, that deal more with contract performance after award had noticeable results in improving acquisition outcomes. One reason for this is that the labor rate tripwire is the one that has the most impact on contractors because unlike the others that are reactive in nature, labor rates are controlled by the contractors in regard to the rates that they charge.

Data on the other tripwire categories reflects their impacts. Tripwires related to bridge contracts provided insight into their use and reduced the total amount of bridge contracts used, leading to better acquisition planning. Tripwires relating to one bids also led to better acquisition outcomes by providing greater insight into why only one bid was being received for a proposal. And tripwires related to best value procurements provided important insight into whether or not the best value was being attained as a result of paying more for a contract.

Tripwires in every category serve an important oversight function. They provide Navy contracting officials with insight into how much is being paid for labor, or how procurements can be made more efficiently. By providing contract managers with this information, more efficient service contracting efforts can be made.

A point repeatedly emphasized is that tripwires are not contract requirements and that they should not be thought of as hard limits that are violated if exceeded. In many cases such as when the cost of labor rates requires further review, it is perfectly appropriate and reasonable to pay above the tripwire amount, as long as awareness and notification of what is being paid is provided. Therefore, tripwires should not be thought of as a barrier to contracting.

This is especially true if there is the proper justification for taking the action that 'trips' the tripwire. In this case there should not be any barriers to them being approved. If the justification is weak, approval will be more difficult. An example would be the use of subsequent bridge contracts. While the first bridge contract could be easily approved, if it was necessary for the contract, subsequent bridge contract would be much harder to justify and get approved. In this case, tripwires would be having their intended outcome by limiting this action.

However, there are still some concerns that exist in the industry regarding tripwires, particularly regarding the labor rate tripwire. While some of this was an initial short-term reaction that subsided as contractors became more aware of tripwire requirements and how to work with them, issues still remain, particularly among individuals who are newer or not used to the tripwire policy or the waiver request process. Despite the emphasis that tripwires are not a barrier to contracting, the industry still sees them as a challenge in some cases, such as when the labor rate trip wire is set, but there is a specific, particularly skilled individual that is desired for the job that requires payment above that amount.

This supports the academic literature suggesting that controlling for cost can have unintended adverse outcomes. If the labor rate tripwire cannot be easily waived for an individual that requires a higher labor rate due to their expertise or training, the initial cost savings achieved by awarding the contract to a cheaper contractor could eventually be erased and cost more in the long run due to lower quality work and inadequate performance. As seen with LPTA, discretion should be used in the application of the labor rate tripwire to ensure that it is achieving the intended outcomes.

Additionally, there is a view in the industry that the labor rate tripwire amount is based on an arbitrary amount, and does not take into account unique factors or circumstances and the acquisition of special types of procurements. The burdened labor rate of $156 per hour is uniform across different labor categories, and across locations. And although labor rates may include a small adjustment each year for inflation, they are not zero-baselined, and have not kept up with market changes.

In addition to adjusting the labor rate formula to ensure it is responsive to these conditions, tripwires can also be improved by becoming more uniform across the entirety of the DoD. Different commands have different tripwires that are not uniform, since OSD policy requires tripwires to be implemented but have not specifically outlined what they should look like, commands have been left to develop and establish their own. This has the potential for creating confusion within the contractor community. If this policy is to be continued, more specific guidance from OSD may be appropriate.

The DoD faces ongoing challenges associated with the uncertainty in the current budgetary environment. While striking the right balance between mitigating requirement risks, efficiently and effectively judging offerors, and doing so in a timely manner can be a challenging task, it must be achieved to ensure mission success. Contract “tripwires” can support improved contracting outcomes, but only if the tripwires are set appropriately.

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56
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