

ABSTRACT

Title of Dissertation: ANALYZING BID PRICES QUANTITATIVELY
AND PROTEST DECISIONS QUALITATIVELY
TO REDUCE PROJECT-RELATED DISPUTES
IN ADVANCE

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Parties to a construction contract can consume significant resources in dealing with project-related disputes. Therefore, it is advantageous for project stakeholders to identify potential issues earlier to avoid such problems as much as possible. This dissertation research explored evidence-based approaches to reduce project-related disputes before commencing construction projects. The research was carried out by examining a cost dataset from a state Department of Transportation that prioritizes the lowest-priced bid and by investigating a bid protest dataset from a Federal Government office that typically prioritizes the best value. With the coefficient of variation of bids as an independent variable of interest, the cost dataset was quantitatively studied using Welch's t-test, correlation and regression analyses, and the K-nearest neighbors classification. Then, the Government Accountability Office's decisions on denied bid protests against the U.S. Army Corps of Engineers were qualitatively meta-summarized. The observations showed the limited usefulness of collective intelligence provided by bidders at the time of bid opening in identifying projects likely to experience more significant project cost changes upon completion, as well as the effectiveness of the thematic findings in limitedly helping small businesses fore-test the validity of their cases before filing bid protests. The results could be applied beyond the Architecture, Engineering, and Construction industries as projects occur in all industries and industry sectors.

ANALYZING BID PRICES QUANTITATIVELY AND PROTEST DECISIONS
QUALITATIVELY TO REDUCE PROJECT-RELATED DISPUTES IN ADVANCE

by

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1 Justification of dissertation research

1.1 Introduction to project-related claims and disputes

Civil engineering and construction contracts almost always generate conflict. If one party to a contract believes that it is in a position to exercise its contractual rights, a written notice of its intent should be given to make a claim. A claim becomes a dispute when the claim is rejected by the other, and such rejection is not accepted by the claim-issuing party (Brunet & César, 2021). In the context of construction project management, claims are amounts above agreed contract prices that a contractor seeks to collect from its clients or others for client-caused delays, errors in specifications and designs, contract terminations, change orders that are either in dispute or are unapproved as to both scope and price, or other causes of unanticipated additional contract costs or delays (Wallace, 2008). Research has shown a high rate of contractual claims in construction projects, negatively impacting the construction industry's progress (Asadi, Rotimi, & Wilkinson, 2022).

At a high level, claims can be categorized into performance-related, payment-related, and delay-related claims (Brunet & César, 2021). Without pretension of being exhaustive, researchers have identified various causes of claims:

- Acceleration, restricted access, weather/cold, and scope increase (Semple, Hartman, & Jergeas, 1994);
- High uncertainty, up-front allocation of contractual responsibility, and opportunistic behavior (Mitropoulos & Howell, 2001);
- Payment of completed work, owner interference, slow decision-making, unrealistic contract, site management, improper planning, inadequate contractor experience, mistakes during construction, improper construction methods, delays caused by subcontractors, contract management, preparation and approval of drawings, quality assurance/control, long waiting time for approval of tests and inspections,

material quality and shortage, labor supply, labor productivity, equipment availability and failure, change orders, mistakes and discrepancies in contract document, major disputes and negotiation during construction, inappropriate organizational structure, lack of communication, weather conditions, regulatory change, problems with neighbors, and site conditions (Odeh & Battaineh, 2002);

- Poorly defined scope, establishment of unrealistic schedules, design changes, and coordination problems as contributors to reworks (Love, Edwards, Irani, & Goh, 2011); and,
- Collaborative conflict, risk, uncertainty, opportunistic behavior, affective conflict, ambiguity, efficiency, inconsistency, and defectiveness (Cheung & Pang, 2013).

The relationship between claims and time delays was also investigated. Based on 780 projects conducted by the Colorado Department of Transportation between 1997 and 2012, it was reported that delays had a significant impact on claims occurrence, and the association between cost overruns and time delays was confirmed by correlation analyses (Hashem M. Mehany & Grigg, 2015).

During the bidding process, typically, a project owner receives several offers, and bidders perceive that they are in a weakened position in terms of bargaining power. However, once the contract is signed, the dynamics are reversed as the contractor is in a position to exploit the lock-in situation. Opportunism is often well-thought-out and planned to acquire maximum value from the exchange (Brunet & César, 2021). Zack, in his 1993 article, unveils opportunistic maneuvers used by contractors and project owners; for example, eleven claimsmanship tactics employed by contractors are:

- Preparing their offer based on a low-cost material and renegotiating if their client makes an adjustment request;
- Willingly decreasing their margin to win a contract, hoping to regain their margin from change orders;

- Negotiating all financial claims at the very end of a contract without attempting to determine causality;
- Contending that they own the float on the project's critical path and allocating all delays and cost overruns to their client;
- Asserting that they would have finished earlier if their client had not forced them to revise their schedule, claiming the difference;
- Claiming the costs of acceleration for the entire acceleration period, even if only part of the time allocated had been utilized;
- Claiming for loss of efficiency or productivity suffered due to their customer's actions;
- Claiming the difference between their actual cost and initial cost estimate;
- Claiming that changes required by their customer are so extensive that the work no longer corresponds to the initial contract terms.
- Shifting the responsibility for delays or faults to the subcontractors that their customer forced them to use; and,
- Waiting for a change order at the end of a project in a last-ditch attempt to recoup losses (Zack, 1993).

In response to such an opportunistic mode of operations, ways to promote cooperation between disputing parties have been studied too. For example, the proponents of the proactive approach to legal and management issues consider the law as an enabling instrument to foster sustainable and ethical relationships rather than as a means to protect one's interests against others' harmful behaviors (Berger-Walliser, 2012). In construction management, parties have tried to neutralize opportunistic behaviors by adopting partnering as a cooperation scheme (Brunet & César, 2021). With respect to the effectiveness of partnering, there was no statistically significant difference in mean values of project claims costs between agencies that formally partnered most of their major projects and agencies that no longer employed formal partnering; however, it was argued

that the salient principles of partnering, such as increased collaboration, communication, trust-building, and dispute escalation were fully institutionalized by the agencies that no longer employed formal partnering (Pinto Nunez, López Del Puerto, & Gransberg, 2018).

The relationship between claims and project delivery methods also garnered researchers' interest. Based on actual construction documents from 137 U.S. southeastern public schools, Carpenter and Bausman analyzed different project delivery methods against cost, time, quality, and claims performance. The authors reported that the performance of the Design-Bid-Build deliver method was superior across cost metrics. In contrast, the Construction Manager at Risk delivery method produced higher levels of product and service quality (N. Carpenter & Bausman, 2016). Meanwhile, based on survey data collected from several Departments of Transportation, using descriptive and inferential statistics, it was reported that project delivery methods had no significant impact on the claim and dispute performance (Mehany, Bashettiyavar, Esmaeili, & Gad, 2018).

Meanwhile, standardized contracts were examined to mitigate adversarial relationships that claims and disputes can cause. The American Institute of Architects' standard conditions were analyzed to highlight what contract conditions were to be conducive to the speedy administration of claims and what contract conditions were to be conducive to tedious disputes (Barakat, Abdul-Malak, & Khoury, 2018). Various claim and dispute administration and resolution provisions per standard conditions were compared to illustrate the operational variations to guide project owners (Barakat, Abdul-Malak, & Khoury, 2019). However, projects are complex, and virtually all contracts have dispute-related clauses; it is practically impossible to anticipate every eventuality, thus making project contracts incomplete (Brunet & César, 2021).

Claims were also studied in different geographical contexts. By conducting a comprehensive literature survey and interviews with nine experts, Jalal et al. (2019) identified the most common claims in Iranian construction projects and their root causes through Ishikawa Diagram. It was reported that the four major sources of claims were

delays, changes, defects in documents, and discord within parties (Jalal, Noorzai, & Roushan, 2019). The FIDIC standard conditions were analyzed in the Egyptian civil law context to identify gaps and requirements for successfully applying the FIDIC's clauses to help minimize disputes resulting from delays, claims for extensions of time, or additional payment (Fawzy, El-adaway, Perreau-Saussine, Abdel Wahab, & Hamed, 2018). By analyzing 573 claims and dispute cases from 77 highway construction contracts in India, Parikh et al. (2019) classified and grouped the claim causes responsible for claims and disputes between contractors and clients (Parikh, Joshi, & Patel, 2019).

Parties to a contract can consume significant resources in dealing with claims and disputes. Therefore, it is critical for project owners, contractors, or project stakeholders to identify potential issues earlier to avoid them as much as possible. Therefore, this work asks specific research questions to explore evidence-based approaches to reduce project-related disputes before commencing construction projects.

1.2 Research questions

Specifically, two research questions are asked.

1.2.1 Are there any meaningful differences in construction cost changes between projects that received dispersed estimates and those that received more clustered estimates at the bidding stage?

Under the typical lowest-price sealed-bid project award auction environment, unsuccessful bids are typically discarded once bids are open. Interestingly, however, bidders usually consume significant resources to prepare their bids. Thus, unsuccessful bids are likely to convey essential information that the owner organization can take advantage of, given that the winning bidder is expected to be the one who underestimates the final cost more than his competitors (Chang et al. 2014). Such information could indicate uncertainties the bidders have noted, but the owner has glossed over (Wright & Williams, 2001). Further, there appeared to be some relationship between the bidding ratios (second-lowest bid

ratio, mean bid ratio, and maximum bid ratio) and the completed cost of construction projects in Texas (Williams, 2005). It was found that the value of the ratios (second-lowest bid ratio, mean bid ratio, maximum bid ratio, and the coefficient of variation) tended to be more significant for the projects in which the completed cost significantly deviated from the original bid (Williams, Lakshminarayanan, & Sackrowitz, 2005; Williams, 2007). Thus, it is asked whether there are any meaningful differences in project cost changes between projects that received dispersed estimates and projects that received more clustered estimates at the bidding stage.

1.2.2 What are the most frequently referred quasi-legal reasons for bid dispute-related decisions?

Claims and disputes occur between contracted parties, and contracts are made with those with the resources to spend, e.g., U.S. Federal Government. Firms interested in doing business with the federal government may have reasons to believe they have been denied fair opportunities to compete for federal government contracts. The U.S. Government Accountability Office (GAO hereafter) is where dissatisfied parties can challenge the terms of a solicitation or the award of a federal government contract (GAO, n.d.-a). Disappointed bidders can object to the conduct of federal agencies in acquiring supplies and services via the means of bid protests (D. H. Carpenter & Schwartz, 2018). Further, small businesses, which might feel more-significant financial burdens to file bid protests through legal counsels, need to be helped early enough to see if they have valid cases (Arena et al., 2018). It is argued, therefore, that identifying and spreading the quasi-legal bases that the GAO takes in its denials of bid protest decisions is crucial to support the operations of less resourceful contracting firms in the business of federal government acquisition. Although the GAO's decisions are not legal documents like a court's verdict, those decisions display certain legal instrument-like traits. For instance, the GAO's decisions set precedents and influence future decisions. Thus, this study refers to the GAO's decisions as quasi-legal.

1.3 Justification of proposed research questions

Identifying worrisome contractors, locating projects plagued with uncertainties, calling out industry-wide errors, and supporting less-resourceful small businesses are critical to the health of the Architecture, Engineering, and Construction (AEC) industries. In addition, it is essential for owners to reduce claim- and dispute-related spending, for contractors to check their offers before entering agreements, for the related industries to learn from their failures, and for governments to improve procurement processes.

The anticipated contributions to the body of knowledge from this work include the following:

- Validating the usefulness of collective intelligence provided by bidders at the time of bidding opening in identifying projects likely to experience more significant project cost changes upon completion; and,
- Quantifying the representative quasi-legal reasons for bid dispute-related decisions by the GAO.

Evaluating bids mainly involves two methods: 1) Prioritizing the lowest-priced bid and 2) prioritizing the best value determined by set criteria (Chen, Zhang, Rodríguez, Pedrycz, & Martínez, 2021). In this study, both methods are relevant. The first research question is answered by analyzing a quantitative dataset that prioritizes the lowest-priced bid. In contrast, the second research question is answered by studying a qualitative dataset that generally prioritizes the best value.

It can be argued that people or organizations learn more from defeats than victories. Most industrial standards such as *ISO 10006 Quality management - Guidelines for quality management in projects*, Capability Maturity Model Integration program, and PRINCE2 method recommend performance reviews to learn from past experiences (Brunet & César, 2021). Players in the AEC industries could learn from their failures, such as failed bids and denied protests. The findings could be applied beyond the AEC industries as projects occur in all industries and industry sectors, including information technology, engineering and

manufacturing, consulting, professional services, international development and cooperation, etc.

2 Usefulness of coefficient of variation of bids in identifying projects likely to experience more significant project cost changes upon completion

2.1 Chapter introduction

With limited information available, bidders are forced to make decisions based on a small sample of comparable cases and, therefore, are likely to make estimation errors, leading them to underestimate project risk (Brunet & César, 2021). Still, any responsive and responsible bidder would put together a most reasonable bid in their judgment. They would consume significant resources for calculations, correspondence, conversations, document studies, meetings, deskwork, and travel (Laryea & Hughes, 2011). However, unsuccessful bids are typically discarded under the typical lowest-price sealed-bid project award auction environment. Also, the winning bidder is likely to be the one who underestimates the final cost more than his competitors (Chang, Chen, & Salmon, 2014). Therefore, such unsuccessful bids could convey important information about the proposed project the owner organization can take advantage of; such information could indicate uncertainties that the bidders have noted but that the owner has glossed over. For example, it is possible that the scope of work or field conditions may not be clearly stated in bid documents; availability of labor, equipment, or material in neighboring areas may be uncertain; or there may be potential issues in terms of right-of-way, site access, or third-party involvement (railroads, utilities. etc.) (Wright & Williams, 2001). Thus, the following research question is asked: Are there any meaningful differences in terms of construction cost changes between projects that received dispersed estimates and those that received more clustered estimates at the bidding stage?

This research question merits an investigation as it is critical for project owners, contractors, or any project stakeholders to locate projects with uncertainties earlier, taking advantage of collective intelligence delivered by bidders at the time of bidding. Then, if

necessary, owners could cancel projects and reinvoke bidders or increase contingency; that is, project stakeholders could take corrective actions *earlier*. Therefore, the outcome of this study could be helpful for owner organizations and contracting organizations to identify projects with perceived uncertainties—projects that require a second look into their scope—using bidding data.

2.2 Literature review

Prior research has looked into project bidding data. For example, Skitmore et al. (2001) investigated bid-spread, the difference between the lowest and second-lowest bids, money left on the table, or foregone profit, in a “lowest wins” auction (Skitmore, Drew, & Ngai, 2001). Kuprenas (2005) studied the relationship between construction cost performance and bid characteristics. The construction cost performance was measured through change orders (as a percentage of bid value). The bid characteristics were measured through the percentage of the bid budget, the number of bidders, the bid date, the date since the last bid, the bid cost per square foot, and the bid amount. After a series of regression analyses of twenty-four public sector projects from a multi-billion dollar school construction program in Los Angeles, California, it was found that the percentage of bid budget, the number of bidders, bid date, date since the last bid, and bid amount were correlated with change order amounts (Kuprenas, 2005). Also, Minchin et al. (2013) used contractor bid unit prices to estimate the impact of night construction on cost and productivity for transportation projects. Assuming that a contractor’s bid amount reflected expected relative project productivity, with a few exceptions, granting contractors maximum flexibility in deciding what construction activities to be done at night would result in substantial cost savings to transportation agencies (Minchin, Thurn, Ellis, & Lewis, 2013).

Williams and colleagues extensively examined bidding data to predict final construction costs. The New Jersey Department of Transportation data for 298 highway construction projects showed that median bid and normalized median absolute deviation were the best predictors of completed construction cost (Wright & Williams, 2001). The variability of the

submitted bids did not seem to indicate the completed construction cost (Williams, 2002). However, there appeared to be some relationship between the bidding ratios (second-lowest bid ratio, mean bid ratio, and maximum bid ratio) and the Texas Department of Transportation highway construction projects' completed cost. The bidding ratios appeared to increase when uncertainty about the completed project cost increased. Higher values of the bidding ratios were observed both for the projects that were constructed at a much greater cost than the original low bid amount and for the projects that were constructed for amounts significantly less than the original low bid amount (Williams, 2005). Significantly, it was found that the value of the ratios (second-lowest bid ratio, mean bid ratio, maximum bid ratio, and the coefficient of variation) tended to be more significant for projects where the completed cost deviated significantly from the original low bid (Williams et al., 2005; Williams, 2007).

The association between the number of bidders and competition has also been examined. Bid price competition was measured through pre-bid project estimates, actual bid prices, and the number of bidders. The impact of reduced competition on project bid prices was studied by quantitatively analyzing public project bids under a condition of free, open, and unfettered competition. After examining a single building type, designed by a single firm, with pre-bid estimates prepared over a limited time period, it was found that reducing the number of bidders would result in increased project bid prices (Carr, 2005). Meanwhile, Li et al. (2008) reported that owners could offset the effect of a reduced number of bidders in part by timing their projects to periods of construction slowdown or by bundling their projects together into a single larger project after analyzing building projects in the state of Utah (Li, Foulger, & Philips, 2008).

Other researchers have studied bidding data with various interests. For example, Shrestha et al. (2010) analyzed 435 bids on 113 public street projects and showed a strong correlation between the lowest bid price and the final construction cost but no correlation between the lowest bid price and the construction cost growth; also, the indication was that

the higher the number of bidders there were, the lower the bid price became (Pramen Prasad Shrestha & Pradhananga, 2010). Baek et al. (2018) used historical bid data of highway projects in the State of Georgia between 2005 and 2015 and reported that that total contract price, number of pay item, duration, the annual total value of projects, architecture billings index, annual total number of projects, asphalt cement price index, and number of bids were significant factors that contributed to the degree of competition/number of bidders (Baek & Ashuri, 2018) and that the following variables had statistically significant relations with submitted unit price bids: the quantity of the bid item, the number of nearby asphalt plants, total contract price, Georgia asphalt cement price index, producer price index for construction machinery manufacturing, GDP, crude oil prices, ratio of bid item, pavement length, population, hauling distance between quarry and asphalt plants, number of bidders, total monthly asphalt size of resurfacing and widening projects awarded in the same month at the level of the county, and number of hires (Baek & Ashuri, 2019).

Several previous pieces of research, especially Williams' work, have investigated bidding data to predict final project costs. In contrast, this chapter aims *not* to predict final project costs from bidding data but to validate the usefulness of collective intelligence provided by bidders at the time of bid opening in identifying projects with more perceived uncertainties in their scope.

2.3 Research method

2.3.1 Theoretical framework

Collective Intelligence is a framework for the investigation of collectives. Collectives are “systems where each agent aims to optimize its own performance, but there is a well-defined set of system-level performance criteria.” There is no centralized control, and underlying systems, agents, or neurons modify their behavior to maximize rewards. It is a behaviorist approach; the framework is broad enough to encompass the real-world

collectives that are often too complex to represent in a tractable model (Tumer & Wolpert, 2004; Wolpert, Tumer, & Frank, 1999; Wolpert, 2004). The Collective Intelligence framework was deemed suitable for this study as:

- In bidding for winning a project, there is no centralized control, i.e., bidders are free to submit any bids at their discretion;
- bidders can be seen as agents/underlying systems/neurons trying to maximize the reward, i.e., winning a contract;
- there are system-level performance criteria, i.e., the lowest price; and,
- collective efforts by bidders foster good global performance, i.e., economical project delivery.

2.3.2 Coefficient of variation

It is aimed to explore the possibility of using the dispersion of bids to determine the meaningful difference in project cost changes between projects that received dispersed estimates and those that received more clustered estimates at the bidding. Thus, adopting the coefficient of variation (C.V.) was deemed justified, as explained below.

According to the *Encyclopedia of Research Design*, the coefficient of variation (C.V.), a primarily descriptive statistic, eliminates the unit of measurement from the standard deviation of a series of numbers by dividing it by the mean of the series of numbers (Salkind, 2010). The C.V. helps compare the relative variability of positive random variable distributions and has been widely used in many scientific areas. For example, the C.V. is appropriate when the objective is to compare the risk of alternative investments, and a lower C.V. ratio represents a lower risk (Curto & Pinto, 2009). The C.V. has been widely used to measure relative risk in engineering, medicine, agricultural economics, archaeology, and financial management (Weber, Shafir, & Blais, 2004). In finance, the C.V. evaluated project risks in an uncertain situation (Brief & Owen, 1969). The C.V. was also used as an indicator of risk in bank lending environments to show that a bank with a

relatively high C.V. for the environmental portfolio was likely to fail at a higher rate (Gunther & Robinson, 1999). The C.V. was also used to investigate risk, return, and portfolio diversification in major painting markets from 1976–2001 (Worthington & Higgs, 2004). Meanwhile, in sociology, the C.V. was applied to compare different nations' geographic mobility and homicide rates by regions in the U.S. (Martin & Gray, 1971). In addition, the C.V. has been applied as an index of diversity (Bedeian & Mossholder, 2000).

More relevant to this study, the C.V. was used to measure the spread of the submitted bids (Williams et al., 2005). The C.V. is an indicator of bidders' uncertainty about the value of a project. It can be postulated that a project with a high CV indicates considerable uncertainty among bidders about the project's cost. In contrast, a project with a low C.V. shows little disagreement among bidders (Wright & Williams, 2001).

2.3.3 Data collection

In general, private contractors' project cost data are considered trade secrets and, thus, usually difficult to access; therefore, project cost data in the public domain were used in this endeavor. First, from the Ohio Department of Transportation, bid estimates (Ohio Department of Transportation, n.d.-a) and project final cost data (Ohio Department of Transportation, n.d.-b) were obtained; then, two datasets were matched via uniquely assigned project identification numbers. It was decided to investigate projects that cost the agency more than \$ 5 million, assuming that larger projects would have more uncertainties perceived by bidders. Nine hundred ten (910) bids on 222 case projects completed between 2008 and 2018 were identified for further investigation.

The following algebraic formula was adopted to quantify the Project Cost Change (see Equation (1)). An absolute value is used because:

- An increase in the cost of a project would be considered a risk to an owner organization (Wright & Williams, 2001); and,

- A decrease in the cost of a project below the award bid would be viewed as a risk to a contractor for reduced revenue and the suboptimal use of public funds.

Thus, in this research, a change in project cost was deemed unfavorable regardless of its direction.

$$Project\ Cost\ Change = \left| \frac{(Final\ Construction\ Cost - Winning\ Bid)}{Winning\ Bid} \right| \quad \text{Equation (1)}$$

Then, each project's C.V. of bids was calculated. Twelve (12) sole-bid projects were dropped from the dataset due to the lack of the C.V. value. The remaining 210 case projects were further processed. Please see Appendix A.

The characteristics of 210 case projects are summarized in Table 1.

Table 1 Characteristics of case projects

Description	Unit	Value	Remark
Number of Case Projects	ea.	210	
Mean, Award Bid	\$	20,916,801.39	S.D. 31,430,304.83
Mean, Project Final Cost	\$	21,324,687.90	S.D. 31,831,462.92
Mean, Number of Bidders	ea.	4.28	S.D. 2.13
Mean, CV of Bids	%	7.42	S.D. 4.76
Mean, Project Cost Change	%	5.36	S.D. 5.99

2.3.4 Data analysis

Collected data were analyzed using Welch's t-test, and correlation and regression analysis.

2.3.4.1 Welch's t-test

The unequal variance t-test, or Welch's t-test (Welch, 1947), is a modified version of the Student's t-test to see whether two sample means are significantly different; the null hypothesis for the test is that the means are equal. In other fields, the unequal variance t-test has been widely used to statistically test whether the central tendencies, e.g., mean values, of two groups are different from each other based on samples of the two groups (Delacre, Lakens, & Leys, 2017; Ruxton, 2006; Standaert, 2019). However, the t-test does not specify the direction, i.e., the outcome of the test does not tell which mean value is greater than the other. In this study, the null hypothesis to be rejected was that there was zero difference between the means of project cost changes between the above-average C.V. projects and the below-average C.V. projects. The significance level, alpha, or the probability of rejecting the null hypothesis when true (Minitab, 2015), was set to 0.05 (5%).

2.3.4.2 Correlation and regression analysis

Regression analysis is a statistical process for estimating the probabilistic relationship between variables. The relationship obtained from a regression analysis does not necessarily present any cause-and-effect relation between the variables. However, such a relationship may be used to predict the value of statistics of one variable based on the value of the other (Ang & Tang, 2006).

Regression analysis allows for dealing with an arbitrarily chosen explanatory variable (Sykes, 1993). Regression analysis models take the form of $\hat{y} = b_0 + b_1x_1$, where $\hat{y}$ denotes estimated value of the dependent variable, b_0 denotes the estimated intercept, b_i denote estimate slope coefficients, and x_i denote independent variables.

For this research question, the tentative hypothesis is that more significant project cost changes are determined by higher C.V. of bids and by an aggregation of omitted factors that is termed “noise” (Sykes, 1993). A linear regression identifies a linear relationship between one or more predictors and an outcome; that is, a regression shows the relatedness of predictor(s) with the outcome (Howard, n.d.).

The strength of linearity underlying a regression analysis is measured by the corresponding correlation coefficient (Ang & Tang, 2006). The correlation coefficient is shown as 0 if not correlated and 1 if matched. A correlation coefficient between 0.1 and 0.3 is considered a weak correlation; a value between 0.3 and 0.7 is a median correlation, and a value of 0.7 or higher is a strong correlation (Rumsey, 2011).

Correlation analysis has been utilized by researchers in the field of construction engineering and management. For instance, based on the *Engineering News-Record* (ENR) data and financial reports, it was reported that the international business diversification levels showed a clear positive correlation with sales revenue (Sung, Lee, Yi, & Son, 2017). Correlation analysis was performed on field survey data to determine the relationship between motivational factors and construction crew performance (Raoufi & Fayek, 2018). From 120 educational facilities projects in the United Kingdom, the correlation between the initial tender price amount, overrun cost, and delay was examined. As a result, a positive correlation between initial tender price amounts and cost overruns was interpreted as larger projects incurring more considerable overruns (Eke, Elgy, & Wedawatta, 2019). Correlation analysis was used to identify key project complexity factors of complex construction projects. It was suggested that project complexity is significantly negatively correlated with project success in complex Chinese construction projects (Luo, He, Xie, Yang, & Wu, 2017). A significant correlation was reported between change orders with cost growth and schedule growth for new highway projects in Texas (Pramen P. Shrestha & Maharjan, 2018). Correlation analysis revealed significant relations between risk groups and disputes in subcontractor contracts (Artan Ilter & Bakioglu, 2018).

Correlation analysis also showed a negative impact of project-level change order percentages on construction intensity (Pramen P. Shrestha, Shrestha, & Kandie, 2017). Strong inverse correlations between aggregate dollar amounts of claims and one or more liquidity-measuring financial ratios in the majority of case firms were reported (Y. J. Kim & Skibniewski, 2020).

The relationship developed from regression and correlation analyses simply establishes the statistical relationship on the basis of the observed data (Ang & Tang, 2006).

2.4 Results and discussion

2.4.1 Welch's t-test

The case projects were sorted from the largest to the smallest according to the value of their C.V. Then, they were divided into two groups: The projects with above-average C.V. and those with below-average C.V. to compare the means of Project Cost Change in each group. The hypothesis was that there would be statistically significant differences between the mean value of Project Cost Changes of the projects that received dispersed estimates and the mean value of Project Cost Changes of the projects that received more clustered estimates at the bidding stage.

The average value of C.V. of the entire dataset was 7.42%. This value is a specific value tied to this particular dataset. The average value of C.V. will change as the pool of projects changes.

An independent samples t-test was performed to compare, assuming unequal variances, the means of Project Cost Change values of the above-average C.V. projects and the below-average C.V. projects. The null hypothesis to be rejected was that the difference between the means was zero. It was found that the p-value was less than 0.05.; therefore, the null hypothesis was rejected. There was a statistically significant difference in Project

Cost Change between the projects with above-average C.V. and those with below-average C.V. Please see Table 2.

Table 2 Analysis Results Summary

Description	Unit	Value
Number of Case Projects	ea.	210
Mean, Number of Bidders (S.D.)	ea.	4.28 (2.13)
Mean, CV (S.D.)	%	7.42 (4.76)
Mean, Project Cost Change (S.D.)	%	5.36 (5.99)
Mean, Project Cost Change, Above-Average CV (S.D.) [A]	%	6.49 (6.73)
Mean, Project Cost Change, Below-Average CV (S.D.) [B]	%	4.24 (4.92)
p-value between [A] and [B]	-	0.01

As a comparison, when adopting actual values, not absolute values, for Project Cost Change, it was found that the p-value was greater than 0.05 (0.51). Therefore, there was no statistically significant difference between the projects with above-average C.V. and those with below-average C.V. Please see Table 3 below.

Table 3 t-Test: Two-Sample Assuming Unequal Variances

	<i>Project Cost Change, Above-Average CV (actual value)</i>	<i>Project Cost Change, Below-Average CV (actual value)</i>
Mean	0.027	0.019

Table 3 t-Test: Two-Sample Assuming Unequal Variances

	<i>Project Cost Change, Above- Average CV (actual value)</i>	<i>Project Cost Change, Below- Average CV (actual value)</i>
Variance	0.008	0.005
Observations	81	129
Hypothesized Mean Difference	0	
df	134	
t Stat	0.661	
P(T<=t) one-tail	0.255	
t Critical one-tail	1.656	
P(T<=t) two-tail	0.510	
t Critical two-tail	1.978	

Further, another round of analysis was carried out, taking the number of bidders as a distinguishing factor for splitting the data with varying C.V. percentile. Please see Table 4.

Table 4 Comparison of Means of Project Cost Changes against the Number of Bidders and CV Percentile

Description	2-Bid	3-Bid	4-Bid	5-Bid	6-Bid	7+Bid
	Projects	Projects	Projects	Projects	Projects	Projects
Mean, Top 50	7.61	4.45	6.75	4.24	6.39	7.98
% CV, %						
50% Mean, Bottom	3.66	6.20	3.91	3.93	3.03	5.03
50% CV, %						
p-value	0.01	0.36	0.16	0.87	0.15	0.24

Table 4 Comparison of Means of Project Cost Changes against the Number of Bidders and CV Percentile

Description		2-Bid	3-Bid	4-Bid	5-Bid	6-Bid	7+Bid
		Projects	Projects	Projects	Projects	Projects	Projects
40%	Mean, Top 40	7.64	4.62	6.52	4.26	6.09	8.94
	% CV, %						
	Mean, Bottom	3.28	5.47	3.24	4.24	3.13	4.50
30%	40% CV, %						
	p-value	0.02	0.70	0.12	0.99	0.33	0.14
	Mean, Top 30	6.98	4.15	6.97	4.75	7.27	9.24
20%	% CV, %						
	Mean, Bottom	3.36	5.63	3.20	5.27	2.94	2.50
	30% CV, %						
10%	p-value	0.04	0.60	0.15	0.87	0.27	0.05
	Mean, Top 20	6.11	4.76	8.62	3.18	3.99	6.19
	% CV, %						
10%	Mean, Bottom	3.61	5.61	2.97	6.34	4.00	2.19
	20% CV, %						
	p-value	0.31	0.84	0.15	0.35	0.99	0.01
10%	Mean, Top 10	7.59	8.04	12.67	2.13	2.80	7.30
	% CV, %						
	Mean, Bottom	4.22	8.54	3.97	8.58	2.95	1.17
10%	10% CV, %						
	p-value	0.44	0.95	0.26	0.55	0.96	0.02

Generally, as the sample size decreases, the p-value increases (Thiese, Ronna, & Ott, 2016). When broken down by the number of bidders, the difference between means of Project Cost Changes between the higher C.V. projects and the lower C.V. projects lost

statistical significance; several comparisons did not reveal any statistically significant differences. However, an interesting observation was made: For the projects with seven or more bidders, as the difference between average C.V. values became larger between comparing groups, the p-value decreased from not being statistically significant to being statistically significant. On the other hand, for the projects with only two bidders, as the difference between average C.V. values became larger between comparing groups, the p-value increased from being statistically significant to not statistically significant.

Indeed, Figure 1 below generally depicts that the projects that received a large number of bids experienced less substantial Project Cost Changes; on the other hand, the projects that experienced more significant Project Cost Changes generally received fewer bids. With caution, therefore, it could be posited that “the wisdom of crowds” is more trustworthy to the dependability of a democratic judgment than one might have anticipated (Galton, 1907); as averaging cancels error, combining judgments can isolate the collective’s view of the truth (Mannes, Larrick, & Soll, 2012).

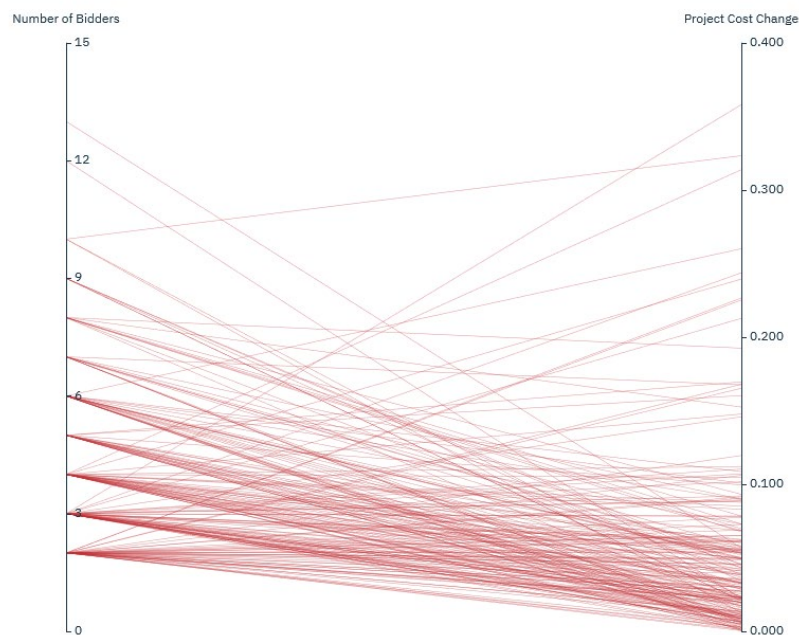


Figure 1 Parallel coordinate chart comparing the number of bidders and Project Cost Change

2.4.2 Correlation and regression analysis

A series of other correlation and regression analyses were examined in the following sections: Project Cost Change (dependent variable) and C.V, planned project duration, actual project duration, project duration change, number of bidders, average bid value, winning bid, final construction cost, and the cumulative rate of inflation (independent or control variables). See Appendix B for the outcomes of correlation and regression analyses.

2.4.2.1 Correlation coefficients between variables

First, it was tested to see whether the proposed independent variables were genuinely independent of each other.

- First of all, it was revealed that the variable C.V. had no significant correlation with the other proposed independent variables. See Figure 2 and Table 5.

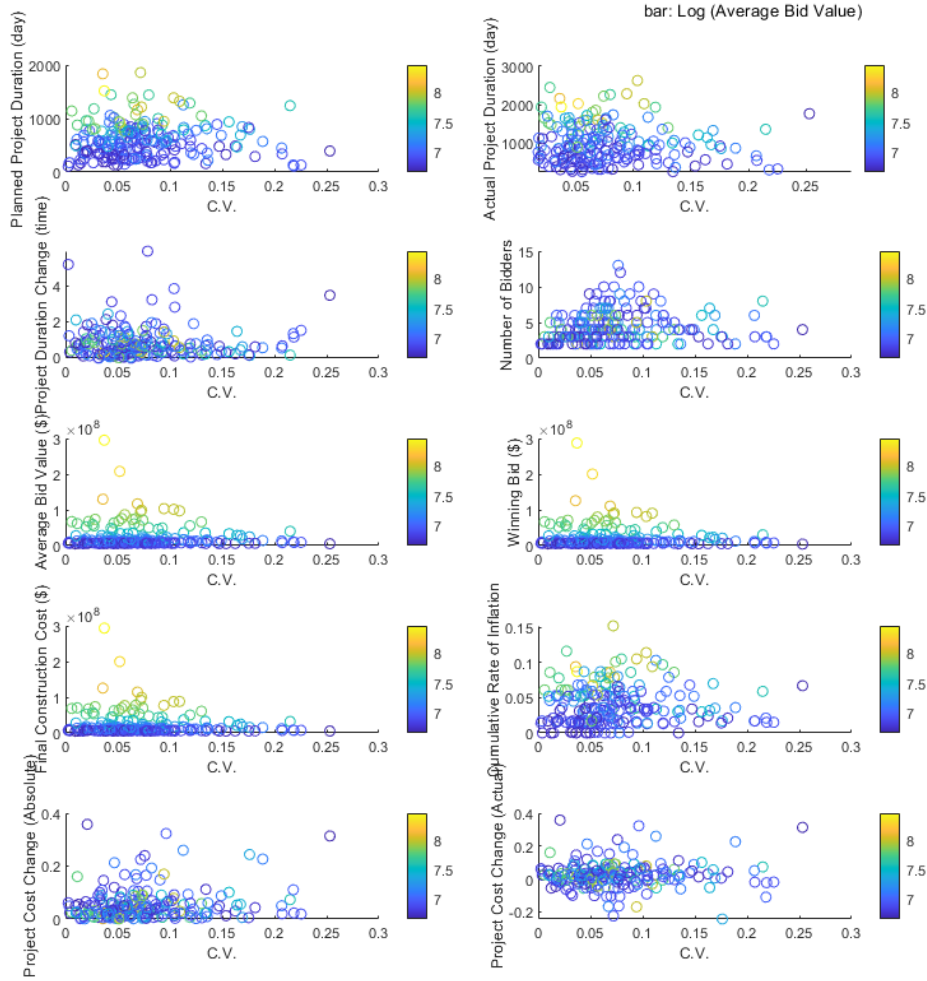


Figure 2 Multiple plots (C.V. and other variables)

- On the other hand, the variable planned project duration showed a strong correlation with the variable actual project duration (correlation coefficient = 0.804) and the cumulative rate of inflation (0.740). Also, it showed a median correlation with the variable average bid value (0.651), winning bid (0.639), and final construction cost (0.644). See Figure 3 and Table 5.

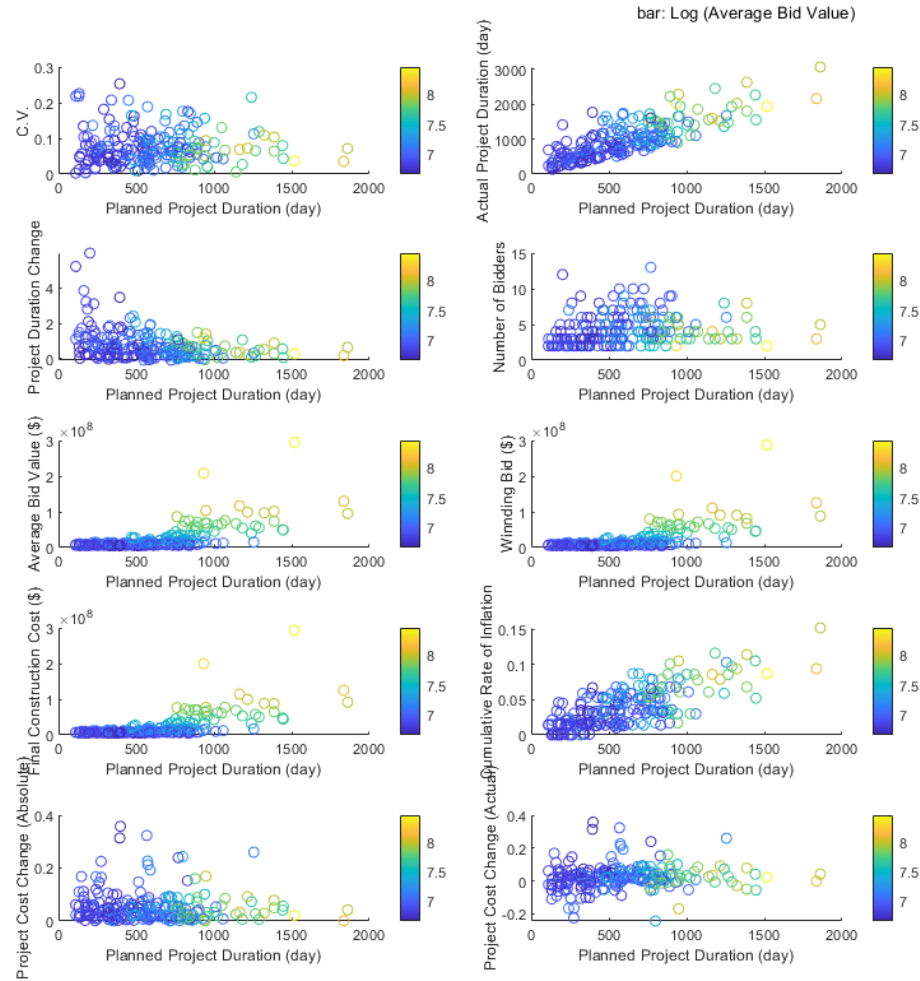


Figure 3 Multiple plots (Planned project duration and other variables)

- The variable actual project duration showed a strong correlation with the cumulative rate of inflation (0.878). Also, it showed a median correlation with the variable average bid value (0.625), winning bid (0.613), and final construction cost (0.616). See Figure 4 and Table 5.

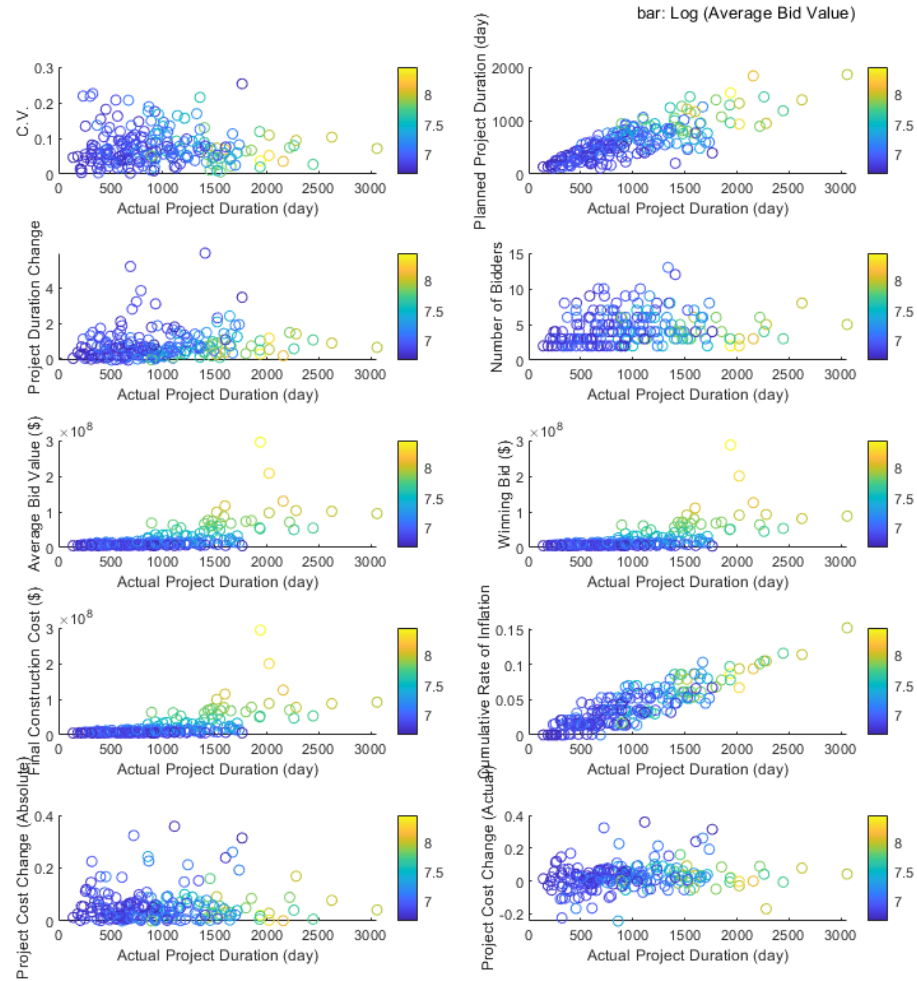


Figure 4 Multiple plots (Actual project duration and other variables)

- The variable project duration change showed an inverse median correlation with the variable planned project duration (-0.320). See Figure 5 and Table 5.

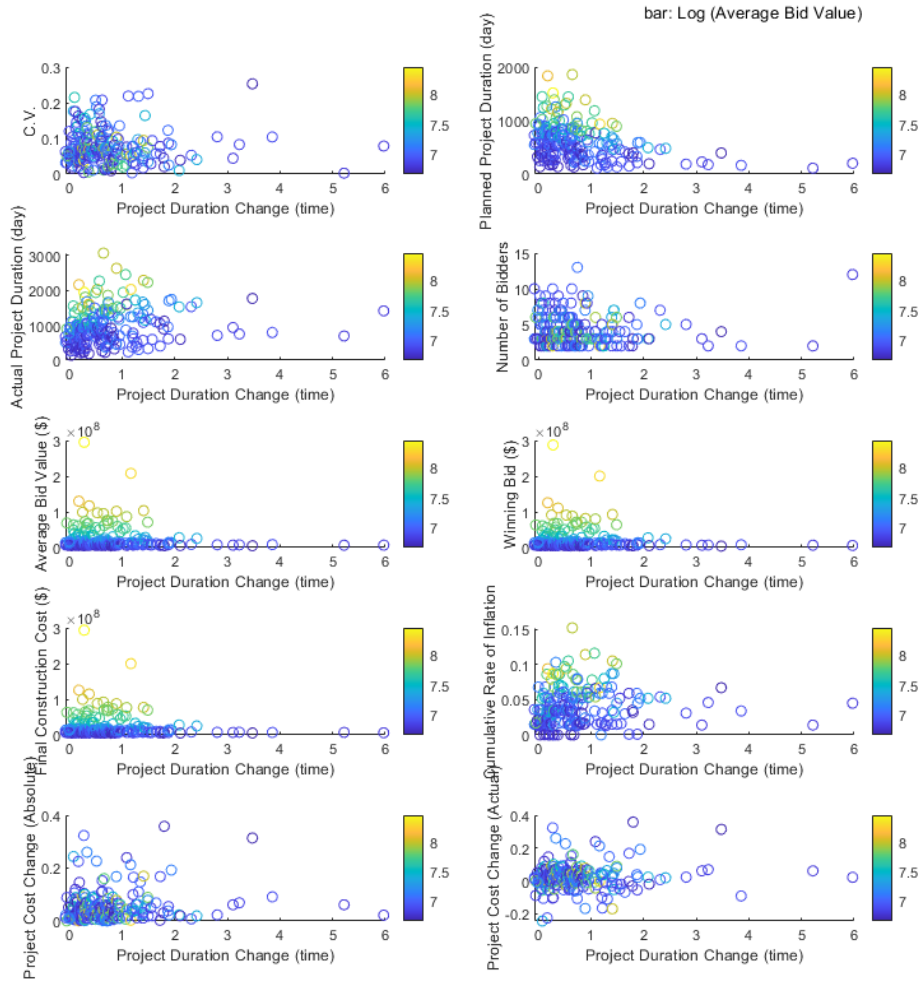


Figure 5 Multiple plots (Project duration change and other variables)

- The variable number of bidders showed a weak correlation with the variable planned project duration (0.201), actual project duration (0.202), and the cumulative rate of inflation (0.195). See Figure 6 and Table 5.

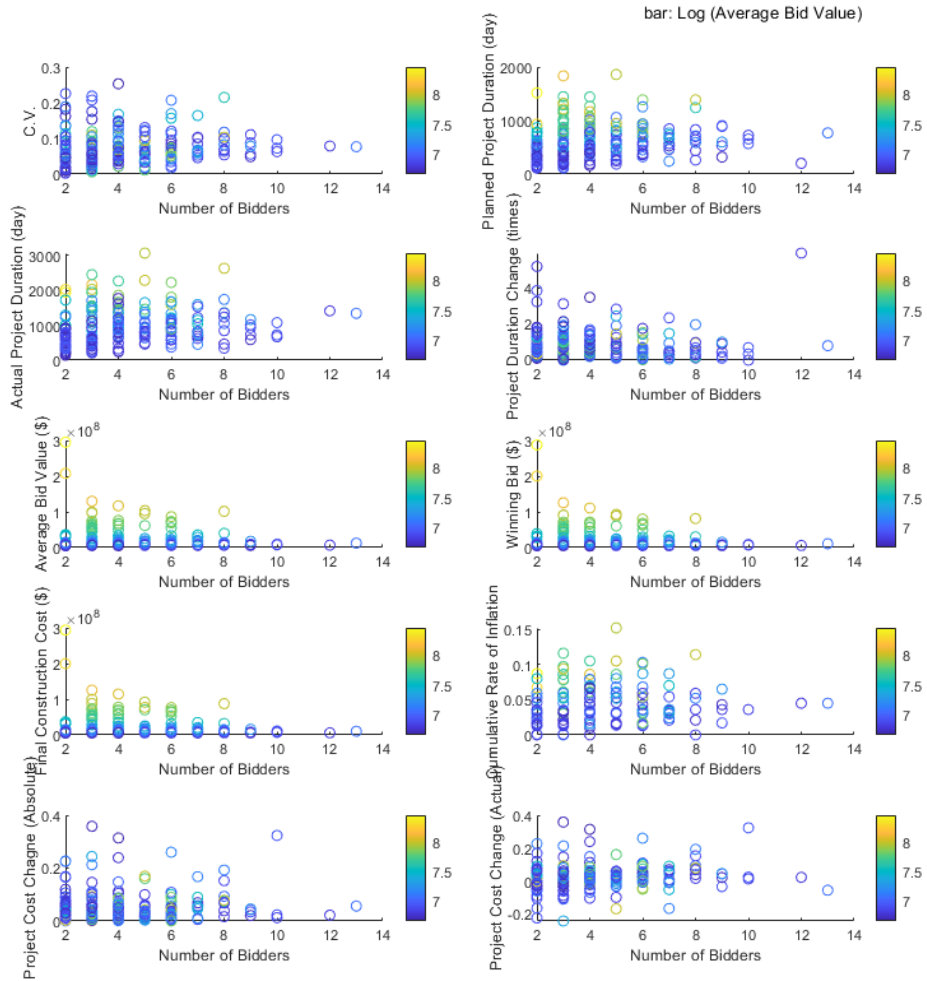


Figure 6 Multiple plots (Number of bidders and other variables)

- The variable average bid value strongly correlated with the winning bid (0.999) and final construction cost (0.997). Also, it showed a median correlation with the cumulative rate of inflation (0.562). See Figure 7 and Table 5.

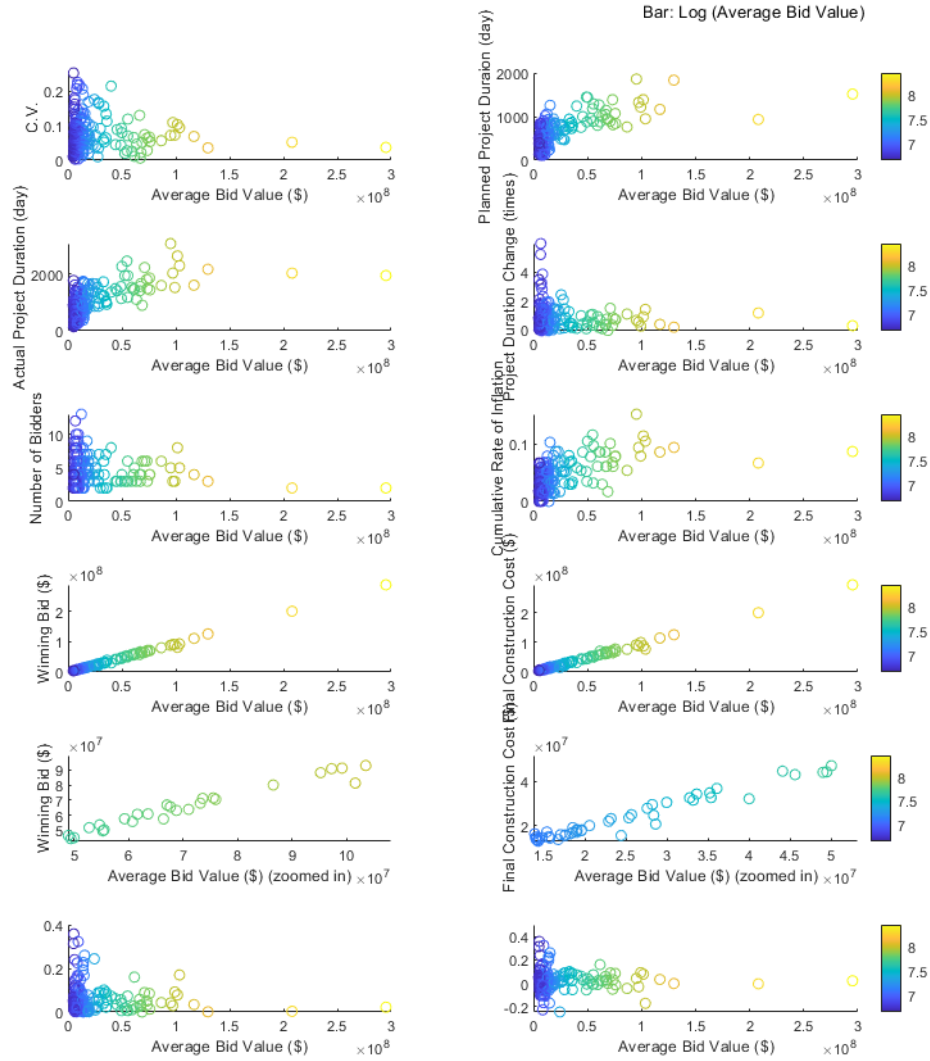


Figure 7 Multiple plots (Average bid value and other variables)

- The variable winning bid showed a strong correlation with the variable final construction cost (0.998). Also, it showed a median correlation with the cumulative rate of inflation (0.548). See Figure 8 and Table 5.

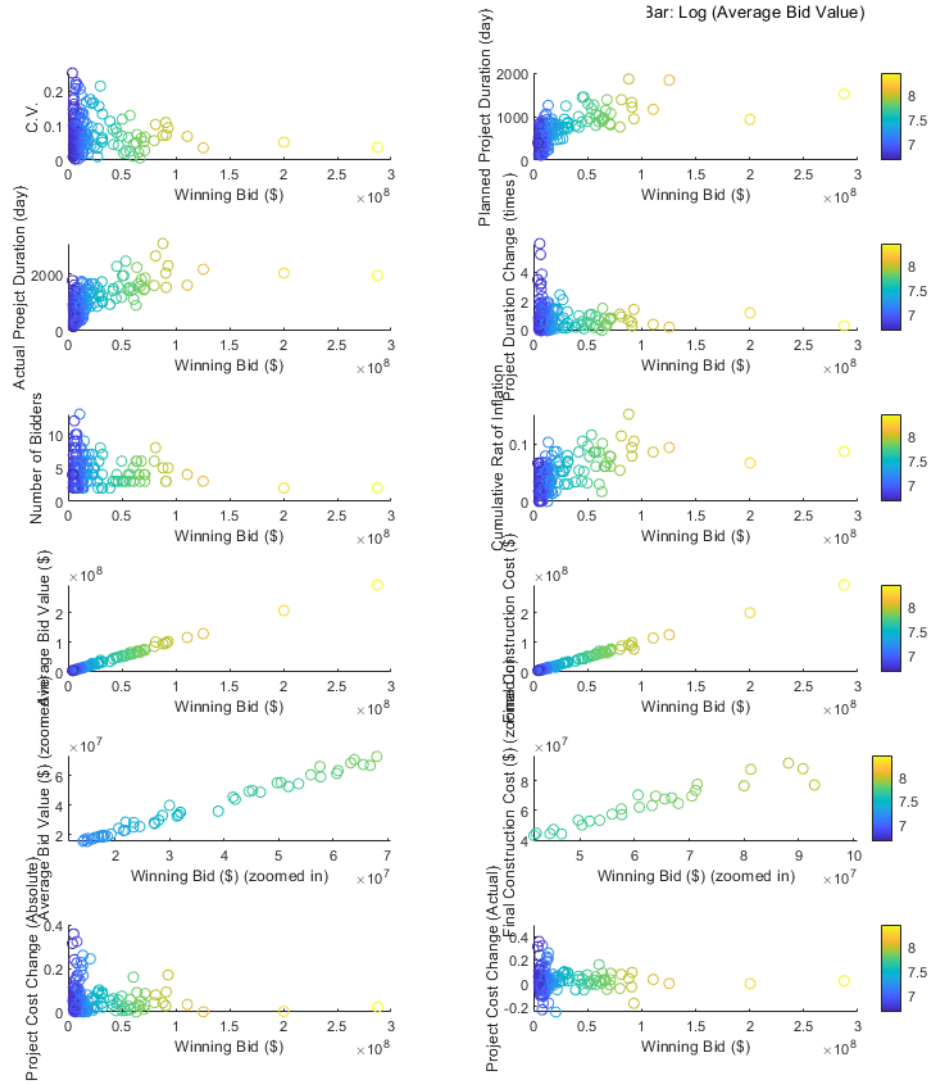


Figure 8 Multiple plots (Winning bid and other variables)

- The variable final construction cost showed a median correlation with the cumulative rate of inflation (0.556). See Figure 9 and Table 5.

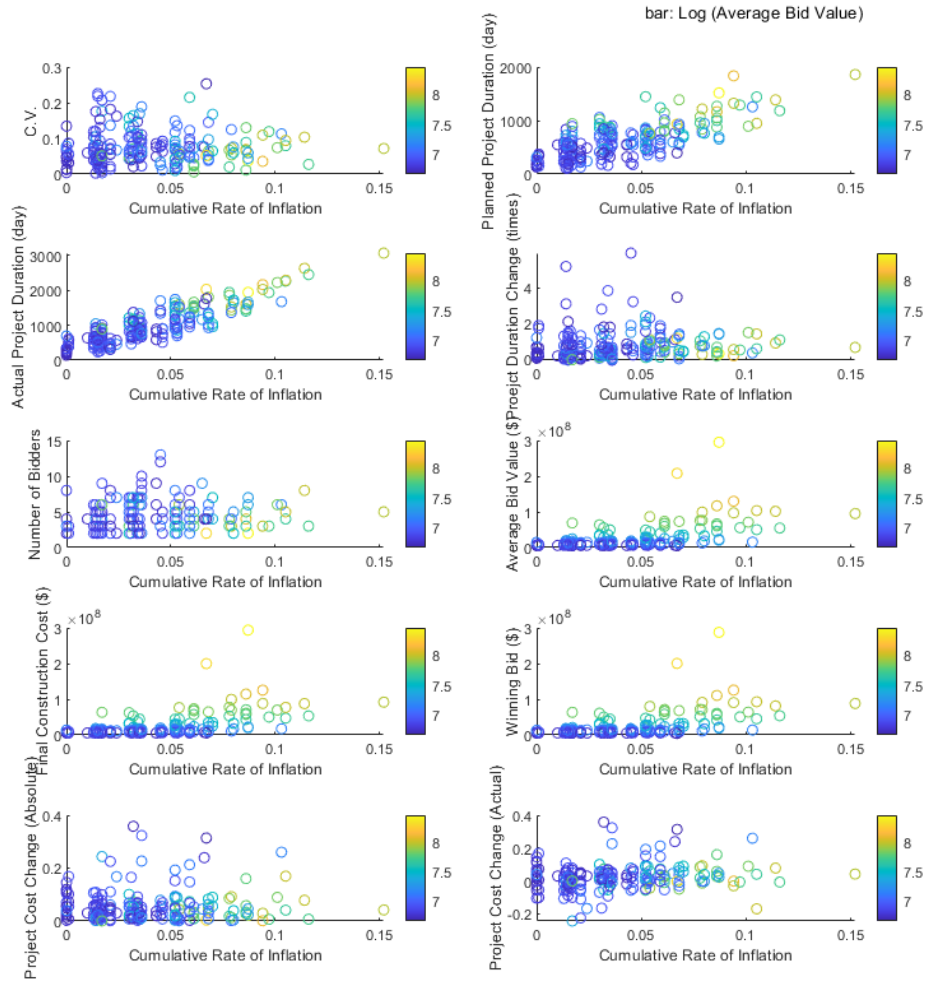


Figure 9 Multiple plots (Cumulative rate of inflation and other variables)

As a result, the following strongly correlated variables—correlation coefficient 0.7 or higher—were to be dropped from the further analysis: Final construction cost, winning bid, actual project duration, and planned project duration. Nevertheless, for the sake of academic curiosity, all the proposed control variables were studied.

Table 5 lists the correlation coefficients between and among the independent (control) and dependent variables. Table 6 shows single variable linear regression results, and Figure 10 is the combined multiple plots depicting the comparison between the relationships of

Project Cost Change (Absolute) and Project Cost Change (Actual) with the proposed independent variables, respectively.

Project Cost Change (Actual)

Project Cost Change (Absolute)

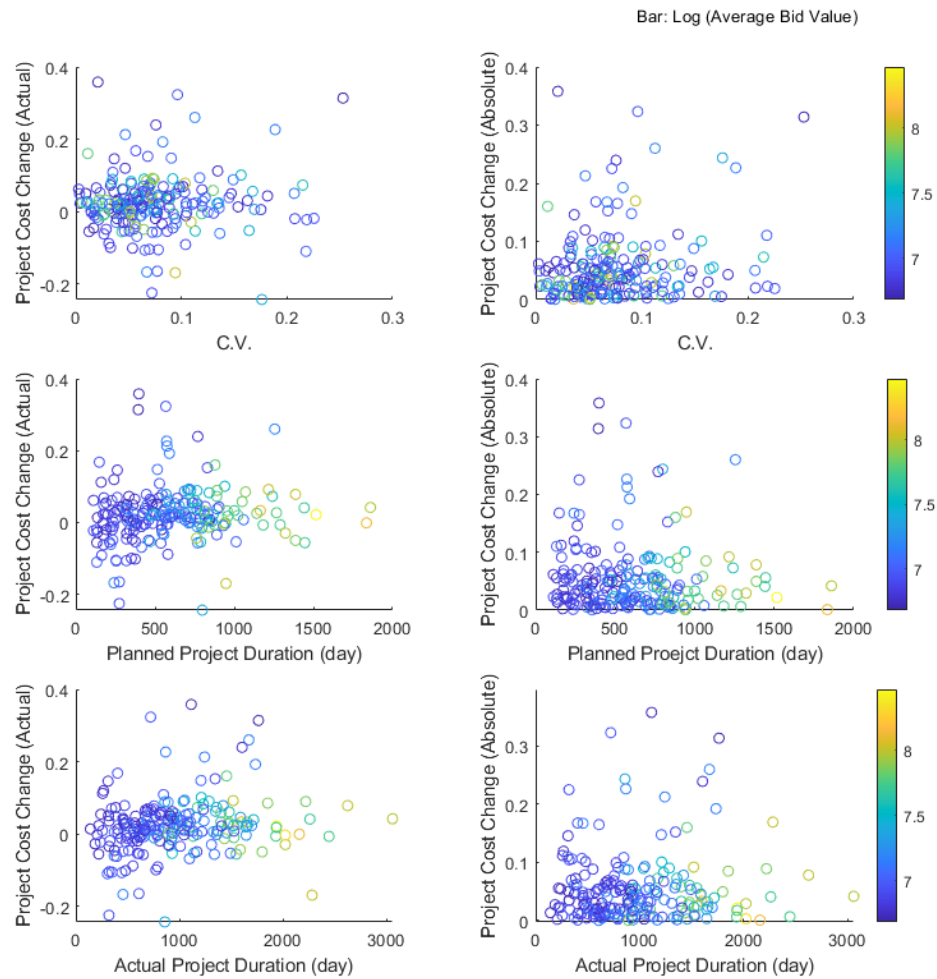


Figure 10 Multiple plots - Comparing Project Cost Change (Actual) and Project Cost Change (Absolute)

Project Cost Change (Actual)

Project Cost Change (Absolute)

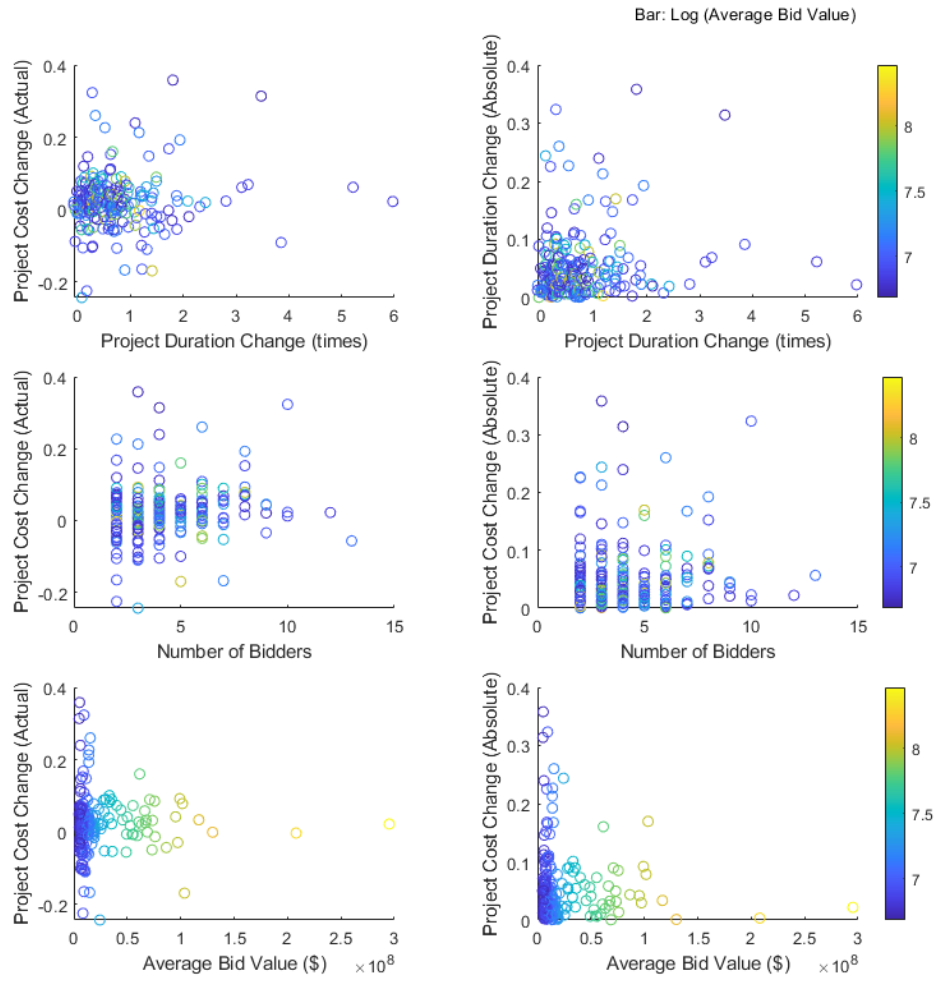


Figure 10 Multiple plots - Comparing Project Cost Change (Actual) and Project Cost Change (Absolute) (cont'd)

Project Cost Change (Actual)

Project Cost Change (Absolute)

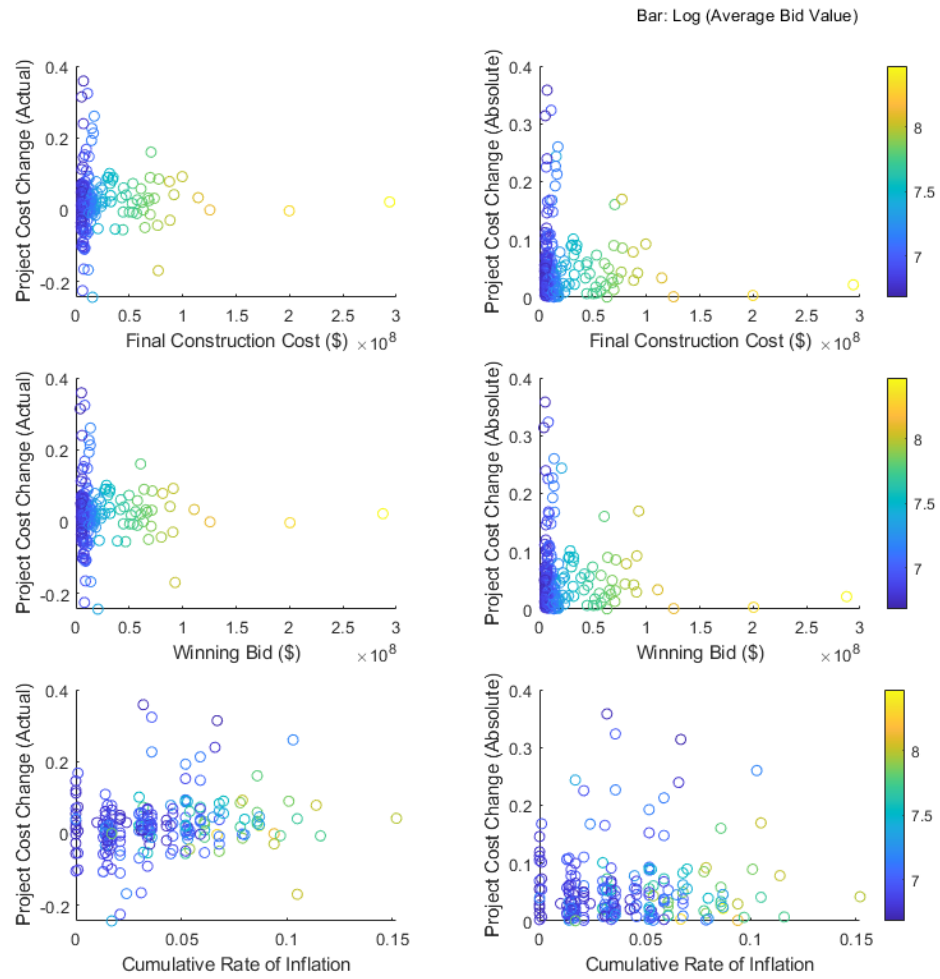


Figure 10 Multiple plots - Comparing Project Cost Change (Actual) and Project Cost Change (Absolute) (cont'd)

Table 5 Correlation coefficients between variables

Independent variable	Correlation coefficient with										
(Non-retrospective variable in shade)	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
C.V. (a)	1										
Planned project duration (in days) (b)	0.010	1									
Actual project duration (in days) (c)	-0.022	0.804	1								
Project duration change (%) (d)	-0.005	-0.320	0.190	1							
Number of bidders (e)	0.105	0.201	0.202	0.006	1						
Average bid value (\$) (f)	-0.070	0.651	0.625	-0.067	-0.067	1					
Winning bid (\$) (g)	-0.092	0.639	0.613	-0.066	-0.083	0.999	1				
Final construction cost (\$) (h)	-0.094	0.644	0.616	-0.067	-0.079	0.997	0.998	1			
Cumulative rate of interest (%) (i)	0.030	0.740	0.878	0.104	0.195	0.562	0.548	0.556	1		
Project Cost Change (Actual) (j)	0.054	0.110	0.186	0.085	0.149	-0.023	-0.025	0.012	0.181	1	
Project Cost Change (Absolute) (k)	0.174	-0.062	0.054	0.143	0.031	-0.064	-0.070	-0.062	0.049	0.433	1

Table 6 Regression and single variable linear regression results

Proposed Independent Variable (Non-retrospective variable in shade)	Project Cost Change (Actual)						Project Cost Change (Absolute)					
	R ²	Adj. R ²	Std. Error	Obs.	Sig. F	Corr. Coeff.	R ²	Adj. R ²	Std. Error	Obs.	Sig. F	Corr. Coeff.
C.V.	0.003	-0.002	0.077	210	0.433	0.054	0.030	0.026	0.059	210	0.011	0.174
Planned Project Duration (day)	0.012	0.007	0.077	210	0.112	0.110	0.004	-0.001	0.060	210	0.375	-0.062
Actual Project Duration (day)	0.035	0.030	0.076	210	0.007	0.186	0.003	-0.002	0.060	210	0.440	0.054
Project Duration Change	0.007	0.002	0.077	210	0.222	0.085	0.020	0.016	0.059	210	0.039	0.143
Number of Bidders	0.022	0.018	0.077	210	0.030	0.149	0.001	-0.004	0.060	210	0.653	0.031
Average Bid Value (\$)	0.001	-0.004	0.077	210	0.741	-0.023	0.004	-0.001	0.060	210	0.359	-0.064
Winning Bid (\$)	0.001	-0.004	0.077	210	0.722	-0.025	0.005	0.000	0.060	210	0.316	-0.070
Final Construction Cost (\$)	0.000	-0.005	0.077	210	0.857	0.012	0.004	-0.001	0.060	210	0.375	-0.062
Cumulative Rate of Inflation	0.033	0.028	0.076	210	0.009	0.181	0.002	-0.002	0.060	210	0.480	0.049

0

1

Six of the nine proposed control variables examined stood out and are discussed hereunder.

- First, the variable actual project duration was weakly correlated with Project Cost Change (Actual); the correlation coefficient was 0.186. This control variable, however, is retrospective in nature. The value is unknown at the time of bid opening.
- Second, the variable project duration change was weakly correlated with Project Cost Change (Absolute); the correlation coefficient was 0.143. This control variable, however, is retrospective in nature. The value is unknown at the time of bid opening.
- Third, the cumulative rate of inflation was weakly correlated with Project Cost Change (Actual); the correlation coefficient was 0.181. This control variable, however, is retrospective in nature. The value is unknown at the time of bid opening.
- Fourth, the variable number of bidders was weakly correlated with Project Cost Change (Actual); the correlation coefficient was 0.149.

This relationship between the Project Cost Change (Actual) and the number of bidders needs to be explained (Figure 10). Reducing the number of bidders would result in increased project bid prices (Carr, 2005). But, then, the competition created increased interest shown by the higher number of bidders might have led to the implementation of some of the aforementioned claimsmanship tactics. For instance, contractors might willingly decrease their margin to win a contract, hoping to regain their margin from change orders (Zack, 1993). It is not the intention to “blame” contractors for opportunistic tactics. Instead, this explanation simply presents a reasonably realistic scenario based on prior research.

To this end, the game theory might provide an interesting framework. Game theory is defined as “the study of mathematical models of conflict and cooperation between intelligent rational decision-makers.(Myerson, 1997)” Construction project management researchers have embraced game theory to explain

contractors' bidding behavior. For instance, without pretending to be exhaustive, Ahmed et al. (2016) analyzed the effects of the winner's curse in construction bidding by identifying the degree of the winner's curse in single-stage bidding and multistage bidding to compare bidding environments and to determine how learning from past bidding decisions and experiences could mitigate suffering from the winner's curse (Ahmed, El-adaway, Coatney, & Eid, 2016). However, game theory performs best in an open auction, where multiple competitors continually bid until they reach a value that encourages no one to bid lower. It limits the applicability of the game theory in construction bidding, which is generally closed, and no bidder knows its competitors' prices until the bid opening (Abotaleb & El-adaway, 2017). On the other hand, Signor et al. (2020) sought to explain the bid-rigging in public infrastructure procurement with game theory by determining the confessions of collusion are consistent with what has transpired from an economic viewpoint (Signor, Love, & Ika, 2020). Although the game theory approaches have been increasingly attracting project management researchers, a recent state-of-the-art review article identified the following research gaps that can be further investigated from the game theory perspective: Project governance and cooperation, project financing, risk management, *project bidding*, and project scheduling (Narbaev, Hazır, & Agi, 2022).

- Fifth, the variable planned project duration was weakly correlated with Project Cost Change (Actual). One possible explanation put forward for this phenomenon is optimism bias. It was reported that the contractors exhibited optimism bias-like time-dependent estimating behavior. When the contractors' estimates were compared to the actual cost of the projects, there was a statistically significant difference in cost growth between the long-duration projects compared to the short-duration projects (Y. J. Kim & Skibniewski, Accepted).
- Finally, the C.V. of bids was weakly correlated to Project Cost Change (Absolute). The R-square value of the C.V. of bids was 3%. It is opined that how impactful the

3% is subject to debate. It is essential to highlight that the C.V. of bids can be obtained before awarding a contract. Considering a construction project usually takes months or years to deliver, it is challenging to isolate a meaningful relationship between variables. In comparison, for example, in neuroscience, observations are made on the scale of milliseconds after input (Brodbeck et al., 2022). Therefore, it is noteworthy that the correlation between the C.V. and Project Cost Change was weak but meaningful.

2.4.2.2 Multiple linear regression analysis

A dependent variable may be a function of more than one independent or control variables. Then, if the variables are random, the mean and variance of the dependent variable will also be functions of the independent variables (Ang & Tang, 2006). Multiple linear regression analysis models take the form of $\hat{y} = b_0 + b_1x_1 + b_2x_2 + \dots + b_kx_k$, where $\hat{y}$ denotes estimated value of the dependent variable, b_0 denotes the estimated intercept, b_i denote estimate slope coefficients, and x_i denote independent variables.

Multiple R represents the correlation coefficient. Adjusted R-Square represents the R Square value that is adjusted for the number of predictor variables in the model; this value will also be less than the value for R-Square and penalizes models that use too many predictor variables in the model. Standard Error is the average distance that the observed values fall from the regression line. Observation is the total sample size of the dataset used to produce the regression model. F is the overall F statistic for the regression model. F-test is similar to the t-test in comparing the mean values. Significant F is the p-value associated with the overall F statistic; the value shows whether or not the regression model as a whole is statistically significant. The individual p-values show whether or not each explanatory variable is statistically significant (Glen, 2022; Zach, 2021b). Only the C.V. showed a p-value smaller than 0.05. See Table 7 for the multiple variable linear regression results.

Table 7 Multiple variable linear regression results

(* denotes variable with p-value <0.05)

Model	R ²	Adj. R ²	Std. Error	Sig. F
$y_{ac} = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4$	0.039	0.020	0.076	0.086
$y_{ab} = b_0 + b_1x_1^* + b_2x_2 + b_3x_3 + b_4x_4$	0.035	0.016	0.059	0.118

x_1 : C.V.
 x_2 : Number of Bidders
 x_3 : Average Bid Value
 x_4 : Planned Project Duration
 y_{ac} : Project Cost Change (Actual)
 y_{ab} : Project Cost Change (Absolute)

y_{ab} indicates that a model containing CV as an explanatory variable does not do better than the null model (i.e., a model with no explanatory variables). This seems to counteract the overall premise that CV is useful. However, when it comes to y_{ac} , adding the C.V. variable improved the overall Significance F. Thus, it could be argued that preprocessing the data (making Project Cost Change positive had damaged the natural relationship that existed between x_1 and y_{ac} .

2.4.3 Regression analysis with a dummy variable

Dummy variables are created to use categorical variables for regression analysis. A dummy variable takes on one of two values: zero or one (Zach, 2021a). In the following section, a series of regression analyses with a dummy variable was carried out to review further the relationship between the C.V. and Project Cost Change. The number of bidders variable was converted to a dummy variable. The rationale was that the collective intelligence from a larger number of bidders would provide more accuracy. See Table 8 for the regression analysis outcomes with a dummy variable.

Table 8 Regression analysis with a dummy variable results

Description	R ²	Adj. R ²	Std. Error	Sig. F	C.V's p-value
165 projects with three or more bids	0.032	0.022	0.059	0.036	0.053
115 projects with four or more bids	0.032	0.022	0.059	0.036	0.010
76 projects with five or more bids	0.031	0.021	0.059	0.039	0.050
53 projects with six or more bids	0.031	0.021	0.059	0.039	0.046
30 projects with seven or more bids	0.034	0.025	0.059	0.026	0.043
19 projects with eight or more bids	0.038	0.029	0.059	0.018	0.041

Although small, a slight increase in the R-Square value was observed, especially with more than seven or eight bids. See Figure 11.

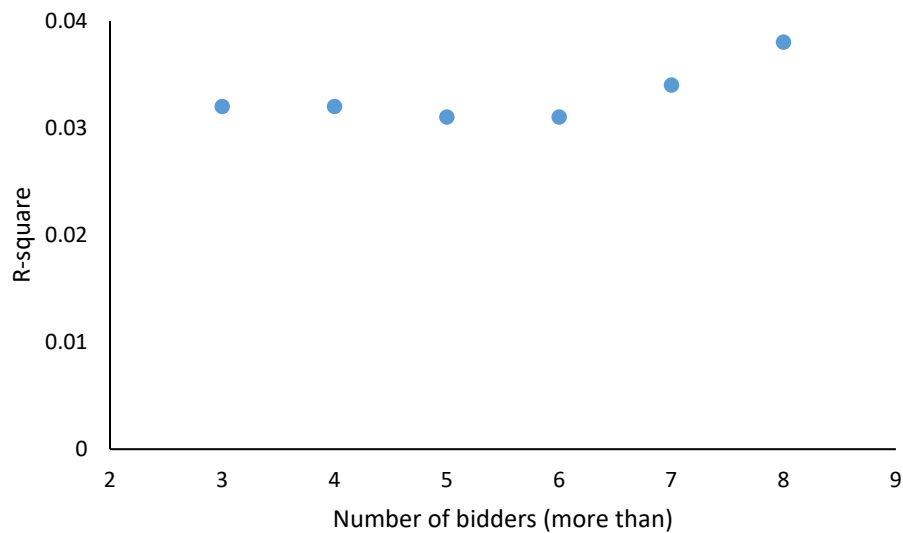


Figure 11 Number of bidders (more than) and R-square scatter diagram

Therefore, it could be argued that the C.V. of a large number of bids brings in more significant insight than the C.V. of fewer bids.

2.4.4 Regression with transformations

Adding the log transformation for either the x-variable, the y-variable, or both can describe possible data trends (UWA School of Agriculture and Environment, 2021). The effect of log transforming the variables is that small values become more spread out, and larger ones become closer (Knee, 2021). The logarithmic transformations and regression analyses were done in the Microsoft Excel environment. Please see Appendix C for the detailed outcomes of regression analysis with transformations. Unfortunately, no additional insights were obtained.

2.5 Classification using the K-nearest neighbors algorithm

It has been highlighted that this research aims not to forecast the amount of the Project Cost Change but rather to validate the usefulness of collective intelligence provided by bidders at the time of bidding to identify projects likely to experience more significant Project Cost Changes. In this section, a simple machine learning technique was tried to see whether the C.V. value could be used to train a model to predict whether a project would end up in the Top 50% Project Cost Change or the Bottom 50% Project Cost Change upon completion.

The K-nearest neighbors (KNN) algorithm uses proximity to identify the nearest neighbors of a given query point. KNN is commonly used for simple recommendation systems and works off the assumption that similar points can be found near one another (IBM, n.d.). See Figure 12 for a simple diagram. It is a heuristic argument that it is reasonable to assume that close-together observations in some appropriate metric will have the same classification (Cover & Hart, 1967).

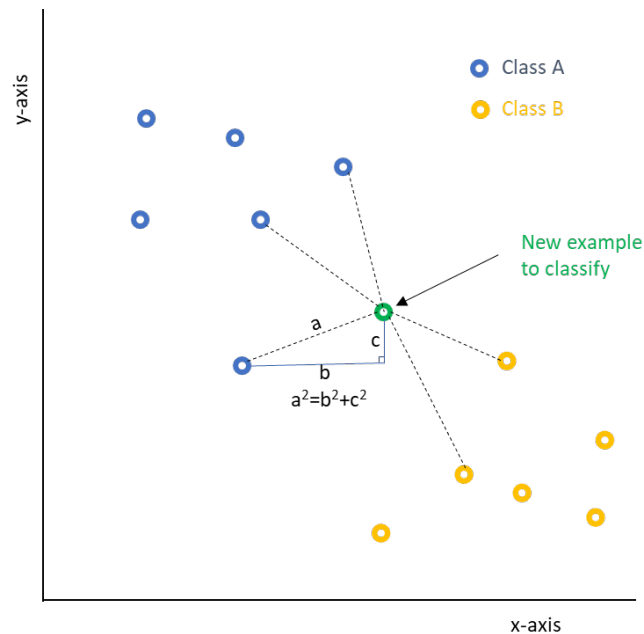


Figure 12 KNN diagram

Thanks to its simplicity and accuracy, it is widely used by data scientists, and related open-source materials are readily available. Figure 13 shows open-source KNN code in a Python programming environment.

```

1  import numpy as np
2  from sklearn import preprocessing, model_selection, neighbors
3  import pandas as pd
4
5  df = pd.read_excel('KNeighborsClassifierInteger_20220928_Binary.xlsx')
6
7  X = np.array(df.drop(['PCT_PJTCostChange_Binary'], 1))
8  y = np.array(df['PCT_PJTCostChange_Binary'])
9
10 X_train, X_test, y_train, y_test = model_selection.train_test_split(X,y,test_size=0.2)
11
12 clf = neighbors.KNeighborsClassifier(n_neighbors=5, weights='uniform')
13 clf.fit(X_train, y_train)
14
15 accuracy = clf.score(X_test, y_test)
16 print(accuracy)

```

Figure 13 Python code used for the KNN classification

“NumPy” is a general-purpose array-processing package and provides a multi-dimensional array object and tools for working with these arrays (GeeksforGeeks, 2018). “Sklearn” is a Python module for machine learning (Python Software Foundation, 2022). “Pandas” is an open-source data analysis and manipulation tool for reading and writing data between in-memory data structures and different formats, such as Microsoft Excel (pandas, 2022).

In advance, the C.V. value, the number of bidders, the planned project duration, and the Project Cost Change were converted to either 0 or 1. Therefore, one (1) was assigned to the 105 projects with the Top 50% value, and zero (0) was assigned to the 105 projects with the Bottom 50% value.

- Line 5 loads the preprocessed Excel file into a data frame.
- Line 7 defines X as the feature.
- Line 8 defines y as the class.
- Line 10 splits arrays into random train and test subsets (scikit-learn developers, n.d.-a). 20% of the case projects are randomly included in the test split; in other words, 80% of the case projects are included in the training split.
- Line 12 runs the classifier implementing the KNN algorithm. The number of neighbors to use is five by default. The weight function used in prediction is *uniform* by default, in which all points in each neighborhood are weighted equally; by the *distance* weight function, on the other hand, closer neighbors of a query point will have a more significant influence. In this exercise, the default uniform weight function was applied.
- Line 13 fits the KNN classifier from the training dataset. Finally, line 15 returns the accuracy of the given test data and labels (scikit-learn developers, n.d.-b).

Table 9 list the top 10 best accuracies over 100 KNN trials. The average accuracy stood at 67.62%. In other words, when the trained model performed at the best level, seven out

of ten times, the trained model could predict whether a given project would experience above-average Project Cost Change or below-average Project Cost Change.

Table 9 Top 10 best accuracies over 100 KNN trials (n-neighbors =5)

Trial #	Accuracy
57	76.19%
64	73.81%
56	69.05%
83	69.05%
43	66.67%
7	64.29%
15	64.29%
20	64.29%
29	64.29%
61	64.29%
Average	67.62%

Figure 14 shows the scattergram of KNN accuracies over the entire 100 trials. The average accuracy was 53.93%, with a standard deviation of 8.94%.

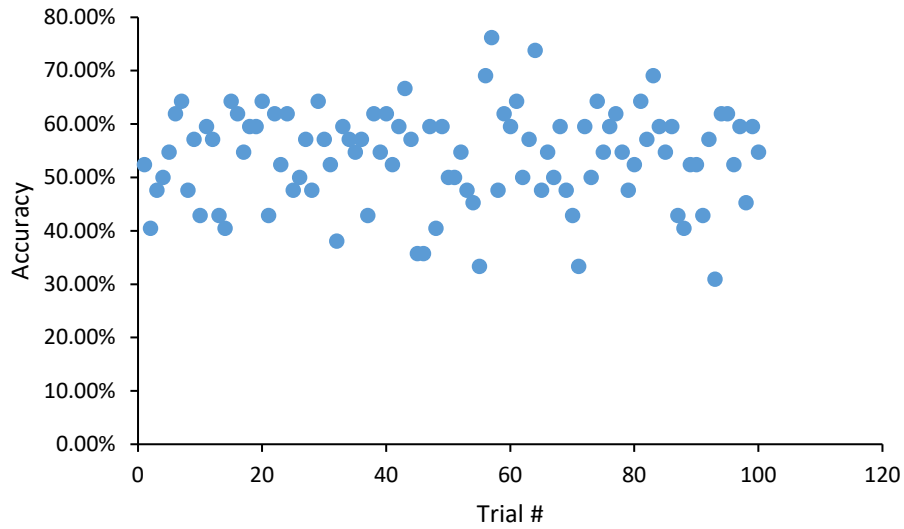


Figure 14 Scattergram of KNN accuracies over 100 trials (n-neighbors =5)

Once the baseline was established, the code was run with the increasing number of n-neighbors from the default value of five. The average accuracy was calculated after 100 trials. It was recommended the number of n-neighbors be odd (IBM, n.d.).

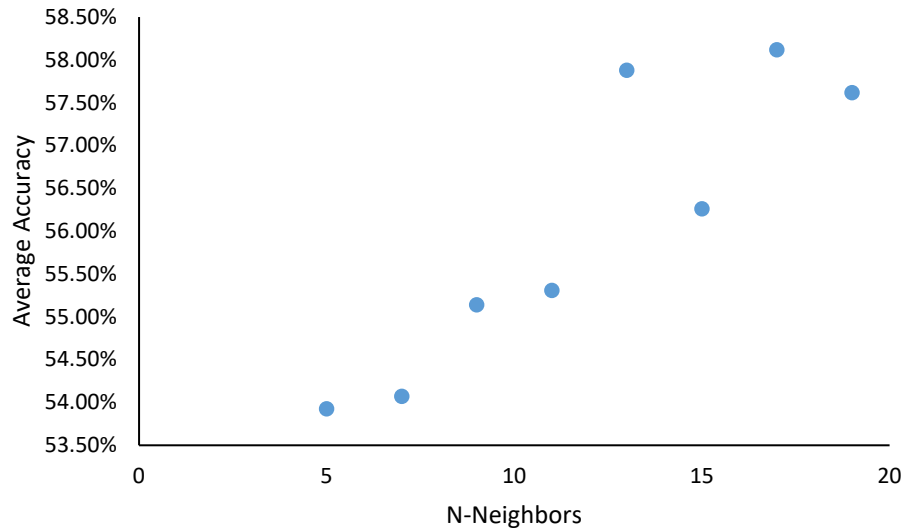


Figure 15 Average accuracy and number of n-neighbors scattergram

Figure 15 above shows that the average accuracy generally increased as the number of n-neighbors increased. The accuracy is not high enough to use for a recommendation system. In practice, 70% accuracy is expected for a binary recommendation system. However, it is opined that the accuracy could improve by removing outliers and adding more projects to the population.

2.6 Chapter conclusion

It was tried to answer a narrowly defined research question—Are projects that received more dispersed estimates at the bidding stage likely to experience more significant project cost changes upon completion? A total of 210 large projects conducted by the Ohio Department of Transportation between 2008 and 2018 were analyzed.

It was found that there was a statistically significant difference between the means of Project Cost Changes between the above-average C.V. projects and the below-average C.V. projects. Also, with some apparent outliers, the projects that received a large number of bids experienced less substantial Project Cost Change; on the other hand, the projects that experienced more significant Project Cost Change generally received fewer bids. The application of game theory in the future follow-up study seems promising.

It was also observed that there was a weak correlation between the C.V. and Project Cost Change. In contrast, there was virtually no correlational relationship between the Project Cost Change and other investigated variables, except for a weak correlation between the project duration change and Project Cost Change. However, it is noted that the project duration change is not calculable at the time of bid opening. When the number of bidders variable was converted to a dummy variable, although small, a slight increase in the R-square value was observed, especially with more than seven or eight bids.

Unfortunately, it seems that adopted methods, i.e., correlation and regression analyses, might not be advanced enough to capture the insight provided by the dataset. For instance, Figure 64 from Appendix B shows an intriguing pattern (the orange arrows are added to

emphasize) not detected by correlation and regression analyses. Therefore, there is a plan to employ statistically more sophisticated econometrics tools to “dig deeper” into the dataset.

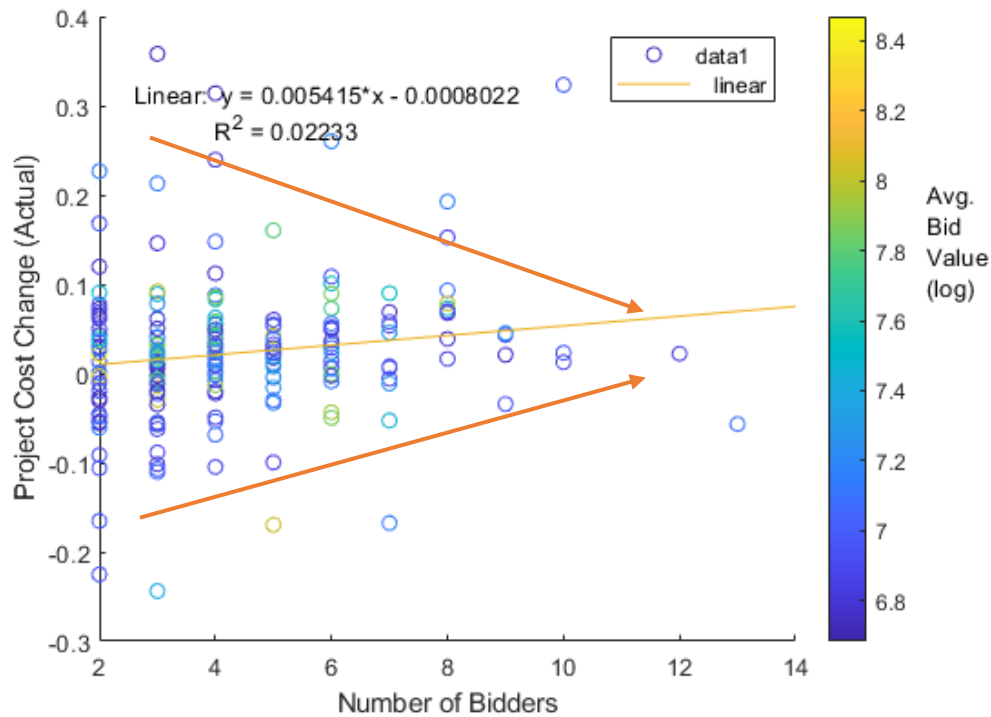


Figure 64 Number of bidders and Project Cost Change (Actual) scatter diagram

Finally, the KNN-based prediction model returned a better-than-chance accuracy in predicting whether a given project would experience above-average Project Cost Change. In addition, the average accuracy of the model generally increased as the number of neighbors used to calculate the distance increased from five to 19. Although the accuracy is not high enough for a recommendation system, it was opined that the model could improve by removing obvious outliers and adding more projects to the population.

This observation is supported by the seminal work done by Williams and colleagues. Williams and colleagues analyzed highway projects conducted by the Texas Department of Transportation from 1995 to 2000. They stated significant differences between the

means of the bid ratios, including the C.V., for groups where the completed project costs differed significantly from the original bid amount and for groups where the projects were constructed near the original bid amount (Williams et al., 2005; Williams, 2005). The same phenomenon was observed in this chapter by analyzing the large projects completed by the Ohio Department of Transportation from 2008 to 2018. Therefore, the phenomenon—projects with higher C.V. values of bids experience greater project cost changes than projects with lower C.V. values—was observed in two datasets that were from different locations and periods.

Yet, it is worth highlighting that Williams and colleagues were investigating bidding data to predict final project costs. Thus, their finding of the higher C.V. values occurred both for the projects that had significant cost increases and for the projects that were completed for significantly less than the original bid amount was not greatly advantageous to the purpose of their investigation. In fact, regression analysis in this particular dataset revealed that the winning bid was accountable for 99% of the final construction cost.

If owner organizations or bidders learn that specific projects are likely to experience more significant cost changes during execution, would they still pursue the projects? It may be a question reserved for decision-makers. Nevertheless, it is advantageous to have time on the project stakeholders' hands to review its viability in advance. It is also possible to reject all bids and redefine the project's scope for a new round of bidding. Prime contractors can adopt the same approach as they receive bids from subcontractors for work packages. It is recommendable to have an organizational policy to look at whether the C.V. of bids exceeds a certain threshold based on the organization's in-house dataset.

To further validate the finding reported herein, the research community could consider implementing a larger-scale investigation that includes projects by other state departments of transportation, projects by private owners, and projects delivered via different delivery methods.

Suppose information available as early as the bid opening can show that the project's final cost is likely to change significantly. In that case, the owner organization could use this information to better budget their financial resources and carefully monitor the project's progress (Williams, 2002). Therefore, the outcome of this study encourages owner organizations to identify troublesome projects earlier and prepare realistic contingency budgets by considering not only winning bids but also unsuccessful bids.

This study has several limitations. First of all, it can be questioned whether the dataset used in this study represents the whole construction industry. The issue is the availability of data in other construction sectors. For example, bidding data that private organizations have accumulated may not be easily accessible to academic researchers. Second, projects that cost less than \$5 million among the Ohio data were not included in the analysis. There is a plan to incorporate smaller projects in a follow-up study to address this deficiency.

3 Effectiveness of meta-summarized thematic findings in fore-testing validity of bid protests

3.1 Chapter introduction

3.1.1 Background

The U.S. Federal Government is one of the biggest spenders on the globe. Economic, industrial, social, and scientific developments in the U.S. have been primarily driven by the government's spending (Keeney, 2007). For example, between 30 September 2018 and 30 September 2019, the U.S. Federal Government spent more than \$20 trillion (U.S. Department of the Treasury, 2020).

When entering a contract, a private firm tries to protect its interests. But on the other hand, the U.S. government has to protect the public's interests from, for example, nepotism, lack of due process, conflict of interest, gouging/profitteering, fraud, limited competition, poor quality, abuse, political favoritism, false claims, to list a few (Keeney, 2007). Further, U.S. federal law requires mechanisms to advance the federal government-level procurement system's transparency, fairness, and integrity (D. H. Carpenter & Schwartz, 2018).

Firms interested in doing business with the federal government may have reasons to believe they have been denied fair opportunities to compete for federal government contracts. The U.S. Government Accountability Office (GAO hereafter) is where bidders can go to challenge the terms of a solicitation or the award of a federal government contract (GAO, n.d.-a). Disappointed bidders can object to the conduct of federal agencies in acquiring supplies and services via the means of bid protests (D. H. Carpenter & Schwartz, 2018).

Formerly known as the General Accounting Office, created by the Budget and Accounting Act in 1921, the original purpose of the GAO was to help the U.S. Congress to control

growing government spending and debt after World War I (GAO, n.d.-b). Most of the GAO's early published procurement-related decisions were what would be typically called contract disputes, i.e., contractors challenging agencies' decisions. However, the GAO recognized the interests of disappointed bidders and made its first bid protest decision in 1925 (Gordon, 2004). Later, the focus of the GAO's work shifted to monitoring executive branch agencies. In 2004, the office's legal name was changed to the Government Accountability Office, reflecting the office's role expanding beyond financial audits to performance audits (GAO, n.d.-b).

The U.S. Congress has authorized three separate bid protest forums as follows (D. H. Carpenter & Schwartz, 2018):

- The agencies: An agency is expected to resolve a bid protest within 35 days of receipt. The agency is expected to provide a rational explanation of its protest decision. The protest decision by the procuring agency is not legally binding. Parties not satisfied with the protest decision by the procuring agency may file a bid protest with either of the following two forums.
- The GAO: The GAO is expected to issue its recommendation no later than 100 days from the date the protest is filed. The GAO may deny the bid protest and recommend that the procuring agency move forward or sustain the protest and recommend further action, such as reissuing a solicitation, rebidding a contract, canceling a contract, or taking other steps. Such recommendations are not legally binding. Parties can still bring claims before the following forum.
- The U.S. Court of Federal Claims: There is no specific timeframe for the court to issue its rulings. The court may rule and award any relief that it considers proper, not limited to a certain number of remedies statutorily authorized. Such orders are legally binding, and parties may appeal to the U.S. Court of Appeals for the Federal Circuit.

The GAO is the most used forum for adjudicating bid-related disputes (Snyder, 2021). By its statutory authority, the GAO can issue a corrective action decision that can lead to the termination of the protested government contract, and its decisions set precedents and affect subsequent contracting activities (Canayaz, Cornaggia, & Cornaggia, 2019). The GAO has provided an accessible, inexpensive, expeditious, quasi-legal, and independent forum for resolving disputes over federal contracts (Armstrong, 2018). For example, in 2016, almost half of the protests were decided within the first 30 days, and nearly three-quarters within 60 days (Khoury, Walsh, & Ward, 2017).

3.1.2 Overview of bid protest process

The bid protest system injects a relatively low-cost form of accountability into the workings of the federal government acquisition systems by providing a forum where dissatisfied participants can make their complaints public (Gordon, 2013). Many bid protests question the subjective, judgmental overtone found in agencies' evaluation of bids against criteria defined in solicitations (Snyder, 2021).

A bid protest process generally begins when an interested party files a protest in writing before bid opening in case of a patent ambiguity in a solicitation or within ten days after receiving a debriefing. The debriefing takes place in accordance with the Federal Acquisition Regulation Part 15 (United States, 2022a). An interested party can be an actual or prospective bidder with a direct economic interest in procurement. The procuring agency is immediately and automatically notified when a protest is filed. This official notice may trigger a statutory stay of the award or performance of a contract pending the GAO's decision. However, the GAO does not review the agency's decision on implementing the stay. If the protest is procedurally defective, e.g., untimely or lacking legal grounds for protest, the GAO dismisses the bid protest. Otherwise, the GAO gathers information that is material to the nature of the protest. The agency is required to file a report responding to the protest, and the protester has an opportunity to file written comments on the report. Next, the GAO considers the complete record and facts, raises legal questions, and issues

its decision. Finally, the GAO may sustain (and recommend corrective action) or deny the protest (Armstrong, 2018).

In substance, protest outcomes can be either 1) sustained merits decisions, 2) denied merits decisions, 3) agency voluntary corrective actions, 4) contractor voluntary withdrawal, or 5) deficient protest dismissals (Dawson, 2021).

The GAO's decisions are not final. A contractor who has filed a bid protest with the GAO may file another protest before the U.S. Court of Federal Claims (Schaengold, Guiffre, & Gill, 2009). The bid protest process is regulated by the Code of Federal Regulations 4 CFR 21.0 (United States, 2018). The GAO also posts a descriptive guide that covers the bid protest process for protesters' reference (Armstrong, 2018).

3.1.3 Research question

The GAO annually reports to the U.S. Congress on the most prevalent grounds for sustaining protests. For the 2021 fiscal year, for instance, those grounds were: unreasonable technical evaluation, flawed discussions, unreasonable cost or price evaluation, and unequal treatment (GAO, 2021a). However, it is believed that there have not been any GAO official guidelines on the grounds for denying protests.

Against the above background, this study tries to answer the following question: What are the most significant quasi-legal bases of the GAO's denials of bid protests filed against the U.S. Army Corps of Engineers? The scope of the study is limited to bid protests against the U.S. Army Corps of Engineers to maintain the work relevant to the AEC management research community.

On 21 December 2017, the RAND Corporation, a California-based nonprofit and nonpartisan institution that develops solutions to public policy challenges (RAND Corporation, n.d.), delivered a report to the U.S. Congress after assessing bid protests against the U.S. Department of Defense. Several recommendations were made in that

report to reduce bid protests and improve current procurement processes. One recommendation relevant to this study is reducing and improving protests from small businesses, which filed more than half of the bid protests. It is suggested that small businesses are more likely to have their cases dismissed for lack of jurisdiction or for being legally insufficient. Small businesses, which might feel more-significant financial burdens to file bid protests through legal counsels, need to be helped early enough to see if they have valid cases (Arena et al., 2018).

In the U.S. Federal Government contracting context, relevant regulations define whether a business entity is small and, thus, can compete for contracts reserved or set aside for small businesses. Size standards vary by industry and are expressed in the number of employees or annual receipts in millions of dollars (United States, 2022b). The findings reported herein can limitedly help small businesses fore-test the validity of their cases before filing bid protests with the GAO.

Those intending to do business with the U.S. Federal Government must be acquainted with regulations, barriers, and hurdles to evaluate requirements and win contracts (Snyder, 2021). This study contributes to the growing body of knowledge about one aspect of the U.S. government acquisition practice—denying bid protests. Failures can be seen as a form of feedback. Firms bidding for U.S. Federal Government contracts could proactively learn the quasi-legal bases the GAO has frequently taken in denying bid protests.

3.2 Research method

3.2.1 Qualitative meta-analysis

Qualitative meta-analysis aims to discover the essential elements and translate the results into a more substantive end product through secondary analysis of the primary analyses. Approaches that fall under qualitative meta-analysis include meta-ethnography, meta-study, meta-summary, grounded formal theory, critical interpretive synthesis, and thematic synthesis. Some are more descriptive, e.g., trying to summarize and give voice to the

primary analyses, whereas others are more interpretive, e.g., trying to conceptualize the primary analyses (Timulak, 2014).

Meta-summary, the approach adopted in this research, is “a form of systematic review or integration of qualitative findings in a target domain” and is more amenable to research reports where findings are topical or thematic summaries of the collected data. The meta-summary approach tries to resist the interpretive nature of other qualitative meta-analysis approaches and aims to quantify the findings' representativeness. Meta-summary may serve as a base for more interpretive qualitative meta-syntheses (Sandelowski & Barroso, 2003; Timulak, 2014). Given the nature of primary studies, i.e., topical summaries of bid protests and legal decisions, the selection of meta-summary as the method for this research project was deemed justifiable.

Figure 16 depicts the workflow of this research.

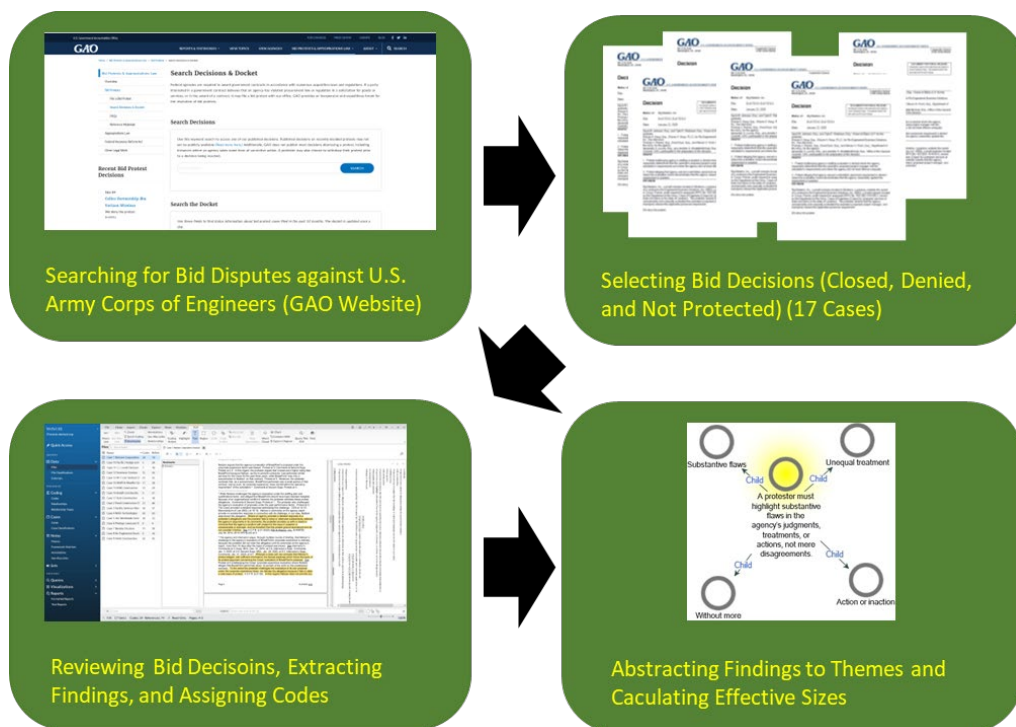


Figure 16 Meta-summary workflow

3.2.1.1 Pose research question

Generic qualitative meta-analysis research goes through the following steps: Pose the research question, select original studies, appraise primary studies, prepare data, analyze data, check credibility, and present findings (Timulak, 2014). Here, the research question is: What are the most significant quasi-legal bases in the GAO's denying bid protests filed against the U.S. Army Corps of Engineers?

3.2.1.2 Select original studies

The primary analyses can be as little as two in some fields, while the number can go to over a hundred in other areas (Timulak, 2014). In this meta-analysis, every bid protest filed against the U.S. Army Corps of Engineers that were found in the GAO's Electronic Protest Docketing System and closed as of 10 February 2021 was selected. Thus, the total number of eligible bid protest cases was 106.

3.2.1.3 Appraise primary studies

Dismissed, withdrawn, sustained, or granted bid protests were excluded from further analysis. The total number of denied bid protests was 30. After an initial review, nine duplicated cases and four cases covered by a protective order were removed. Therefore, the total number of cases analyzed by this project was 17.

3.2.1.4 Prepare data

The selected primary studies have to be read and inspected for the relevant data they offer (Timulak, 2014). Since the same government office generated the primary studies for this meta-analysis, the relevant data they offered were similar in nature and presentation.

3.2.1.5 Analyze data

Techniques to create a meta-summary include the following (Sandelowski & Barroso, 2003):

- Extracting relevant statements of findings from each report: According to the method of meta-summary, a finding is “a statement or rendering intended to

convey a recurring event or unifying element, essence, or leitmotif.” Findings are viewed as researcher constructions and include discoveries, conclusions, judgments, or pronouncements offered regarding cases under investigation. In an alternatively styled report, findings can be located anywhere. The deliverable from this process is a comprehensive inventory of the findings in the form of complete sentences.

- Reducing the statements into abstracted findings: The findings are reduced to abstracted thematic findings.
- Calculating effect sizes: Frequency effect size equals the number of reports with a particular finding divided by the number of total reports. This is a way “to unite the empirical precision of quantitative research with the descriptive precision of qualitative research.”

Two rounds of analysis were carried out primarily. The initial analysis was carried out manually. Then, the second round of analysis was carried out in the NVivo environment, a qualitative data analysis software.

3.2.1.6 Check credibility

A way to establish the trustworthiness of a qualitative meta-analysis is to ask subject matter experts to look over the analysis to offer their perspectives and critical appraisal (Elliott, Fischer, & Rennie, 1999; Timulak, 2014). Unfortunately, multiple high-ranking officials in the GAO declined the invitation to critique the initial findings.

3.2.1.7 Present findings

The findings are presented in the following sections.

deemed as findings: Digests, project descriptions, backgrounds, examples, restatements of parties' arguments, and evaluation summaries.

A total of 288 findings were identified (Appendix E). See Table 10 for the number of findings per case.

Table 10 Number of findings per case

Case #	Number of Findings	Case #	Number of Findings
1	39	10	13
2	24	11	5
3	19	12	13
4	23	13	29
5	18	14	20
6	5	15	15
7	17	16	11
8	8	17	6
9	23		

3.3.4 Abstracted findings

The process of abstracting continued until there was no more finding to process. Eventually, all the findings were abstracted into 12 thematic findings. The abstracted findings are presented hereunder, followed by supporting findings from relevant cases. Appendix F is the codebook from NVivo.

3.3.4.1 Theme 1

Repeatedly appearing essential words/phrases, i.e., the child codes in the NVivo environment, were identified, and the findings with such keywords/phrases were grouped.

The first theme, i.e., the parent code, emerged from the following child codes.

3.3.4.1.1 Substantive flaws

A bid protester must show substantive flaws in the contracting agency's analysis. In Case 1, the protester "simply fails to identify any substantive flaws with the basis of the agency's analysis (GAO, 2020a)." In Case 2, the protester had not shown that the agency's evaluation was defective. In Case 8, the protester failed to show that the agency's data was materially flawed or incorrect. Figure 18 shows the word cloud from the relevant findings.



Figure 18 Word cloud from relevant findings (Substantive flaws)

3.3.4.1.2 Unequal treatment

A fundamental principle of federal procurement law is that a contracting agency equally treats all bidders and evenhandedly evaluates their proposals. A bid protester needs to highlight that such a principle has been breached; the differences in the evaluation must not stem from differences between the proposals. Figure 19 shows the word cloud from the relevant findings.



Before the GAO, a bid protester's disagreement with a procuring agency's judgment, without more, does not demonstrate that the agency acted unreasonably. For example, in Case 12, the protester disagreed with the source selecting authority's judgments. However, a "protester's disagreement with an agency's judgments does not render the evaluation unreasonable (GAO, 2020b)." Figure 20 shows the word cloud from the relevant findings.



Unless an agency unduly delays taking corrective action, a bid protest may be denied. In Case 11, the GAO viewed that the agency took prompt action: “When an agency takes corrective action on or before the due date set for receipt of the agency report, our Office views such action as prompt and will not recommend the reimbursement of costs (GAO, 2020c).” The protester’s request did not meet the standard for recommending cost

reimbursement. In Case 21, except for certain circumstances, the agency was not obligated to seek additional information that the protester could have addressed in its proposal. Figure 66 shows the word cloud from the relevant findings.



Figure 21 Word cloud from relevant findings (Action or inaction)

3.3.4.1.5 Thematic finding

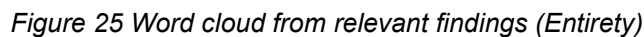
From the above child codes, the following abstracted theme, i.e., the parent code, was synthesized: *A protester must highlight substantive flaws in the agency's judgments, treatments, or actions, not mere disagreements*. This theme appeared in ten cases, as shown in Figure 22.



Figure 22 Explore diagram 1



When parties disagree about the meaning of terms or specifications in a solicitation, the GAO reads the solicitation in its entirety and reasonably to give effect to all provisions. For example, in Case 6, the provision incorporated into the solicitation by reference was the deciding factor. Figure 25 shows the word cloud from the relevant findings.



Express solicitation requirements limit agencies; on the other hand, a bid protest may not be supported without express requirements in the solicitation. For example, in Case 1, the protester's argument that the awardee, a subcontractor to the protester on the predecessor

contract, could not have received an outstanding rating was not accepted because the solicitation did not require prime contractor experience. On the other hand, in Case 4, the express language of the evaluation criterion required the relevant experience from both the prime contractor and key subcontractors; thus, the experience of a proposal team member identified as a key subcontractor would not compensate for the lack of the prime contractor's experience. In Case 6, the agency's rejection of the protester's late bid was in accordance with the solicitation terms as "the RFQ incorporated FAR provision 52.212-1, which expressly limited the agency's ability to accept late quotations to circumstances not present here (GAO, 2020e)." Figure 26 shows the word cloud from the relevant findings.

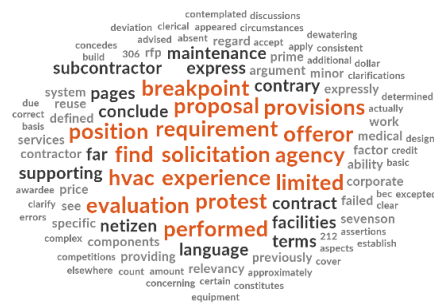
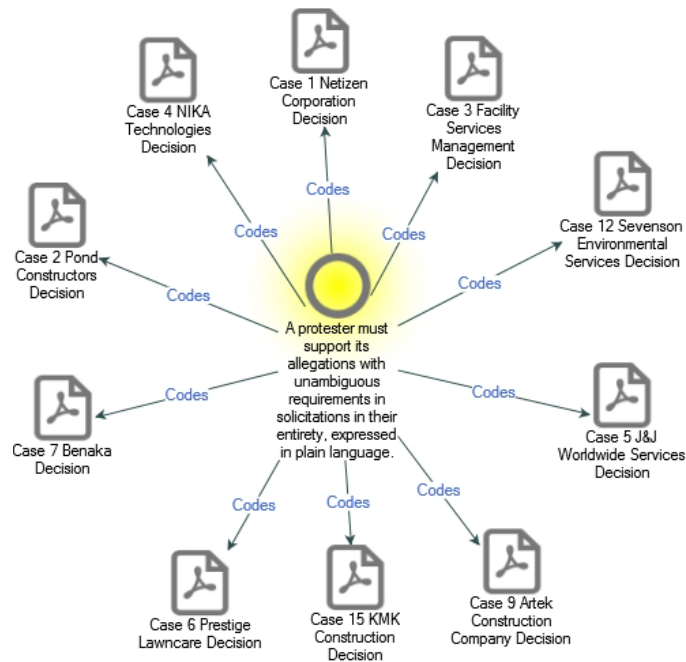


Figure 26 Word cloud from relevant findings (Express requirements)

3.3.4.2.5 Thematic finding

From the above child codes, the following abstracted theme, i.e., the parent code, was synthesized: *A protester must support its allegations with unambiguous requirements in solicitations in their entirety, expressed in plain language.* This theme appeared in ten cases, as shown in Figure 27.



3.3.4.3 Theme 3

The third theme emerged from the following child codes.

3.3.4.3.1 Post-protest

The GAO hardly considers post-protest arguments or analyses made in response to protest allegations. Figure 28 shows the word cloud from the relevant findings.



3.3.4.3.2 Contemporaneous

The GAO considers explanations that fill in previously unrecorded details as long as provided rationales are credible and consistent with the contemporaneous record. For example, in Case 5, the GAO accepted the agency's assertion based on two contemporaneous memoranda finalized, signed, and dated before the protest filing. "Because the protester's argument is premised on the contention that at the time of award there was no contemporaneous record of the contracting officer's independent assessment, we deny this protest ground (GAO, 2020f)." Figure 29 shows the word cloud from the relevant findings.



Figure 29 Word cloud from relevant findings (Contemporaneous)

3.3.4.3.3 Review of the record

An agency's judgment must be documented with sufficient detail—not necessarily every detail—to show the agency's evaluation is not arbitrary. For example, in Case 12, the record showed that the procuring agency gave considerable credit to the experience of the protester's proposed subcontractor; however, it was less preferred than that of a prime contractor. Figure 30 shows the word cloud from the relevant findings.

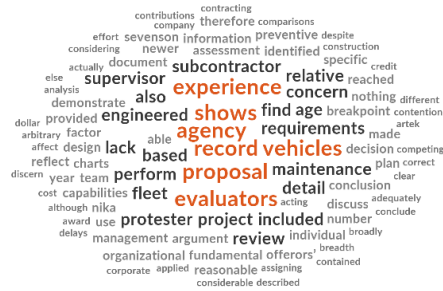


Figure 30 Word cloud from relevant findings (Review of the record)

3.3.4.3.4 Thematic finding

From the above child codes, the following abstracted theme, i.e., the parent code, was synthesized: *A protester must build credible post-protest arguments that can be supported by contemporaneous records*. This theme appeared in nine cases, as shown in Figure 31.

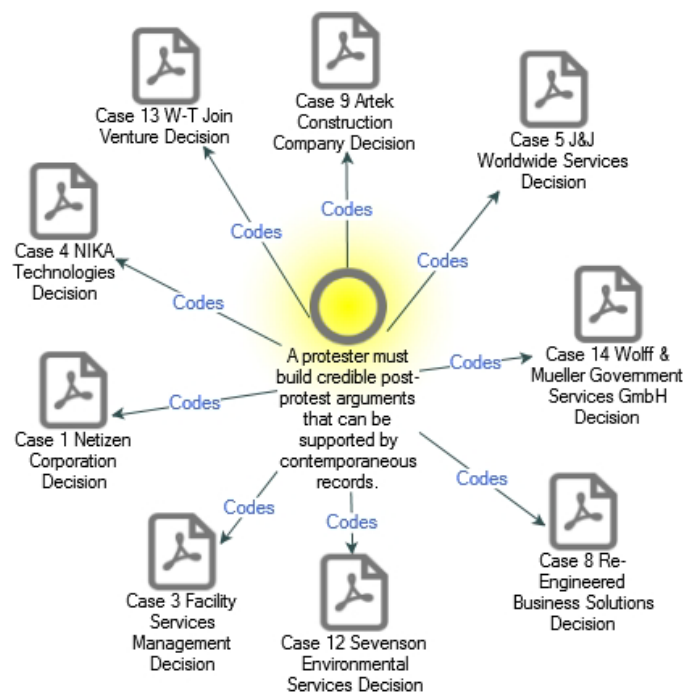


Figure 31 Explore diagram 3

3.3.4.4 Theme 4

The fourth theme emerged from the following child codes.

3.3.4.4.1 No re-evaluation of proposals

When a protester challenges an agency's evaluation, the GAO does not independently re-evaluate proposals or substitute its judgment for that of the agency. For example, in Case 1, the GAO limited its review to determine whether the agency's evaluation was in accord with the stated criteria. The GAO left the determination of the relative merits of proposals within the agency's discretion. Figure 32 shows the word cloud from the relevant findings.



Figure 32 Word cloud from relevant findings (No re-evaluation of proposals)

3.3.4.4.2 Reasonable and consistent

In its review, the GAO examines the record to determine whether an agency’s evaluation is reasonable and consistent with the stated evaluation criteria and applicable statutes and regulations. For example, in Case 13, the GAO examined “the supporting record to determine if it was reasonable and consistent with the solicitation’s evaluation criteria and applicable procurement statutes and regulations (GAO, 2020g).” Figure 33 shows the word cloud from the relevant findings.



Figure 33 Word cloud from relevant findings (Reasonable and consistent)

3.3.4.4.3 Thematic finding

From the above child codes, the following abstracted theme, i.e., the parent code, was synthesized: *A protester must understand that the GAO reviews not the relative merits of proposals but reasonable and consistent applications of terms, laws, and regulations.* This theme appeared in 12 cases, as shown in Figure 34.

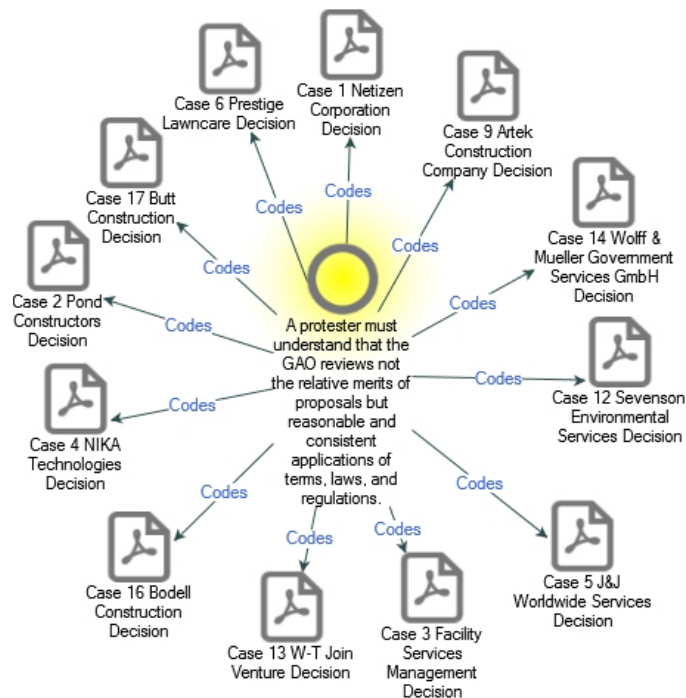


Figure 34 Explore diagram 4

3.3.4.5 Theme 5

The fifth theme emerged from the following child codes.

3.3.4.5.1 Well-written

A protester is responsible for submitting a well-written proposal with adequately detailed information to have it evaluated favorably. For example, in Case 9, the GAO found it reasonable that the agency described the protester's narrative on the management plan as cryptic and contradicting the solicitation requirements. In Case 14, the GAO thought that "the agency reasonably found that the chart, as depicted, failed to clearly delineate the lines of authority in a precise and logical manner (GAO, 2020h)." Figure 35 shows the word cloud from the relevant findings.

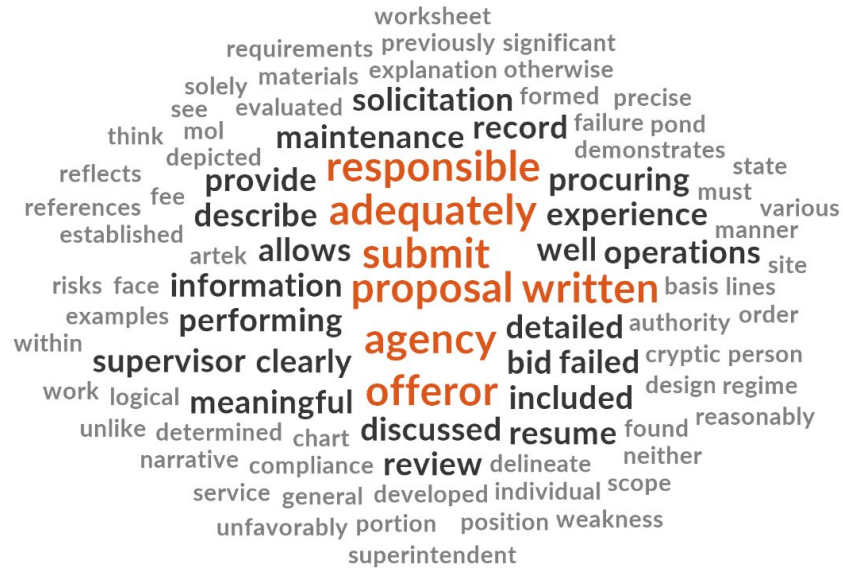


Figure 35 Word cloud from relevant findings (Well-written)

3.3.4.5.2 Your word against your word

A protester is not allowed to espouse one interpretation or position and then argue later that the interpretation or position is unreasonable. For example, in Case 4, the protester's proposal excerpt was used against the protester; "[t]he agency's explanation is borne out by the contents of [the protester]'s proposal (GAO, 2020i)." Figure 36 shows the word cloud from the relevant findings.



Figure 36 Word cloud from relevant findings (Your word against your word)

3.3.4.5.3 In (or not in) compliance

Clearly stated solicitation requirements are considered material to the needs of the government, and a proposal that fails to conform to such material terms is unacceptable. For example, in Case 10, a bid bond, required by the solicitation, was a material part of the bid; thus, there must have been compliance at the opening of bids. Figure 37 shows the word cloud from the relevant findings.



Figure 37 Word cloud from relevant findings (In compliance)

3.3.4.5.4 Thematic finding

From the above child codes, the following abstracted theme, i.e., the parent code, was synthesized: *A protester must submit a proposal that is well-written and consistent with enough information in compliance with solicitation requirements.* This theme appeared in ten cases, as shown in Figure 38.

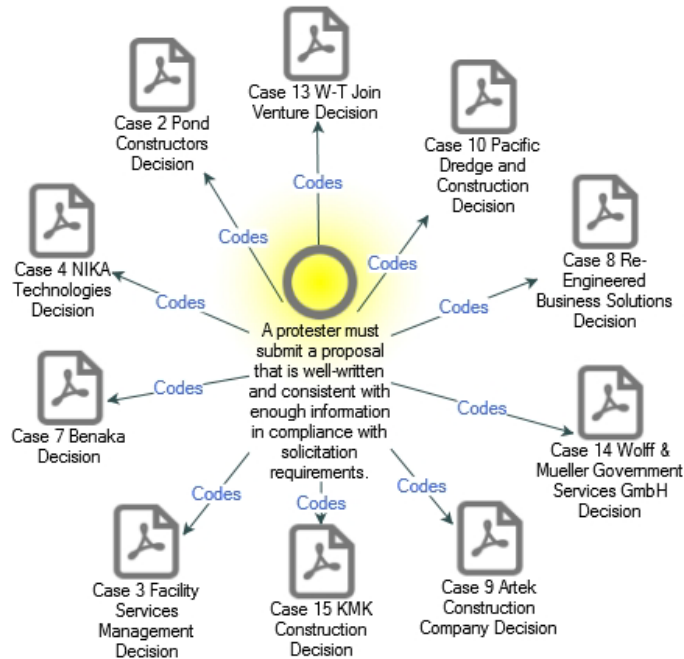


Figure 38 Explore diagram 5

3.3.4.6 Theme 6

The sixth theme emerged from the following child codes.

3.3.4.6.1 Form the basis of the protest

If a protester fails to form a valid basis for a protest, the protest will result in dismissal or denial. For example, in Case 2, “[the bid protest] results from a clear misreading of the evaluation criteria, and, as such, we dismiss this allegation as failing to state a valid basis of protest (GAO, 2020j).” When the protester’s challenge to the agency’s evaluation was

found without merit, the protester's claim to the agency's decision became groundless.

Figure 39 shows the word cloud from the relevant findings.



Figure 39 Word cloud from relevant findings (Form the basis of the protest)

3.3.4.6.2 Not an interested party

A protester must remain an interested party during the entire bid protest decision process. For example, in Case 5, one deficiency in the protester's technical proposal was enough to make the proposal un-awardable; the GAO did not discuss the protest further. Likewise, in Case 7, the protester's proposal failed to conform to material technical requirements clearly stated in the solicitation; then, "[protester] is not an interested party to maintain these remaining allegations because, as discussed above, its proposal was reasonably found unacceptable (GAO, 2020d)." Figure 40 shows the word cloud from the relevant findings.



3.3.4.6.3 Thematic finding

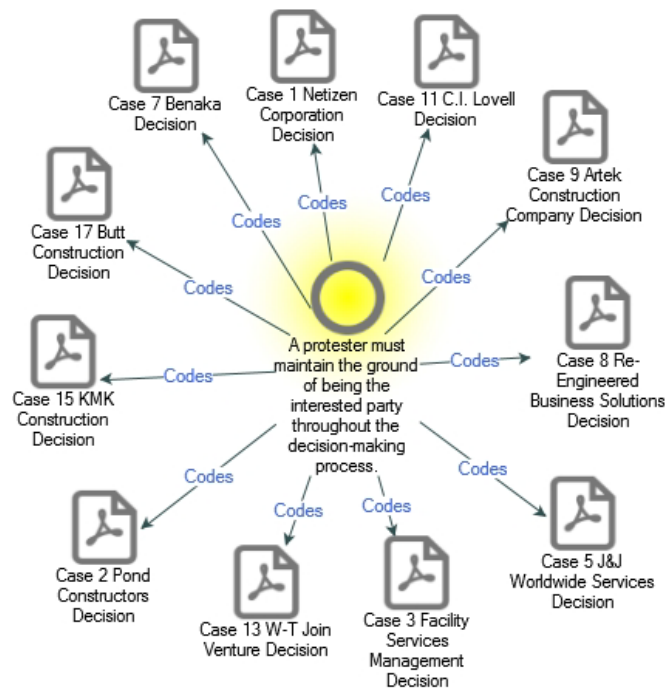


Figure 41 Explore diagram 5

3.3.4.7 Theme 7

The seventh theme emerged from the following child codes.

3.3.4.7.1 Prejudiced

Competitive prejudice is an essential element of a viable protest. A protester must demonstrate that, but for the procuring agency's improper actions, it would have had a substantial chance of receiving the award. For example, in Case 13, the agency could waive a material solicitation requirement if such waiver did not prejudice other bidders. "[The protester] does not explain how it was prejudiced by the waiver of this requirement, that is, what the protester would have done differently had it been given an opportunity to use a different estimating software (GAO, 2020g)." In Case 16, even where the agency's actions were arguably improper, the GAO did not sustain the protest where no prejudice was evident. The agency might have erred by not assigning a specific weakness rating to

3.3.4.7.3 Thematic finding

From the above child codes, the following abstracted theme, i.e., the parent code, was synthesized: *A protester must demonstrate that it could have won the contract but failed explicitly due to the agency's defective evaluation.* This theme appeared in nine cases, as shown in Figure 44.

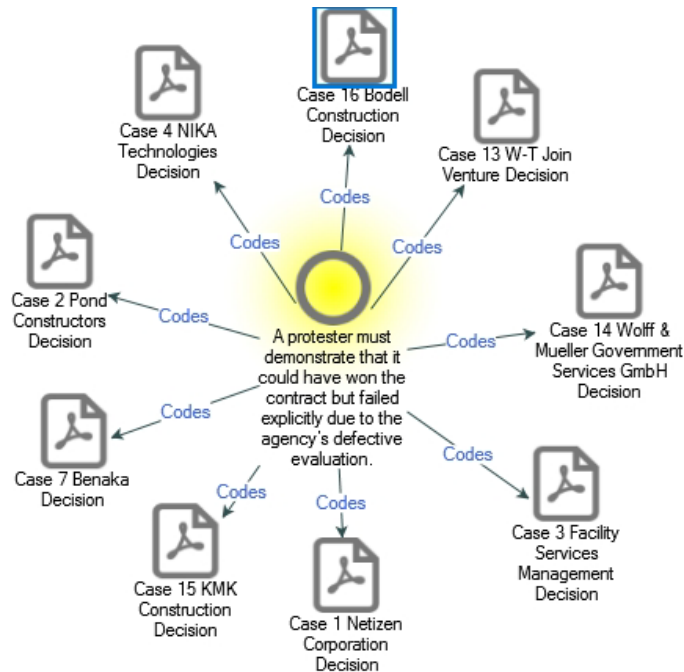


Figure 44 Explore diagram 7

3.3.4.8 Theme 8

The eighth theme emerged from the following child codes.

3.3.4.8.1 Broad discretion

The GAO acknowledges that determining proposals' relative strengths and weaknesses is primarily a matter of an agency's discretion. For example, in Case 5, the GAO found no issue in that the agency's judgment carried considerable weight in topics related to human safety. In Case 12, in making the best-value tradeoff decision, the contracting officer's broad discretion was only subject to rationality and consistency with the evaluation criteria.

Accordingly, the GAO did “not question the award to higher-rated, higher-priced offerors where the agency’s documentation ... establishes that the [source selection authority] was aware of, and considered, the relative strengths, weaknesses, and costs of the competing proposals, and made judgments that were rational and consistent with the evaluation criteria (GAO, 2020b).” Figure 45 shows the word cloud from the relevant findings.



Figure 45 Word cloud from relevant findings (Broad discretion)

3.3.4.8.2 Logically encompassed

The GAO allows agencies not to state every aspect of each factor that might be considered when evaluating proposals in their solicitations, provided that such unidentified areas are reasonably and logically encompassed within stated evaluation criteria. For example, in Case 4, the GAO agreed with the agency that “[p]reventive maintenance clearly is related to, and encompassed by, these broad, overarching requirements (GAO, 2020i).” Figure 46 shows the word cloud from the relevant findings.



From the above child codes, the following abstracted theme, i.e., the parent code, was synthesized: *A protester must know that the GAO does not question the source selection authority's broad discretion in exercising their judgment over matters enclosed by high-level requirements.* This theme appeared in nine cases, as shown in Figure 47.



3.3.4.9 Theme 9

The ninth theme emerged from the following child code.

3.3.4.9.1 Fail to rebut

When a protester fails to rebut the contending agency’s arguments one by one, the GAO regards such an unanswered protest ground as abandoned and concludes that the protester effectively has conceded. For example, in Case 13, because “[the protester] did not respond to the agency’s position in its comments, [GAO] dismiss these arguments as abandoned (GAO, 2020g).” Figure 48 shows the word cloud from the relevant findings.



Figure 48 Word cloud from relevant findings (Fail to rebut)

3.3.4.9.2 Thematic finding

The abstracted theme was synthesized: *A protester must counter-argue the agency's contentions one by one*. This theme appeared in seven cases, as shown in Figure 49.

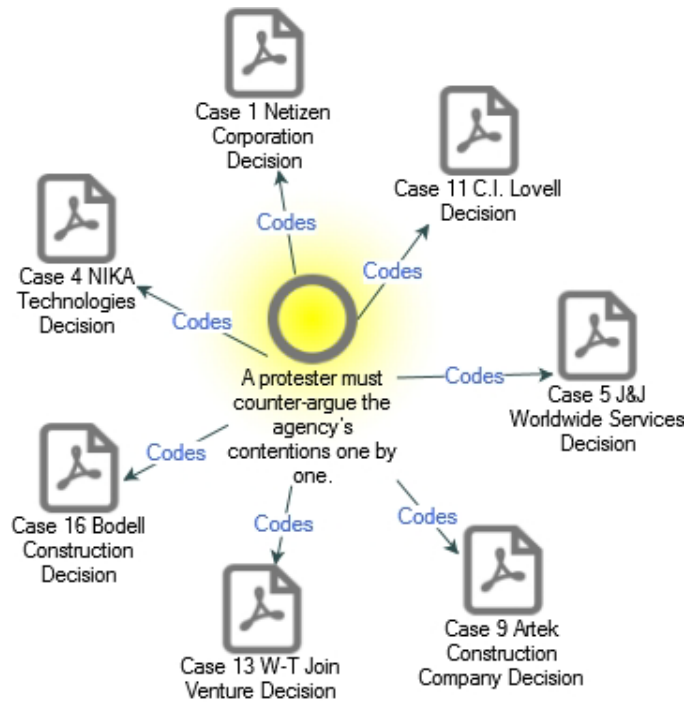


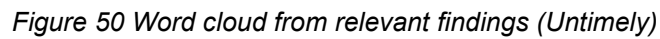
Figure 49 Explore diagram 9

3.3.4.10 Theme 10

The tenth theme emerged from the following child code.

3.3.4.10.1 Untimely

A challenge to solicitation terms must be raised before the bid closing date; otherwise, the protest will be considered untimely. For example, in Case 2, when the protester disagreed with the stated evaluation scheme, “this challenge amounts to an untimely challenge to the terms of the solicitation (GAO, 2020j).” Figure 50 shows the word cloud from the relevant findings.



The abstracted theme was synthesized: *A protester must submit its allegations within the specified time window*. This theme appeared in seven cases, as shown in Figure 51.

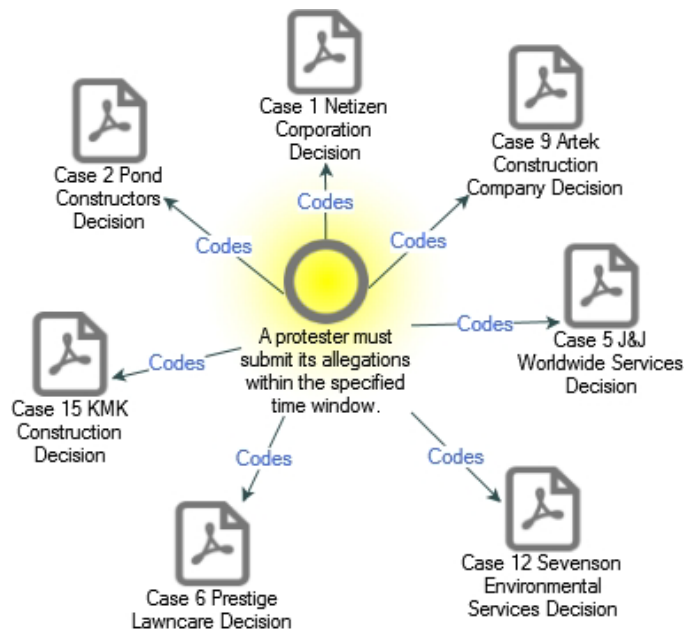


Figure 51 Explore diagram 10

3.3.4.11 Theme 11

In Case 1, the GAO concluded that a price realism analysis was contemplated in the solicitation. The GAO viewed the agency's considering an offer's price excessively low to be a price realism analysis. In Case 4, the GAO noted that although the program was referred to as the Operations and Maintenance Engineering Enhancement and had not used the expression "preventive maintenance," the solicitation, when read in its entirety, included, even emphasized, preventive maintenance. In Case 10, the GAO regarded the bid bond submitted with the protester's proposal as significantly different in substance from a bid bond required by the solicitation requirements. In Case 13, the GAO noted that adjectival ratings were merely guides for informed procurement decisions. The source selection authority did not solely rely on such adjectival ratings alone and considered other information to determine the existence of meaning differences between the proposals. In Case 17, it was noted that the "contracting agency cannot convert a matter of responsibility into one of responsiveness by the terms of the solicitation (GAO, 2021b)." Figure 52 shows the word cloud from the relevant findings.



Figure 52 Word cloud from relevant findings (Theme 11)

3.3.4.11.1 Thematic finding

The abstracted theme was synthesized: *A protester must recognize that the meanings of solicitation language may not be taken at face value.* This theme appeared in five cases, as shown in Figure 53.

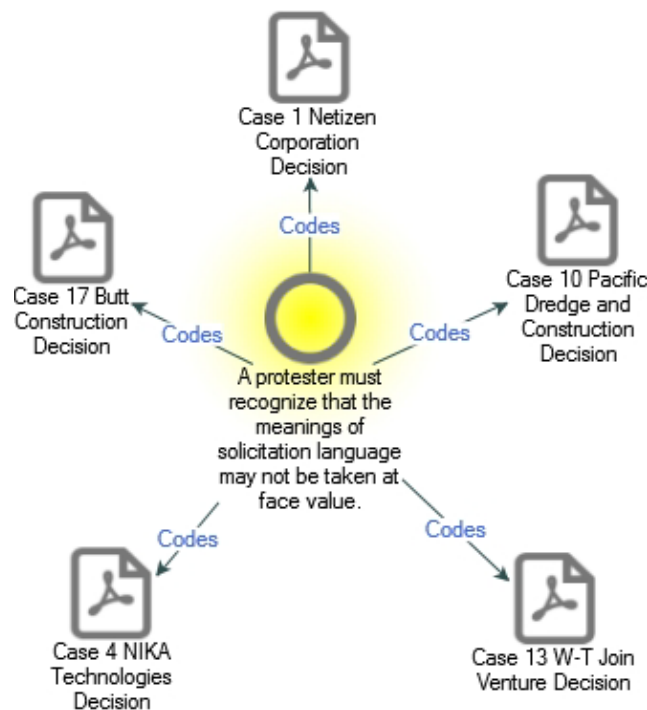


Figure 53 Explore diagram 11

3.3.4.12 Theme 12

In Case 10, the agency was not prohibited from rejecting a defective bid bond, even if the agency had previously accepted similarly defective bonds. “An improper award under one or more [invitation for bids (IFBs)] does not justify a repetition of the same error under a later IFB (GAO, 2020k).” In Case 13, the protester’s reference to design fees used for a different contract was irrelevant to the issues raised in the protest. In Case 17, the GAO did not cite previous GAO decisions put forth by the protester: Previous decisions were either related to determining bidders’ eligibility after bid opening or not complying with a

solicitation requirement rendered the bid nonresponsive. Figure 54 shows the word cloud from the relevant findings.

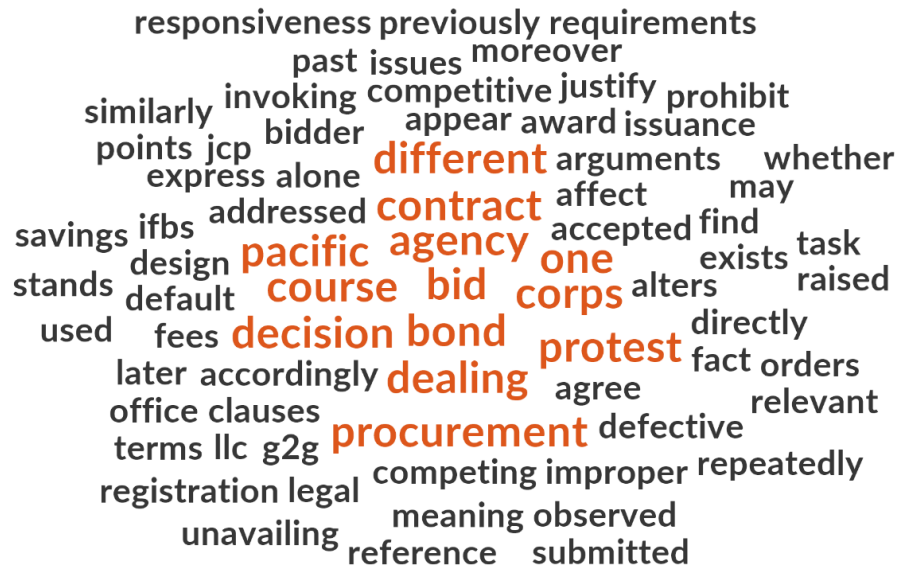


Figure 54 Word cloud from relevant findings (Theme 12)

3.3.4.12.1 Thematic finding

The abstracted theme was synthesized: *A protester must not rely on different or previous contracts in developing arguments.* This theme appeared in three cases, as shown in Figure 55.

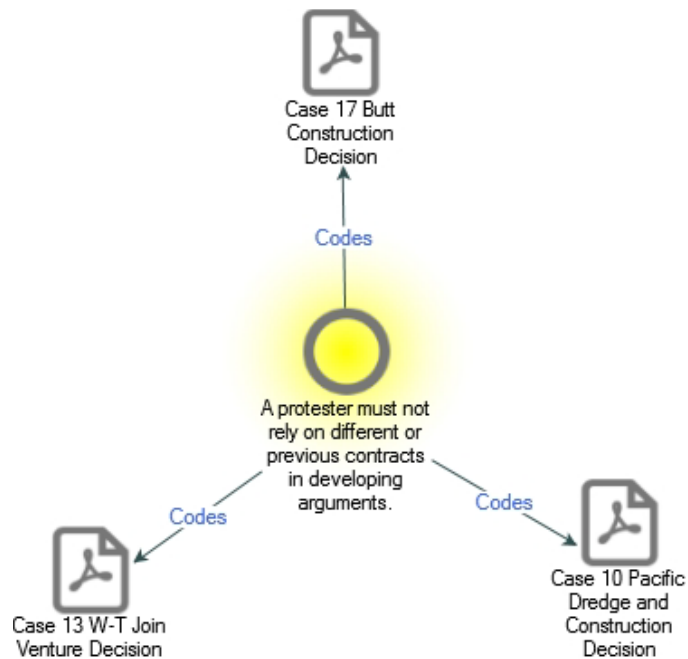


Figure 55 Explore diagram 12

3.3.5 Effect sizes

The abstracted findings with corresponding frequency effect sizes are shown in Table 11. Frequency effect size equals the number of reports with a particular finding divided by the number of total reports “to unite the empirical precision of quantitative research with the descriptive precision of qualitative research (Sandelowski & Barroso, 2003).” It is reasonable to say that the GAO might deny a bid protest based on a less frequently referred thematic finding. Nevertheless, it is opined that larger frequency effect sizes require more attention.

Table 11 Meta-summary with frequency effect sizes

Abstracted findings	Cases	Frequency effect sizes
A protester must highlight substantive flaws in the agency's judgments, treatments, or actions, not mere disagreements.	1, 2, 3, 4, 8, 9, 11, 12, 13, 14	58.8%
A protester must support its allegations with unambiguous requirements in solicitations in their entirety, expressed in plain language.	1, 2, 3, 4, 5, 6, 7, 9, 12, 15	58.8%
A protester must build credible post-protest arguments that can be supported by contemporaneous records.	1, 3, 4, 5, 8, 9, 12, 13, 14	53.0%
A protester must understand that the GAO reviews not the relative merits of proposals but reasonable and consistent applications of terms, laws, and regulations.	1, 2, 4, 5, 9, 12, 13, 14, 16	41.1%
A protester must submit a proposal that is well-written and consistent with enough information in compliance with solicitation requirements.	2, 3, 4, 7, 8, 9, 10, 13, 14, 15	58.8%
A protester must know that the GAO does not question the source selection authority's broad discretion in exercising their judgment	1, 2, 4, 5, 9, 12, 13, 14, 16	53.0%

Table 11 Meta-summary with frequency effect sizes

Abstracted findings	Cases	Frequency effect sizes
over matters enclosed by high-level requirements		
A protester must counter-argue the agency's contentions one by one.	1, 4, 5, 9, 11, 13, 16	41.1%
A protester must submit its allegations within the specified time window.	1, 2, 5, 6, 9, 12, 15	41.1%
A protester must maintain the ground of being the interested party throughout the decision-making process.	1, 2, 3, 5, 7, 8, 9, 11, 13, 15, 17	64.7%
A protester must demonstrate that it could have won the contract but failed explicitly due to the agency's defective evaluation.	1, 2, 3, 4, 7, 13, 14, 15, 16	53.0%
A protester must recognize that the meanings of solicitation language may not be taken at face value.	1, 4, 10, 13, 17	29.4%
A protester must not rely on different or previous contracts in developing arguments.	10, 13, 17	17.6%

The above 12 thematic findings can be an excellent match to the following fifteen most prevalent grounds for a sustained protest, reported in a public contract law journal article (Dawson, 2021):

- *Evaluation criteria was unreasonable, or reasonable but unreasonably applied (includes unfair / disparate treatment during evaluations and not properly implementing cost modifications.*
- *Contract was awarded or rejected for reasons not stated in the solicitation.*
- *The agency's conclusion regarding a proposal (award or reject) was unsupported by the record (can be lack of documentation in evaluations or claims in proposals) or an agency official ignored the advice of advisory boards.*
- *Improper costs awarded (which is only relevant as a subsequent protest after having a sustained protest remanded to the agency, to determine the specific cost award, which is then brought back before GAO to resolve disputes about the amount to be awarded).*
- *There was a lack of meaningful discussions with some or all of the bidders, or the agency failed to disclose pertinent information (separated from the failure to inform category, in that there was, or should have been, a discussion of some sort, whereas failure to inform deals with one-way communication issues).*
- *The wrong solicitation type issued by the agency (usually failed to issue a Small Business Set Aside) or in the face of a need to modify the solicitation, modified it incorrectly.*
- *The agency failed to remedy a clear issue after receiving sufficient notice.*
- *The agency's evaluation was not thorough, ignored factors, or was incomplete.*
- *The solicitation was outside the scope of the underlying IDIQ, FSS, or MAS contract, in which the agency attempted to purchase something not covered in the contract.*

- *The solicitation was ambiguous, not properly disclosed, or otherwise stillborn upon issue. Also covers agency clarifying terms of the solicitation in a way that confuse parameters and other problems with how the solicitation was issued.*
- *The terms of the solicitation were unreasonably restrictive.*
- *The improper communications for the benefit of only one bidder or the agency allowed awardee to modify their bid but did not allow other bidders to modify theirs.*
- *There was conflict of interest present in the solicitation or award process.*
- *The agency committed a statutory, regulatory, or FAR violation in the course of the contract solicitation or competition.*
- *The bidder was prejudicially favored or harmed in the course of competition. (e.g., the awardee was allowed to modify parts of a bid or agency displayed favoritism or granted unequal access to information).*

3.4 Validation

In an effort to validate what has been reported in this work, three of the most recent denied protests, as of 12 September 2022, were reviewed in light of the twelve thematic findings. The review showed that the GAO denied the cases based on some of the very same thematic findings reported herein. Therefore, it is maintained that with this meta-summary before them, prospective protesters could have acted differently by evaluating the strength of their arguments in advance.

3.4.1 Matter of ACC Construction Company, Inc.

3.4.1.1 Synopsis

The protester contended that the U.S. Army Corps of Engineers improperly eliminated its proposal from the competition for the design-build construction service contract. The protester's proposal initially received a past performance confidence rating of *satisfactory confidence*—lower than *substantial confidence*—and the protester was not selected to participate in the second phase of the competition. However, after the original debriefing,

the protester noted that the agency's evaluation report contained an inaccurate past performance rating for one of the protester's reference projects. The agency re-convened the evaluation board meeting yet still evaluated the protester's past performance confidence rating of *satisfactory confidence*. The protester filed the bid protester with other allegations (GAO, 2022a).

3.4.1.2 Application of thematic findings

The GAO viewed that the agency's action of re-convening the evaluation board meeting was reasonable and consistent with the terms of the solicitation—this corresponds to Theme 4. The record contradicted the protester's allegation that the agency failed to acknowledge the variety of work the protester had performed and that the agency also failed to consider its established relationship with the proposed designer—this corresponds to Theme 3. Finally, the GAO denied the protester's challenge that the agency should not have used a piece of erroneous information found in the narrative section of the protester's proposal—this corresponds to Theme 5.

3.4.2 Matter of Coastal Environmental Group, Inc.

3.4.2.1 Synopsis

The protester alleged that the U.S. Army Corps of Engineers unreasonably evaluated the protester's relevant experiences and that the solicitation contained a latent ambiguity. The agency assigned a weakness to the protester's experience due to a lack of experience in the "construction of Groundwater Treatment Plants and extraction well systems requiring long term operation." The protester contended that the agency construed the evaluation criteria too narrowly and that the protester had elements of experiences that were necessarily relevant. In addition, the protester argued that the solicitation was ambiguous regarding the information retrieval from the Government's Contractor Performance Assessment Reports System (CPARS) (GAO, 2022b).

3.4.2.2 Application of thematic findings

In this decision, the GAO found that the plain language of the solicitation expressed a clear intent to evaluate the bidders' experiences in the construction of groundwater treatment plants and extraction well systems—this corresponds to Theme 2. In addition, the GAO determined that the solicitation's plain language did not require the agency to obtain the CPARS information for any or all projects submitted by the protester in its proposal—this also corresponds to Theme 2.

3.4.3 Matter of Zafer Taahhut Insaat Ve Tiaret AS

3.4.3.1 Synopsis

The scope of work included the construction of overseas munitions storage area facilities under a single fixed-price construction contract. The winning bidder and the protester received virtually identical ratings under several evaluation factors, yet, the winning bidder's price was less than half of the protester's price. The protester contended that the agency failed to conduct a price realism analysis. The protester also argued that the agency should have assigned more favorable ratings. Finally, in response to the agency's report, the protester raised new allegations that the agency failed to properly analyze certain technical approaches proposed by the winning bidder (GAO, 2022c).

3.4.3.2 Application of thematic findings

The GAO concluded that the price realism analysis was not expressly stated in the solicitation—this corresponds to Theme 2. The GAO viewed that the evaluation of technical qualifications was subjective and refused to substitute—this corresponds to Theme 4. When the protester repeated its positions after receiving the agency's responses to the protester's allegations, the GAO deemed the initially raised arguments abandoned—this corresponds to Theme 9. Finally, the new allegations raised with the protester's comments to the agency's responses were dismissed as untimely—this corresponds to Theme 10.

3.5 Chapter conclusion

Contractors bidding to win contracts from the U.S. Federal Government can dispute the government's procurement decisions. Allowing such challenges is a crucial element in holding one of the biggest spenders in the world accountable (Gordon, 2004). There are three forums with which bid protests can be filed. The most frequently chosen forum is the GAO. In this paper, 17 bid protests denied by the GAO were investigated. By limiting the scope of the study to the denied bid protests against the U.S. Army Corps of Engineers, the results could be more relevant to the AEC management research community. Given the nature of primary studies, the qualitative research method of meta-summary was selected to identify the most significant quasi-legal bases. It is believed that this was the first attempt to apply the qualitative research method of meta-summary to the bid protest decisions made by the GAO. A total of 17 decisions were analyzed, and the findings were abstracted into the following 12 thematic findings with corresponding frequency effect sizes (See Table 30). Then, three recent denied bid protests were reviewed to test the validity of the thematic findings.

This work contributes to the body of knowledge by originally applying the qualitative research method of meta-summary to the quasi-legal decisions by the GAO in the context of AEC management practices. In addition, this work propagates a freely accessible source of AEC management-related case study material in the GAO's electronic filing system; this could bring more transparency to the international audience to understand the grievance redressal system in the bidding of one of the biggest spenders on the globe.

Contracting agencies spend additional resources on preventing bid protests, defending bid protests, and taking corrective actions, resulting in delayed receipt of needed goods and services. (Hawkins, Yoder, & Gravier, 2016). Further, according to previous research, although the costs of bid protests borne by small businesses were substantial and enduring, many protest outcomes failed to provide meaningful relief (Snyder, 2021). Therefore, this work limitedly helps small businesses foretest the validity of their cases

before filing bid protests with the GAO, thus potentially reducing the number of easily deniable bid protests filed by small businesses. Such a reduction would relieve contracting agencies from spending additional resources in dealing with easily deniable bid protests, possibly resulting in more frequent ontime receipt of needed goods and services by the public.

This study has several limitations. First, it can be questioned whether the number of cases analyzed, 17, can be seen as representative. However, the 17 cases include every bid protest filed against the U.S. Army Corps of Engineers, denied, closed, and readily accessible as of 10 February 2021, except those covered by a protective order. Second, due to the nature of the research method adopted, the results may not be reproducible. However, in qualitative research, the quality should be judged based on the transparency of the research process (Karcher & Weber, 2019). In this regard, publicly-available data were used, and the well-established research method was followed.

Finally, it can be questioned that bid protest efforts around the GAO are not worth investigating, as such decisions by the GAO are neither final nor legally binding. Indeed, decisions of the GAO of the legislative branch are only recommendations, and agencies of the executive branch are not required to adhere to them; by this, the violation of the separation of powers can be avoided (E. Y. Kim, 2020). However, it is noteworthy that the GAO informs the U.S. Congress when a federal agency does not comply with its recommendation, and the GAO further advises the U.S. Congress on a congressional investigation or other legislative responses. In practice, according to a Congressional Research Service report, executive agencies almost always implement recommendations by the GAO. In addition, the U.S. Court of Federal Claims gives due weight and deference to recommendations from the GAO (D. H. Carpenter & Schwartz, 2018).

Further, given the GAO's consistent and overwhelming popularity as a bid protest forum over the U.S. Court of Federal Claims, there is a growing voice that the latter's bid protest jurisdiction needs to be reformed to reduce costly and duplicative litigation (E. Y. Kim,

2020). It was shown that the successful protesters, after the corrective action decisions, won fewer and less valuable contracts from the protested government agencies, suffered more contract cancellations, and quit submitting bid protests after a while (Canayaz et al., 2019). The GAO has produced a substantial and reliable body of work applicable to bid protest practice (Armstrong, 2018). In this light, GAO bid protests are worthy of academic attention.

At the time of writing, it is relatively recent that GAO has established an electronic filing and document dissemination system for bid protests. Publicly accessible protest decisions provide significant transparency into the workings of the federal procurement system. Such publicly accessible protest decisions provide guidance to various stakeholders, including contracting agencies, legal representatives, and potential protesters (Gordon, 2013). Therefore, AEC management researchers are encouraged to investigate these easily accessible qualitative data. Every day new decisions are made at the GAO; researchers may be interested in analyzing decisions involving other government agencies. In addition, non-U.S.-based AEC management researchers may be interested in conducting similarly-themed qualitative research as comparative studies.

4 Conclusion

Parties to a contract can consume significant resources in dealing with claims and disputes. Therefore, it is advantageous for project stakeholders to identify potential issues earlier. The AEC industries could learn from their failures, such as failed bids and denied protests. The findings could be applied beyond the AEC industries as projects occur in all industries and industry sectors. It is recommendable for owners to reduce claim- and dispute-related spending, for contractors to check their offers before entering agreements, for the related industries to learn from their failures, and for governments to improve procurement processes.

By asking the following research questions, this work explored evidence-based approaches to reduce project-related claims before commencing construction projects:

- Are there any meaningful differences in project cost changes between the projects that received dispersed estimates and those that received more clustered estimates at the bidding stage?
- What are the most frequently referred quasi-legal reasons for bid dispute-related decisions?

The first research question was answered by analyzing a quantitative dataset that prioritized the lowest-priced bid from a state Department of Transportation. In contrast, the second research question was answered by studying a qualitative dataset that typically prioritized the best value from a Federal Government office.

By answering the first research question, the effort was made to validate the limited usefulness of collective intelligence provided by bidders at the time of bidding in identifying projects likely to experience more significant project cost change upon completion.

The C.V., a primarily descriptive statistic, was adopted, and 910 bids on 222 case projects delivered to the Ohio Department of Transportation between 2008 and 2018 were

analyzed. Change in project cost, i.e., Project Cost Change, was deemed unfavorable regardless of its direction. Collected data were analyzed using Welch's t-test, correlation, and regression analyses.

Welch's t-test, a test that sees whether two sample means are significantly different, showed a statistically significant difference between the means of project cost changes between the above-average C.V. projects and the below-average C.V. projects. Further, for the projects with seven or more bidders, as the difference between average C.V. values became larger between comparing groups, the p-value decreased from not being statistically significant to being statistically significant. Also, it was observed that the projects that received a large number of bids experienced less substantial Project Cost Change; on the other hand, the projects that experienced more significant Project Cost Change generally received fewer bids.

Regression and correlation analysis, a method that measures the strength of the linear relationship between two variables showed a weak correlation between the C.V. and Project Cost Change (correlation coefficient = 0.17) and a weak correlation between the project duration change and Project Cost Change (0.14). On the other hand, there was virtually no relationship between the Project Cost Change and the other independent variables. Considering a construction project usually takes months or years, it is noteworthy that the correlation between the C.V. and Project Cost Change was weak but meaningful. It is important to highlight that the C.V. of bids can be obtained before awarding a contract, unlike the project duration change.

Unfortunately, it seems that adopted methods might not be advanced enough to capture the insight provided by the dataset. Therefore, there is a plan to employ statistically more sophisticated econometrics tools to "dig deeper" into the dataset.

A dummy variable allows the use of categorical variables for regression analysis. When the number of bidders variable was converted to a dummy variable, although small, a slight

increase in the R-square value was observed, especially with more than seven or eight bids. Therefore, it was argued that the C.V. of a large number of bids brings in more significant insight than the C.V. of fewer bids.

Finally, the KNN-based prediction model returned a better-than-chance accuracy in predicting whether a given project would experience above-average Project Cost Change or not. Interestingly, the average accuracy of the model improved as the number of n-neighbors increased from five to 19.

It is advantageous to have time on project stakeholders' hands to review a project's viability in advance. It is also possible to reject all bids and redefine the project's scope for a new round of bidding. The outcome of this study encourages owner organizations to identify troublesome projects earlier and prepare realistic contingency budgets by considering not only winning bids but also unsuccessful bids.

By answering the second research question, an effort was made to quantify the representative quasi-legal reasons for bid dispute-related decisions by the GAO, the most used forum for adjudicating bid-related disputes. It was aimed that the findings could limitedly help small businesses fore-test the validity of their cases before filing bid protests with the GAO.

The meta-summary approach was adopted to quantify the representativeness of the findings. Seventeen denied bid protests against the U.S. Army Corps of Engineers were analyzed by extracting relevant statements of findings from each report, reducing the statements into abstracted findings, and calculating effect sizes. The initial analysis was carried out manually. Then, the second round of analysis was carried out in the NVivo environment.

A total of 288 findings were identified. Repeatedly appearing essential words/phrases, i.e., the child codes in the NVivo environment, were identified. After two rounds of analysis, the following twelve parent codes, i.e., thematic findings, emerged.

- A protester must highlight substantive flaws in the agency's judgments, treatments, or actions, not mere disagreements (Frequency effect size = 58.8%).
- A protester must support its allegations with unambiguous requirements in solicitations in their entirety, expressed in plain language (58.8%).
- A protester must build credible post-protest arguments that can be supported by contemporaneous records (53.0%).
- A protester must understand that the GAO reviews not the relative merits of proposals but reasonable and consistent applications of terms, laws, and regulations (41.1%).
- A protester must submit a proposal that is well-written and consistent with enough information in compliance with solicitation requirements (58.8%).
- A protester must know that the GAO does not question the source selection authority's broad discretion in exercising their judgment over matters enclosed by high-level requirements (53.0%).
- A protester must counter-argue the agency's contentions one by one (41.1%).
- A protester must submit its allegations within the specified time window (41.1%).
- A protester must maintain the ground of being the interested party throughout the decision-making process (64.7%).
- A protester must demonstrate that it could have won the contract but failed explicitly due to the agency's defective evaluation (53.0%).
- A protester must recognize that the meanings of solicitation language may not be taken at face value (29.4%).
- A protester must not rely on different or previous contracts in developing arguments (17.6%).

Three of the most recent denied protests against the U.S. Army Corps of Engineers were reviewed in light of the twelve thematic findings to validate what has been reported in this work. The reviewed cases were denied by the GAO based on some of the very same

thematic findings. Therefore, it was maintained that with this meta-summary before them, prospective protesters could have acted differently by evaluating the strength of their arguments in advance.

This work contributes to the body of knowledge by originally applying the qualitative research method of meta-summary to the quasi-legal decisions by the GAO in the context of AEC management practices. In addition, this work propagates a freely accessible source of AEC management-related case study material in the GAO's electronic filing system; this could bring more transparency to the international audience to understand the grievance redressal system in the bidding of one of the biggest spenders on the globe.

Therefore, this work limitedly helps small businesses fore-test the validity of their cases before filing bid protests with the GAO, thus potentially reducing the number of easily deniable bid protests filed by small businesses. Such a reduction would relieve contracting agencies from spending additional resources in dealing with easily deniable bid protests, possibly resulting in the public's more frequent on-time receipt of needed goods and services.

Appendix A: 898 bids on 210 projects

The following spreadsheet lists 898 bids on 210 projects used in Chapter 2.

PROJECT#	Letting Date	Planned Completion Date	Actual DATE COMPLETE	Engineer's Estimate Bidder 1 (Award Bid)					Bidder 3	Bidder 4	Bidder 5	Bidder 6	Bidder 7	Bidder 8	Bidder 9	Bidder 10	Bidder 11	Bidder 12	Bidder 13	Average Bid Value	Coefficient of Variation	Final Construction Project Cost Charge	
130522	10/30/2013	9/3/2015	12/17/2016	\$ 16,800,000.00	\$ 16,267,610.14	\$ 18,236,000.00	\$ 18,833,778.14	\$ 18,439,470.71	\$ 18,833,778.14	\$ 19,469,470.71										\$ 14,821,535.67	7.6%	\$ 16,434,526.16	1.0%
130562	10/30/2013	9/15/2014		\$ 8,360,000.00	\$ 6,886,905.70	\$ 7,260,528.64	\$ 6,886,905.70	\$ 7,260,528.64	\$ 6,886,905.70	\$ 7,260,528.64										\$ 6,997,653.31	20.7%	\$ 6,752,716.72	2.0%
130568	10/30/2013	12/12/2015	9/9/2016	\$ 59,445,000.00	\$ 60,683,256.99	\$ 63,072,000.00	\$ 65,725,344.65	\$ 12,566,833.00	\$ 65,725,344.65	\$ 12,566,833.00	\$ 13,242,894.36									\$ 50,133,664.27	4.8%	\$ 50,130,020.00	2.0%
130569	10/30/2013	8/26/2015		\$ 5,865,000.00	\$ 5,905,652.96	\$ 6,069,864.21	\$ 6,069,864.21	\$ 6,069,864.21	\$ 6,069,864.21	\$ 6,069,864.21										\$ 6,291,377.24	1.9%	\$ 6,291,377.24	6.5%
130596	10/30/2013	11/21/2014	8/29/2014	\$ 8,147,000.00	\$ 7,780,595.90	\$ 8,041,172.29	\$ 8,147,141.92	\$ 8,147,141.92	\$ 8,147,141.92	\$ 8,147,141.92	\$ 11,538,286.00	\$ 11,454,921.33	\$ 11,960,774.60							\$ 15,050,529.59	5.5%	\$ 14,969,944.19	0.9%
133001	6/6/2013	9/30/2014	6/4/2018	\$ 54,678,000.00	\$ 51,800,000.00	\$ 52,654,000.00	\$ 53,678,000.00	\$ 55,678,000.00	\$ 53,678,000.00	\$ 55,678,000.00	\$ 26,259,000.00	\$ 26,962,722.44								\$ 42,610,981.00	2.0%	\$ 42,610,981.00	1.8%
133006	6/6/2013	9/30/2014	12/6/2017	\$ 22,332,000.00	\$ 24,517,000.00	\$ 24,711,000.00	\$ 24,711,000.00	\$ 24,711,000.00	\$ 24,711,000.00	\$ 24,711,000.00										\$ 24,960,128.00	4.1%	\$ 24,960,128.00	1.9%
133015	10/30/2013	9/30/2015	5/19/2017	\$ 32,590,000.00	\$ 27,893,652.44	\$ 31,879,101.00	\$ 31,879,101.00	\$ 31,879,101.00	\$ 31,879,101.00	\$ 31,879,101.00										\$ 32,120,282.11	9.2%	\$ 30,529,943.89	9.0%
133017	10/30/2013	11/5/2015		\$ 8,330,000.00	\$ 8,860,150.00	\$ 9,440,000.00	\$ 9,440,000.00	\$ 9,440,000.00	\$ 9,440,000.00	\$ 9,440,000.00										\$ 9,053,897.11	4.5%	\$ 9,053,897.11	2.2%
133022	12/17/2013	9/30/2014	4/23/2014	\$ 5,187,000.00	\$ 5,037,672.37	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00										\$ 5,058,532.54	15.4%	\$ 5,058,532.54	1.6%
133024	12/19/2013	3/18/2016		\$ 3,736,000.00	\$ 7,402,950.00	\$ 7,850,000.00	\$ 7,850,000.00	\$ 7,850,000.00	\$ 7,850,000.00	\$ 7,850,000.00	\$ 8,664,677.82	\$ 9,163,901.00	\$ 9,216,290.00	\$ 10,134,935.00						\$ 7,799,162.68	10.3%	\$ 7,799,162.68	5.4%
133025	12/19/2013	3/18/2016		\$ 5,187,000.00	\$ 5,037,672.37	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00	\$ 9,061,734.00	\$ 9,061,734.00	\$ 9,061,734.00	\$ 9,179,170.46	\$ 9,199,686.62	\$ 10,024,915.90				\$ 9,059,883.07	11.9%	\$ 9,059,883.07	0.6%
133026	12/19/2013	3/18/2016	4/23/2014	\$ 5,187,000.00	\$ 5,037,672.37	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00										\$ 5,058,532.54	15.4%	\$ 5,058,532.54	1.6%
133017	10/30/2013	9/30/2015	5/19/2017	\$ 8,330,000.00	\$ 8,860,150.00	\$ 9,440,000.00	\$ 9,440,000.00	\$ 9,440,000.00	\$ 9,440,000.00	\$ 9,440,000.00										\$ 9,053,897.11	4.5%	\$ 9,053,897.11	2.2%
133024	12/19/2013	3/18/2016		\$ 5,187,000.00	\$ 5,037,672.37	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00										\$ 5,058,532.54	15.4%	\$ 5,058,532.54	1.6%
133025	12/19/2013	3/18/2016		\$ 5,187,000.00	\$ 5,037,672.37	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00										\$ 5,058,532.54	15.4%	\$ 5,058,532.54	1.6%
133026	12/19/2013	3/18/2016	4/23/2014	\$ 5,187,000.00	\$ 5,037,672.37	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00										\$ 5,058,532.54	15.4%	\$ 5,058,532.54	1.6%
133017	10/30/2013	9/30/2015	5/19/2017	\$ 8,330,000.00	\$ 8,860,150.00	\$ 9,440,000.00	\$ 9,440,000.00	\$ 9,440,000.00	\$ 9,440,000.00	\$ 9,440,000.00										\$ 9,053,897.11	4.5%	\$ 9,053,897.11	2.2%
133024	12/19/2013	3/18/2016		\$ 5,187,000.00	\$ 5,037,672.37	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00										\$ 5,058,532.54	15.4%	\$ 5,058,532.54	1.6%
133025	12/19/2013	3/18/2016		\$ 5,187,000.00	\$ 5,037,672.37	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00										\$ 5,058,532.54	15.4%	\$ 5,058,532.54	1.6%
133026	12/19/2013	3/18/2016	4/23/2014	\$ 5,187,000.00	\$ 5,037,672.37	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00	\$ 5,139,250.00										\$ 5,058,532.54	15.4%	\$ 5,058,532.54	1.6%
140032	1/6/2014	8/31/2014	8/25/2016	\$ 6,360,000.00	\$ 6,094,642.60	\$ 6,759,542.00	\$ 7,068,778.65	\$ 7,068,778.65	\$ 7,068,778.65	\$ 7,068,778.65	\$ 17,650,731.70	\$ 18,267,090.00	\$ 25,369,754.65							\$ 6,863,021.92	4.4%	\$ 6,863,021.92	6.1%
140036	2/6/2014	8/31/2014	8/25/2016	\$ 7,165,000.00	\$ 7,566,360.84	\$ 7,567,513.34	\$ 7,866,866.58	\$ 7,866,866.58	\$ 7,866,866.58	\$ 7,866,866.58	\$ 8,168,940.90	\$ 8,216,155.37	\$ 8,263,113.17	\$ 8,864,241.15						\$ 7,614,713.79	4.8%	\$ 7,614,713.79	0.8%
140066	2/6/2014	8/31/2014	8/25/2016	\$ 5,366,000.00	\$ 5,146,112.95	\$ 5,366,000.00	\$ 5,146,112.95	\$ 5,366,000.00	\$ 5,146,112.95	\$ 5,366,000.00	\$ 17,139,664.30	\$ 18,693,395.97								\$ 5,172,592.62	17.5%	\$ 5,172,592.62	0.5%
140068	2/6/2014	8/31/2014	8/25/2016	\$ 5,366,000.00	\$ 5,146,112.95	\$ 5,366,000.00	\$ 5,146,112.95	\$ 5,366,000.00	\$ 5,146,112.95	\$ 5,366,000.00	\$ 17,139,664.30	\$ 18,693,395.97								\$ 5,172,592.62	17.5%	\$ 5,172,592.62	0.5%
140069	2/6/2014	8/31/2014	8/25/2016	\$ 5,366,000.00	\$ 5,146,112.95	\$ 5,366,000.00	\$ 5,146,112.95	\$ 5,366,000.00	\$ 5,146,112.95	\$ 5,366,000.00	\$ 17,139,664.30	\$ 18,693,395.97								\$ 5,172,592.62	17.5%	\$ 5,172,592.62	0.5%
140070	2/6/2014	8/31/2014	8/25/2016	\$ 5,366,000.00	\$ 5,146,112.95	\$ 5,366,000.00	\$ 5,146,112.95	\$ 5,366,000.00	\$ 5,146,112.95	\$ 5,366,000.00	\$ 17,139,664.30	\$ 18,693,395.97								\$ 5,172,592.62	17.5%	\$ 5,172,592.62	0.5%
140170	4/24/2014	11/1/2015	10/11/2016	\$ 15,150,000.00	\$ 14,116,461.81	\$ 15,150,000.00	\$ 14,116,461.81	\$ 15,150,000.00	\$ 14,116,461.81	\$ 15,150,000.00	\$ 17,139,664.30	\$ 18,693,395.97								\$ 13,643,307.32	9.5%	\$ 13,643,307.32	3.3%
140199	4/24/2014	6/9/2016	3/8/2018	\$ 58,260,000.00	\$ 57,894,716.35	\$ 59,310,981.50	\$ 60,760,909.22	\$ 60,760,909.22	\$ 60,760,909.22	\$ 60,760,909.22	\$ 19,897,697.60									\$ 57,090,017.79	2.6%	\$ 57,090,017.79	1.0%
140206	6/7/2014	9/1/2016	3/8/2018	\$ 19,265,000.00	\$ 23,300,449.32	\$ 24,456,841.71	\$ 24,864,000.00	\$ 25,463,873.47	\$ 28,374,335.46											\$ 23,594,211.60	7.4%	\$ 23,594,211.60	0.9%
140236	6/7/2014	9/1/2016	3/8/2018	\$ 64,500,000.00	\$ 66,791,684.44	\$ 68,446,234.56	\$ 67,511,739.88													\$ 68,501,570.52	0.6%	\$ 68,501,570.52	2.6%
140237	5/15/2014	6/9/2017	8/17/2018	\$ 6,500,000.00	\$ 6,063,900.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00										\$ 5,347,109.09	4.8%	\$ 5,347,109.09	3.3%
140238	5/15/2014	6/9/2017	8/17/2018	\$ 6,500,000.00	\$ 6,063,900.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00										\$ 5,347,109.09	4.8%	\$ 5,347,109.09	3.3%
140239	5/15/2014	6/9/2017	8/17/2018	\$ 6,500,000.00	\$ 6,063,900.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00										\$ 5,347,109.09	4.8%	\$ 5,347,109.09	3.3%
140240	5/15/2014	6/9/2017	8/17/2018	\$ 6,500,000.00	\$ 6,063,900.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00										\$ 5,347,109.09	4.8%	\$ 5,347,109.09	3.3%
140241	5/15/2014	6/9/2017	8/17/2018	\$ 6,500,000.00	\$ 6,063,900.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00										\$ 5,347,109.09	4.8%	\$ 5,347,109.09	3.3%
140242	5/15/2014	6/9/2017	8/17/2018	\$ 6,500,000.00	\$ 6,063,900.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00										\$ 5,347,109.09	4.8%	\$ 5,347,109.09	3.3%
140243	5/15/2014	6/9/2017	8/17/2018	\$ 6,500,000.00	\$ 6,063,900.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00										\$ 5,347,109.09	4.8%	\$ 5,347,109.09	3.3%
140244	5/15/2014	6/9/2017	8/17/2018	\$ 6,500,000.00	\$ 6,063,900.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00										\$ 5,347,109.09	4.8%	\$ 5,347,109.09	3.3%
140245	5/15/2014	6/9/2017	8/17/2018	\$ 6,500,000.00	\$ 6,063,900.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00										\$ 5,347,109.09	4.8%	\$ 5,347,109.09	3.3%
140246	5/15/2014	6/9/2017	8/17/2018	\$ 6,500,000.00	\$ 6,063,900.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00										\$ 5,347,109.09	4.8%	\$ 5,347,109.09	3.3%
140247	5/15/2014	6/9/2017	8/17/2018	\$ 6,500,000.00	\$ 6,063,900.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00										\$ 5,347,109.09	4.8%	\$ 5,347,109.09	3.3%
140248	5/15/2014	6/9/2017	8/17/2018	\$ 6,500,000.00	\$ 6,063,900.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00	\$ 6,114,620.00										\$ 5,347			

Appendix B: Outcomes of correlation and regression analyses

C.V. and Project Cost Change (Actual)

Figure 56 is the scattergram between the C.V. and Project Cost Change (Actual). Table 12 is the output summary of the regression analysis. The R-square value suggests that the regression model explains the variation in the dependent variable well (Sykes, 1993). For example, an R-square value of 0.6 reveals that 60% of the variability observed in the target variable is explained by the regression model (CFI Team, 2022).

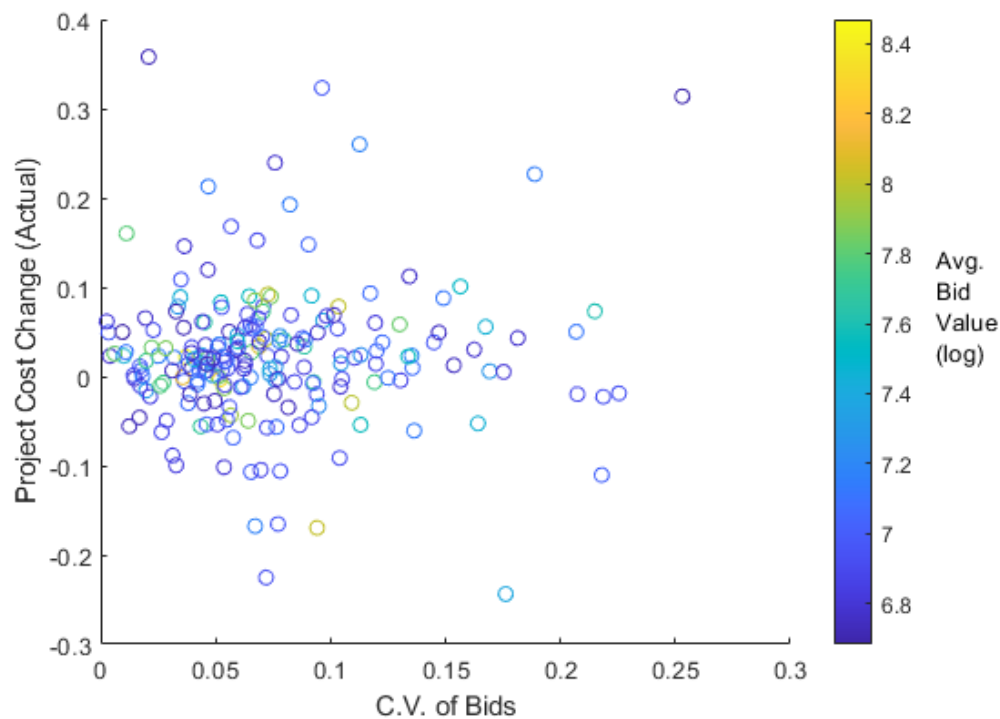


Figure 56 C.V. and Project Cost Change (Actual) scatter diagram

Table 12 Regression analysis output summary - C.V. and Project Cost Change (Actual)

Regression Statistics

Table 12 Regression analysis output summary - C.V. and Project Cost Change (Actual)

R Square	0.003
Adjusted R Square	-0.002
Standard Error	0.077
Observations	210

The correlation between the C.V. and Project Cost Change was less than weak and virtually unrelated. Please see Table 13.

Table 13 Correlation between C.V. and Project Cost Change (Actual)

	Planned Project Duration	Project Cost Change (Actual)
Planned Project Duration	1	
Project Cost Change (Actual)	0.054	1

C.V. and Project Cost Change (Absolute)

Figure 57 is the scattergram between the C.V. and Project Cost Change (Absolute). Table 14 is the output summary of the regression analysis.

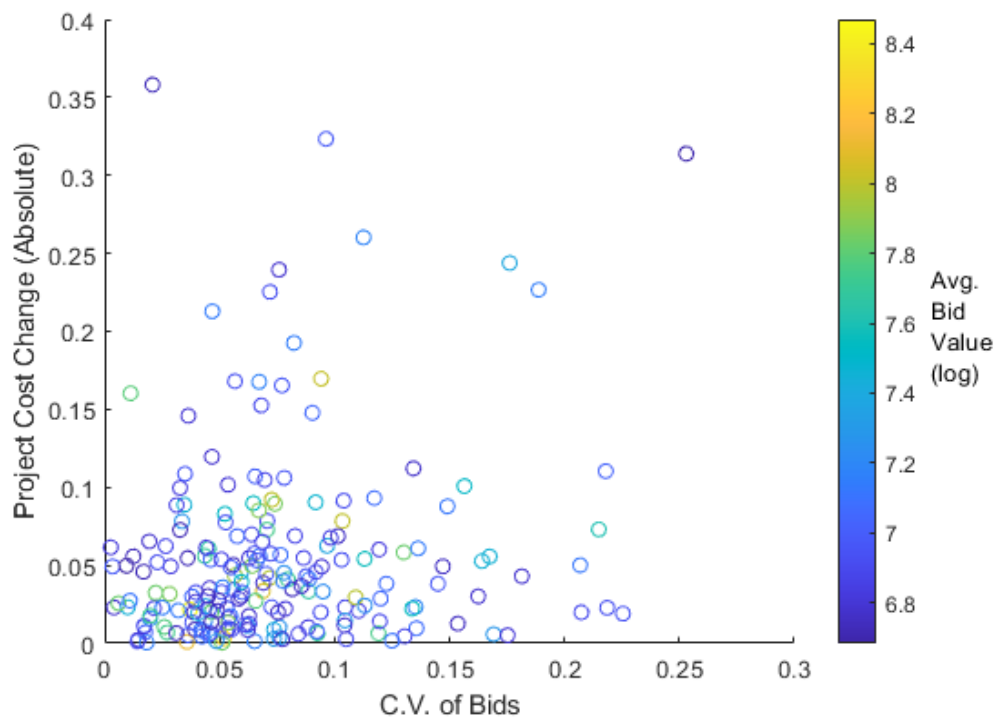


Figure 57 C.V. and Project Cost Change (Absolute) scatter diagram

Table 14 Regression analysis output summary - C.V. and Project Cost Change (Absolute)

Regression Statistics	
R Square	0.030
Adjusted R Square	0.026
Standard Error	0.059
Observations	210

The correlation between the C.V. and Project Cost Change was found to be weak. Please see Table 15.

Table 15 Correlation between C.V. and Project Cost Change (Absolute)

	Coefficient of Variation	Project Cost Change
Coefficient of Variation	1	
Project Cost Change (Absolute)	0.174	1

Planned Project Duration and Project Cost Change (Actual)

Figure 58 is the scattergram between the planned project duration and Project Cost Change (Actual). Table 16 is the output summary of the regression analysis.

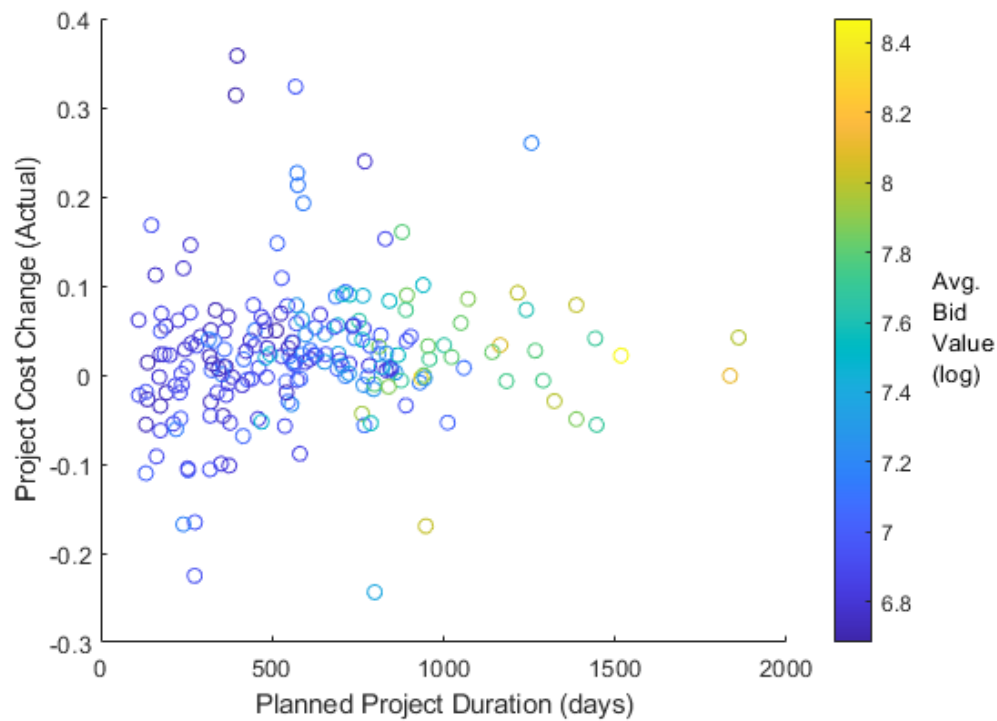


Figure 58 Planned project duration and Project Cost Change (Actual) scatter diagram

Table 16 Regression analysis output summary - Planned project duration and Project Cost Change (Actual)

Regression Statistics	
R Square	0.012
Adjusted R Square	0.007
Standard Error	0.077
Observations	210

The correlation between the planned project duration and Project Cost Change (Actual) was weak. Please see Table 17.

Table 17 Correlation between planned project duration and Project Cost Change (Actual)

	<i>Planned Project Duration</i>	<i>Project Cost Change</i>
Planned Project Duration	1	
Project Cost Change	0.110	1

Planned Project Duration and Project Cost Change (Absolute)

Figure 59 is the scattergram between the planned project duration and Project Cost Change. Table 18 is the output summary of the regression analysis.

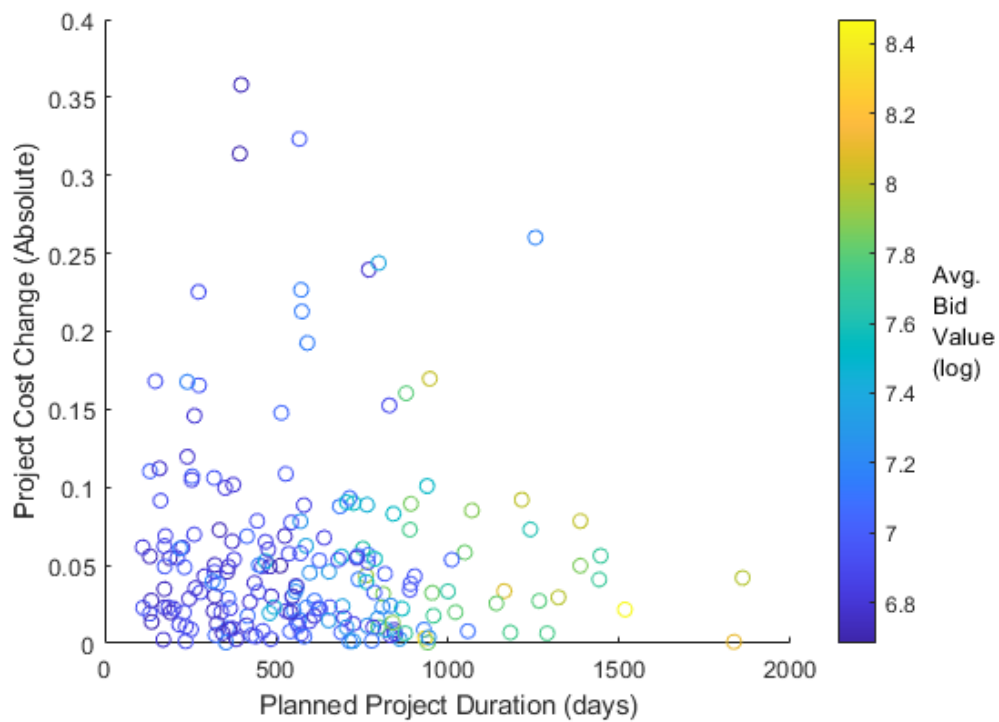


Figure 59 Planned project duration and Project Cost Change (Absolute) scatter diagram

Table 18 Regression analysis output summary - Planned project duration and Project Cost Change (Absolute)

Regression Statistics	
R Square	0.004
Adjusted R Square	-0.001
Standard Error	0.060
Observations	210

The correlation between the planned project duration and Project Cost Change was less than weak and virtually unrelated. Please see Table 19.

Table 19 Correlation between planned project duration and Project Cost Change

	Planned Project Duration	Project Cost Change
Planned Project Duration	1	
Project Cost Change	-0.062	1

Actual Project Duration and Project Cost Change (Actual)

Figure 60 is the scattergram between the actual project duration and Project Cost Change (Actual). Table 20 is the output summary of the regression analysis.

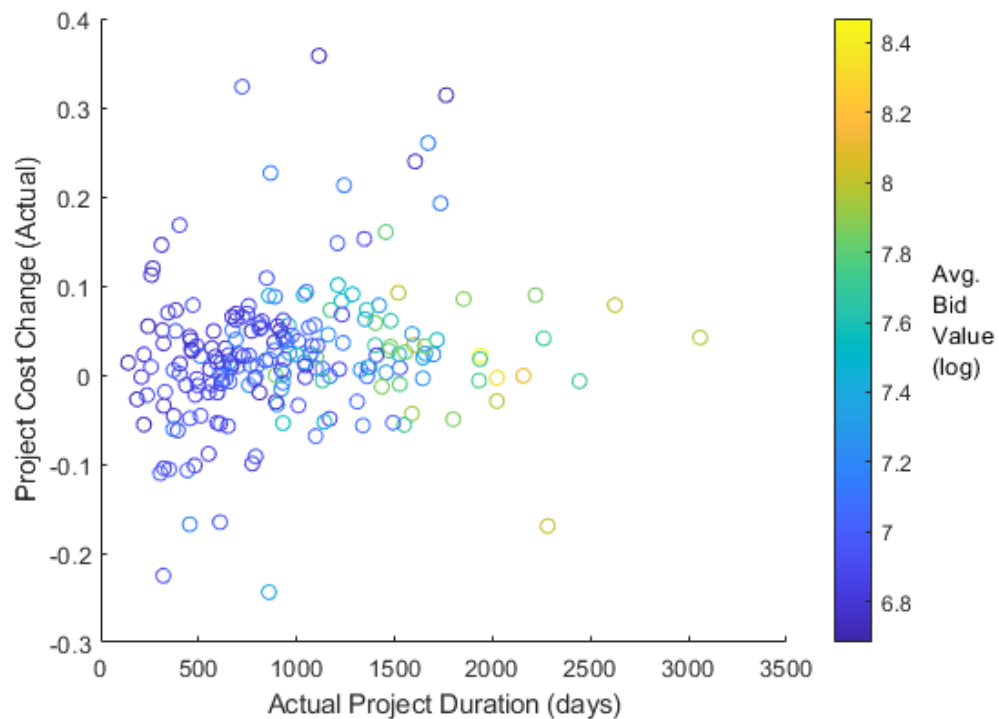


Figure 60 Actual project duration and Project Cost Change (Actual) scatter diagram

Table 20 Regression analysis output summary - Actual project duration and Project Cost Change (Actual)

Regression Statistics	
R Square	0.035
Adjusted R Square	0.030
Standard Error	0.076
Observations	210

The correlation between the actual project duration and Project Cost Change (Actual) was weak. Please see Table 21. However, the actual project duration is unknown at the time of the bid opening.

Table 21 Correlation between actual project duration and Project Cost Change (Actual)

	Actual Project Duration	Project Cost Change (Actual)
Actual Project Duration	1	
Project Cost Change (Actual)	0.186	1

Actual Project Duration and Project Cost Change (Absolute)

Figure 61 is the scattergram between the actual project duration and Project Cost Change (Absolute). Table 22 is the output summary of the regression analysis.

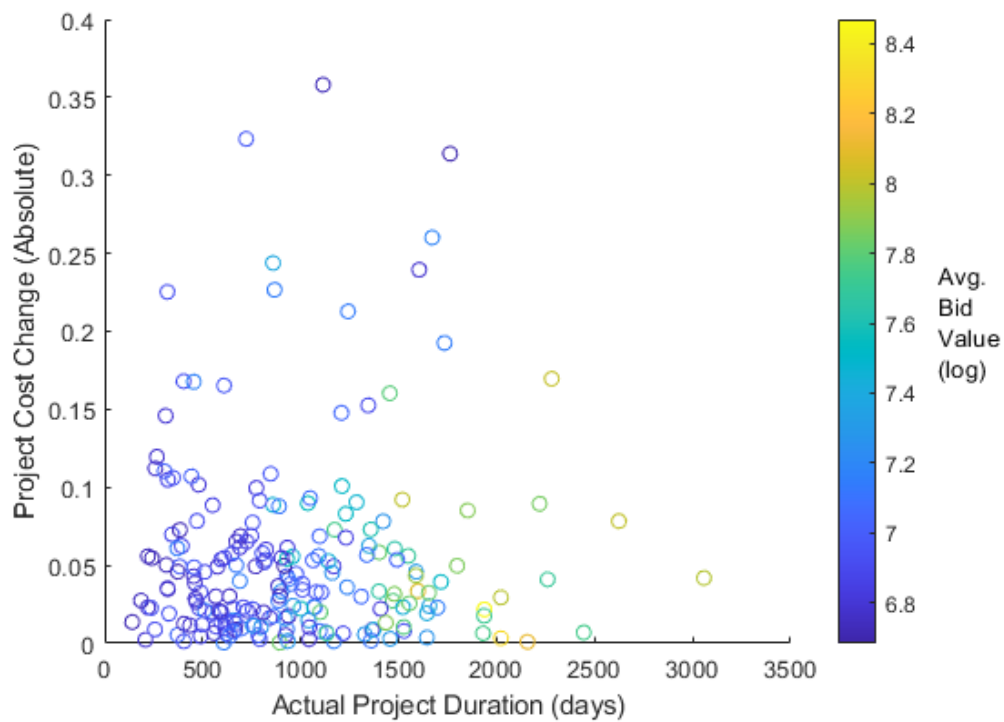


Figure 61 Actual project duration and Project Cost Change (Absolute) scatter diagram

Table 22 Regression analysis output summary - Actual project duration and Project Cost Change (Absolute)

Regression Statistics	
R Square	0.003
Adjusted R Square	-0.002
Standard Error	0.060
Observations	0.054

The correlation between the actual project duration and Project Cost Change (Absolute) was less than weak and virtually unrelated. Please see Table 23.

Table 23 Correlation between actual project duration and Project Cost Change (Absolute)

	Project Cost Change	
	(Absolute)	Actual Project Duration
Project Cost Change		
(Absolute)	1	
Actual Project Duration	0.054	1

Project Duration Change and Project Cost Change (Actual)

Figure 62 is the scattergram between the project duration change and Project Cost Change (Actual). Table 24 is the output summary of the regression analysis.

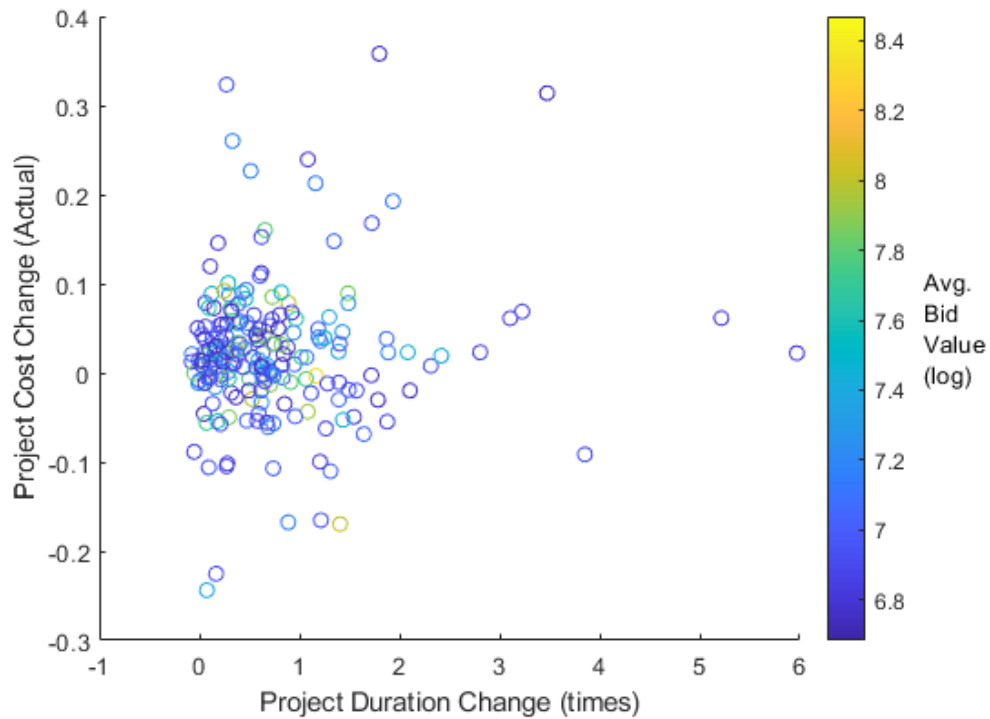


Figure 62 Project duration change and Project Cost Change (Actual) scatter diagram

Table 24 Regression analysis output summary- Project duration change and Project Cost Change (Actual)

Regression Statistics	
R Square	0.007
Adjusted R Square	0.002
Standard Error	0.077
Observations	210

The correlation between the project duration change and Project Cost Change (Actual) was less than weak and virtually unrelated. Please see Table 25.

Table 25 Correlation between project duration change and Project Cost Change (Actual)

	<i>Project Duration Change</i> (%)	<i>Project Cost Change</i> (Actual)
Project Duration Change (%)	1	
Project Cost Change (Actual)	0.085	1

Project Duration Change and Project Cost Change (Absolute)

Figure 63 is the scattergram between the project duration change and Project Cost Change (Absolute). Table 26 is the output summary of the regression analysis.

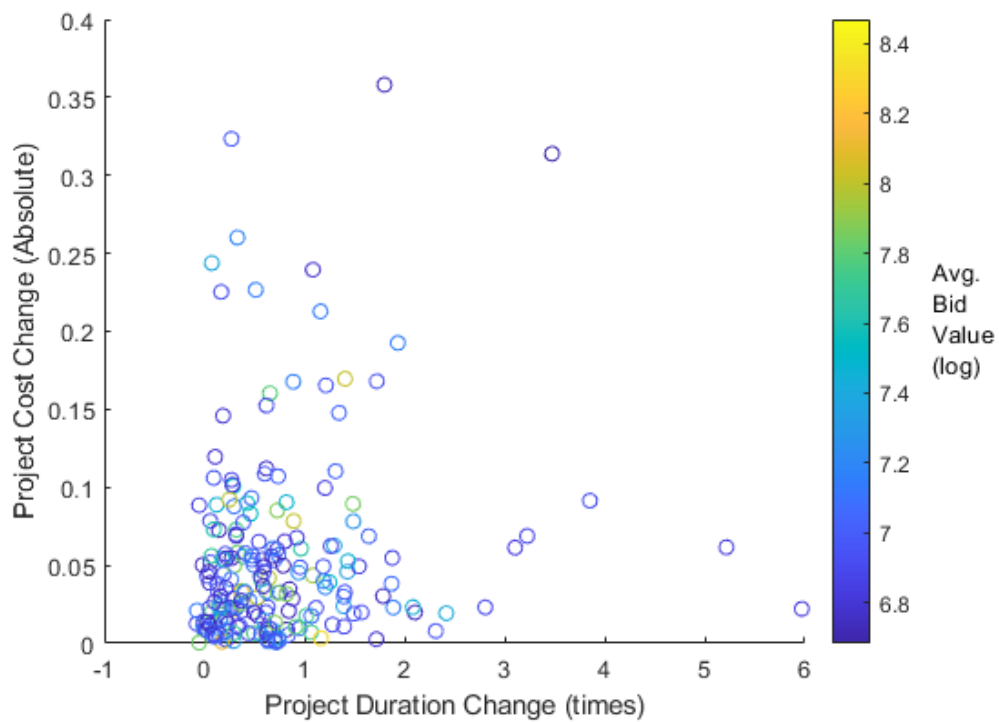


Figure 63 Project duration change and Project Cost Change (Absolute) scatter diagram

Table 26 Regression analysis output summary - Project duration change and Project Cost Change (Absolute).

Regression Statistics	
R Square	0.020
Adjusted R Square	0.016
Standard Error	0.059
Observations	210

The correlation between the project duration change and Project Cost Change (Absolute) was weak. Please see Table 27. However, the project duration change is unknown at the time of the bid opening.

Table 27 Correlation between project duration change and Project Cost Change (Absolute)

	Project Cost Change (Absolute)	Project Duration Change (%)
Project Cost Change (Absolute)	1	
Project Duration Change (%)	0.143	1

Number of Bidders and Project Cost Change (Actual)

Figure 64 is the scattergram between the number of bidders and Project Cost Change (Actual).

Table 28 is the output summary of the regression analysis.

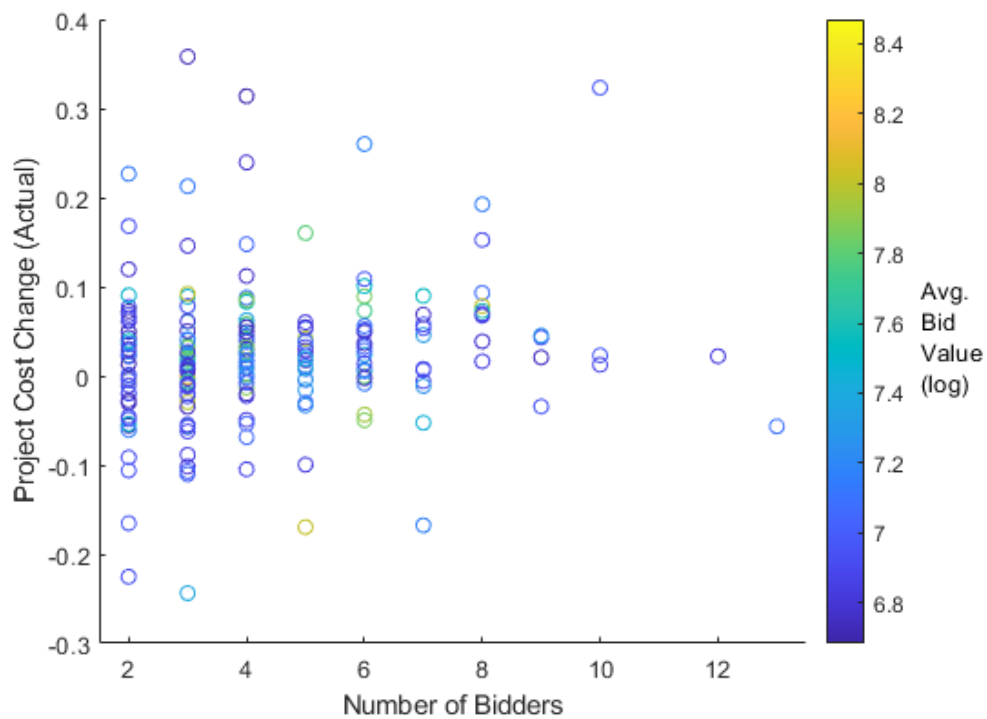


Figure 64 Number of bidders and Project Cost Change (Actual) scatter diagram

Table 28 Regression analysis output summary - Number of bidders and Project Cost Change (Actual)

Regression Statistics	
R Square	0.022
Adjusted R Square	0.018
Standard Error	0.077
Observations	210

The correlation between the number of bidders and Project Cost Change (Actual) was weak. Please see Table 29.

Table 29 Correlation between number of bidders and Project Cost Change (Actual)

	Project Cost Change	
	Number of Bidders	(Actual)
Number of Bidders	1	
Project Cost Change (Actual)	0.149	1

Number of Bidders and Project Cost Change (Absolute)

Figure 65 is the scattergram between the number of bidders and Project Cost Change (Absolute). Table 30 is the output summary of the regression analysis.

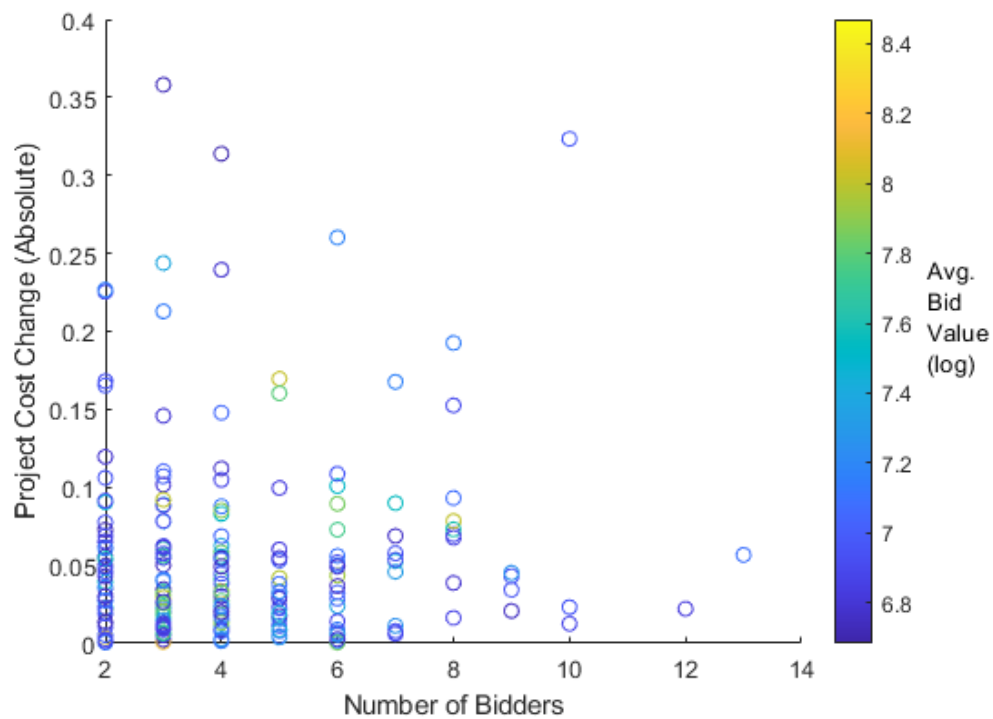


Figure 65 Number of bidders and Project Cost Change (Absolute) scatter diagram

Table 30 Regression analysis output summary - Number of bidders and Project Cost Change (Absolute)

Regression Statistics	
R Square	0.001
Adjusted R Square	-0.004
Standard Error	0.060
Observations	210

The correlation between the number of bidders and Project Cost Change was less than weak and virtually unrelated. Please see Table 31.

Table 31 Correlation between Number of Bidders and Project Cost Change (Absolute)

	Number of Bidders	Project Cost Change
Number of Bidders	1	
Project Cost Change (Absolute)	0.031	1

Average Bid Value and Project Cost Change (Actual)

Figure 66 is the scattergram between the average bid value and Project Cost Change (Actual).

Table 32 is the output summary of the regression analysis.

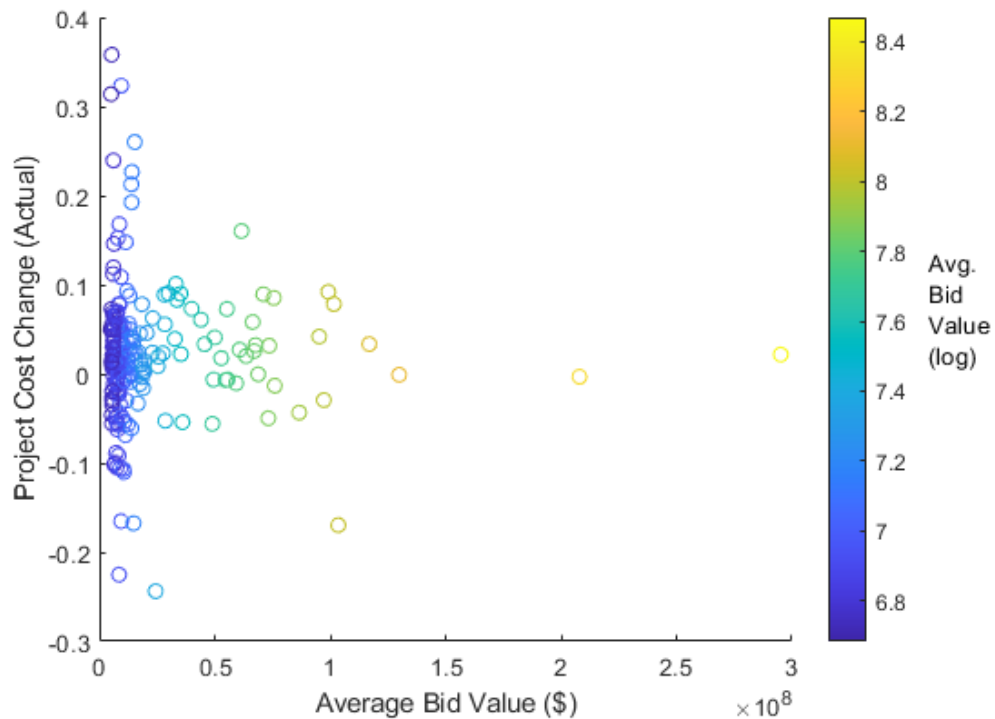


Figure 66 Average bid value and Project Cost Change (Actual) scatter diagram

Table 32 Regression analysis output summary - Average bid value and Project Cost Change (Actual)

Regression Statistics

Table 32 Regression analysis output summary - Average bid value and Project Cost

<i>Change (Actual)</i>	
R Square	0.001
Adjusted R Square	-0.004
Standard Error	0.077
Observations	210

The correlation between the average bid value and Project Cost Change (Actual) was less than weak and virtually unrelated. Please see Table 33.

Table 33 Correlation between Average bid value and Project Cost Change (Actual)

	<i>Project Cost Change</i>	
	<i>Average Bid Value</i>	<i>(Actual)</i>
Average Bid Value	1	
Project Cost Change (Actual)	-0.023	1

Average Bid Value and Project Cost Change (Absolute)

Figure 67 is the scattergram between the average bid value and Project Cost Change (Absolute). Table 34 is the output summary of the regression analysis.

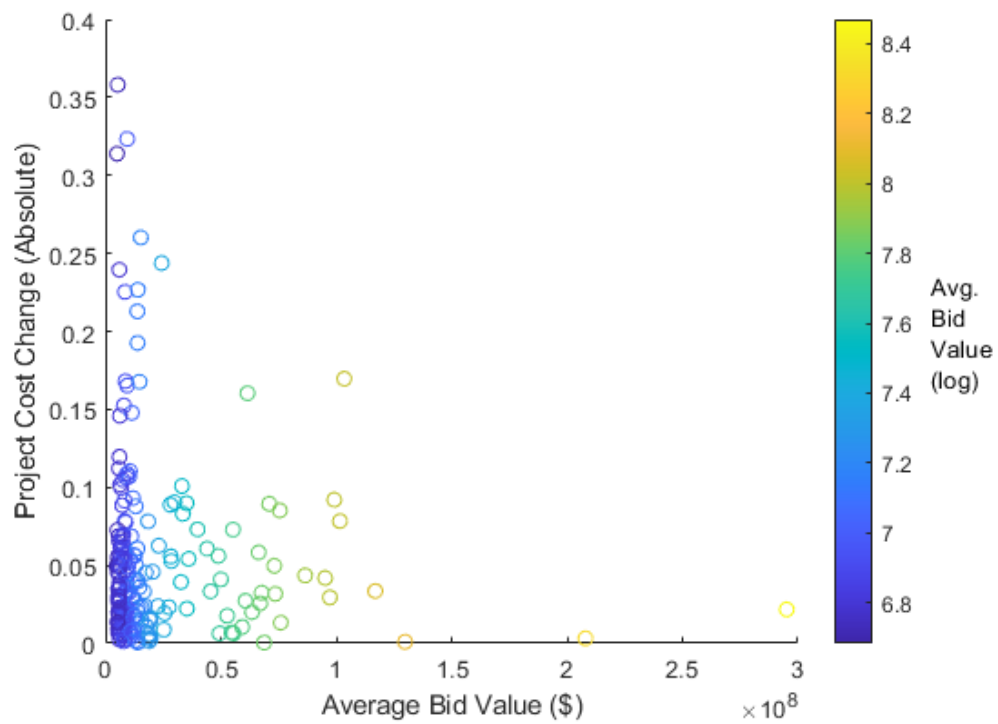


Figure 67 Average bid value and Project Cost Change (Absolute) scatter diagram

Table 34 Regression analysis output summary - Average bid value and Project Cost Change (Absolute)

Regression Statistics	
R Square	0.004
Adjusted R Square	-0.001
Standard Error	0.060
Observations	210

The correlation between the average bid value and Project Cost Change (Absolute) was less than weak and virtually unrelated. Please see Table 35.

Table 35 Correlation between Average Bid Value and Project Cost Change (Absolute)

	Average Bid Value	Project Cost Change (Absolute)
Average Bid Value	1	
Project Cost Change (Absolute)	-0.064	1

Winning Bid and Project Cost Change (Actual)

Figure 68 is the scattergram between the winning bid value and Project Cost Change (Actual).

Table 36 is the output summary of the regression analysis.

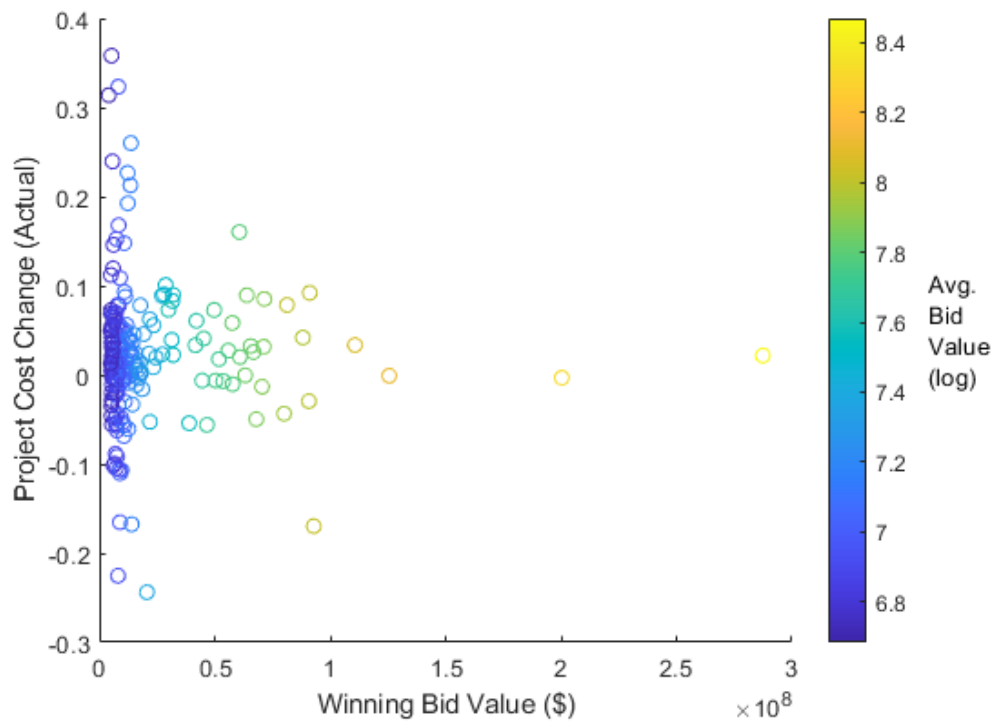


Figure 68 Winning bid value and Project Cost Change (Actual) scatter diagram

Table 36 Regression analysis output summary - Average bid value and Project Cost

Change (Actual)

Regression Statistics	
R Square	0.001
Adjusted R Square	-0.004
Standard Error	0.077
Observations	210

The correlation between the winning bid and Project Cost Change (Actual) was less than weak and virtually unrelated. Please see Table 37.

Table 37 Correlation between winning bid value and Project Cost Change (Actual)

	Bidder 1 (Award Bid)	Project Cost Change
Bidder 1 (Award Bid)	1	
Project Cost Change	-0.025	1

Winning Bid and Project Cost Change (Absolute)

Figure 69 is the scattergram between the winning bid value and Project Cost Change (Absolute). Table 38 is the output summary of the regression analysis.

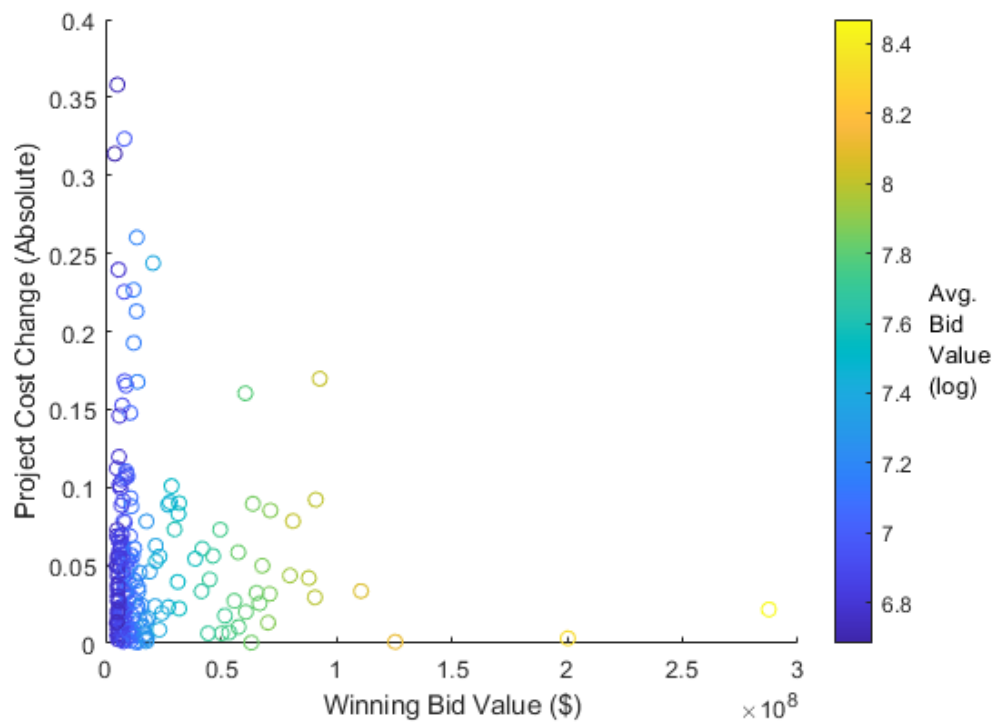


Figure 69 Winning bid value and Project Cost Change (Absolute) scatter diagram

Table 38 Regression analysis output summary - Average bid value and Project Cost Change (Absolute)

Regression Statistics	
R Square	0.005
Adjusted R Square	0.000
Standard Error	0.060
Observations	210

The correlation between the winning bid and Project Cost Change (Absolute) was less than weak and virtually unrelated. Please see Table 39.

Table 39 Correlation between winning bid value and Project Cost Change (Actual)

	Bidder 1 (Award Bid)	Project Cost Change
Bidder 1 (Award Bid)	1	
Project Cost Change	-0.070	1

Final Construction Cost and Project Cost Change (Actual)

Figure 70 is the scattergram between the final construction cost and Project Cost Change (Actual). Table 40 is the output summary of the regression analysis.

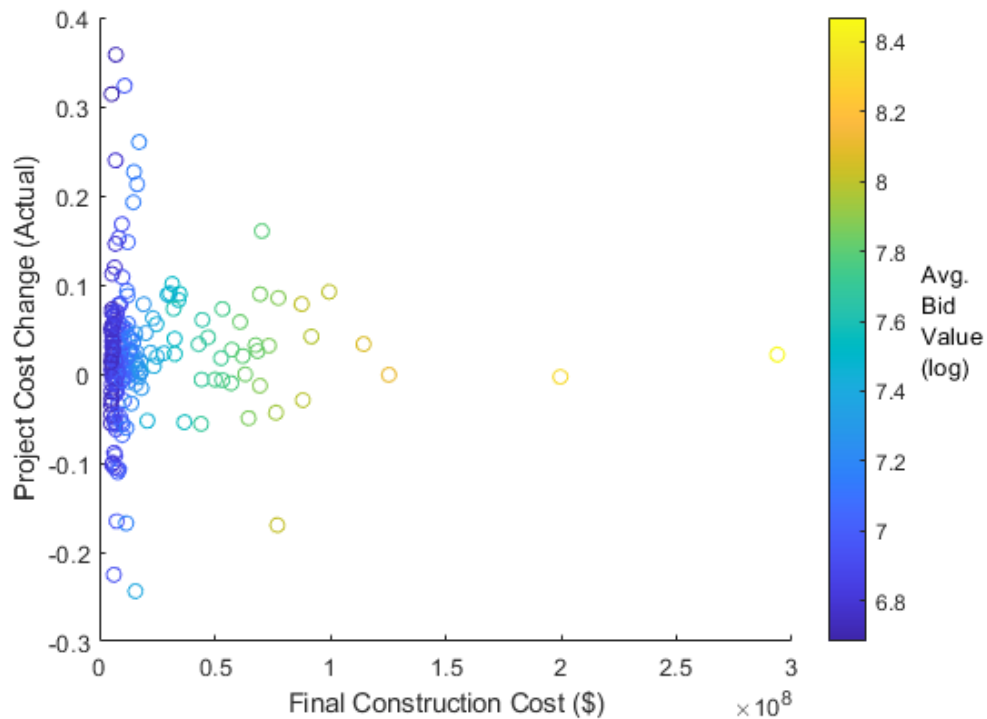


Figure 70 Final construction cost and Project Cost Change (Actual) scatter diagram

Table 40 Regression analysis output summary – Final construction cost and Project Cost Change (Actual)

Regression Statistics

Table 40 Regression analysis output summary – Final construction cost and Project Cost

Change (Actual)

R Square	0.000
Adjusted R Square	-0.005
Standard Error	0.077
Observations	210

The correlation between the final construction cost and Project Cost Change (Actual) was less than weak and virtually unrelated. Please see Table 41.

Table 41 Correlation between final construction cost and Project Cost Change (Actual)

	<i>TOTAL</i>	<i>Project Cost Change (Actual)</i>
TOTAL	1	
Project Cost Change (Actual)	0.012	1

Final Construction Cost and Project Cost Change (Absolute)

Figure 71 is the scattergram between the final construction cost and Project Cost Change (Absolute). Table 42 is the output summary of the regression analysis.

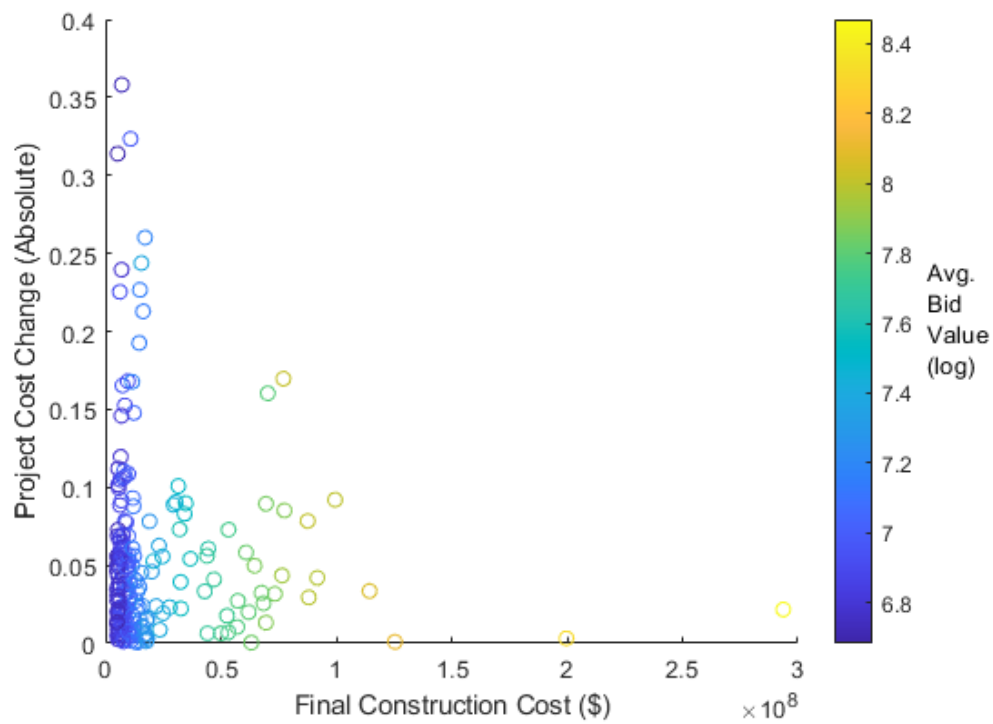


Figure 71 Final construction cost and Project Cost Change (Absolute) scatter diagram

Table 42 Regression analysis output summary – Final construction cost and Project Cost Change (Absolute)

Regression Statistics	
R Square	0.004
Adjusted R Square	-0.001
Standard Error	0.060
Observations	210

The correlation between the final construction cost and Project Cost Change (Absolute) was less than weak and virtually unrelated. Please see Table 43.

Table 43 Correlation between final construction cost and Project Cost Change (Absolute)

	<i>TOTAL</i>	<i>Project Cost Change (Absolute)</i>
<i>TOTAL</i>	1	
<i>Project Cost Change (Absolute)</i>	-0.062	1

Cumulative Rate of Inflation and Project Cost Change (Actual)

It can be questioned that Project Cost Change is due to inflation, which can change the market prices of construction materials upward over project lifecycles. For example, in the construction industries of Pakistan and Malaysia, inflation is strongly correlated with increasing material cost, causing project cost overrun (Musarat, Alaloul, Liew, Maqsoom, & Qureshi, 2020; Musarat, Alaloul, Qureshi, & Altaf, 2020). However, it must be noted that the future inflation rate is unknown at bid opening.

According to the standard Construction and Material Specifications issued by the Ohio Department of Transportation, inflation is considered limited for changes and extra works (Ohio Department of Transportation, 2019). Further, the average US inflation rate for calendar years from 2011 to 2020 was 1.75%, below the US Federal Reserve policymakers' explicit target inflation rate of 2% (Engemann, 2019; U.S. Inflation Calculator, n.d.).

Then, the correlation between the cumulative rate of inflation and Project Cost Change was examined. The cumulative inflation rate was calculated on a website specialized in calculating U.S. inflation (<https://www.usinflationcalculator.com>), using the years in which a project was let and completed.

Figure 72 is the scattergram between the cumulative inflation rate and Project Cost Change (Actual). Table 44 is the output summary of the regression analysis.

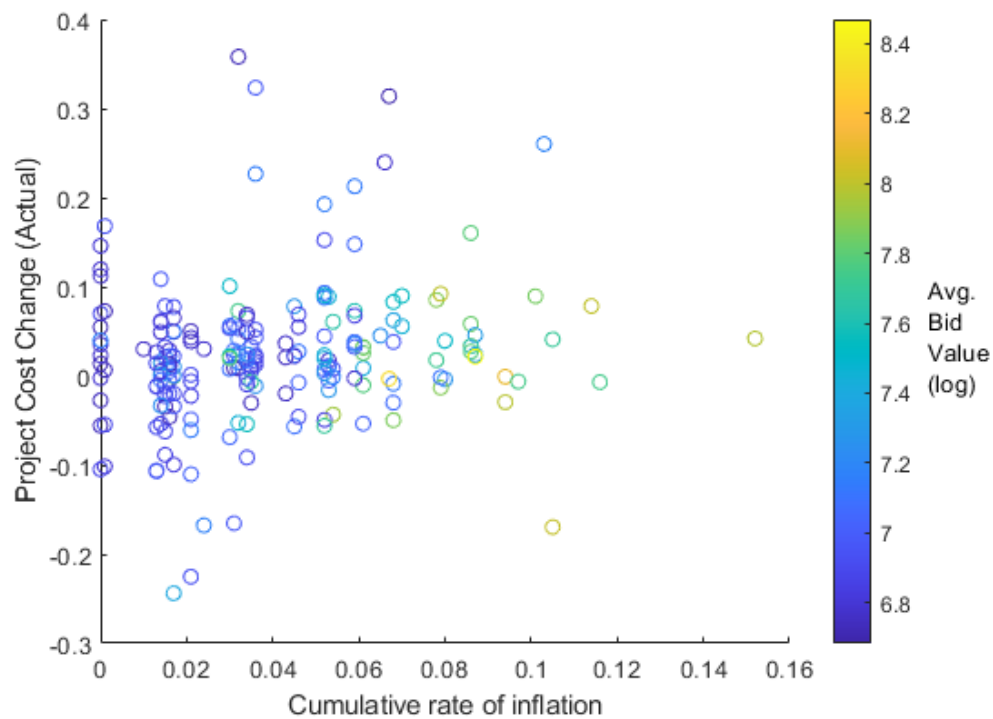


Figure 72 Cumulative inflation rate and Project Cost Change (Actual) scatter diagram

Table 44 Regression analysis output summary – Cumulative inflation rate and Project Cost Change (Actual)

Regression Statistics	
R Square	0.033
Adjusted R Square	0.028
Standard Error	0.076
Observations	210

The correlation between the cumulative rate of inflation and Project Cost Change (Actual) was weak. Please see Table 45. However, the cumulative rate of inflation is unknown at the time of the bid opening.

Table 45 Correlation between inflation rate and Project Cost Change (Actual)

	Cumulative rate of inflation	Project Cost Change
Cumulative rate of inflation	1	
Project Cost Change	0.181	1

Cumulative Rate of Inflation and Project Cost Change (Absolute)

Figure 73 is the scattergram between the cumulative inflation rate and Project Cost Change (Absolute). Table 46 is the output summary of the regression analysis.

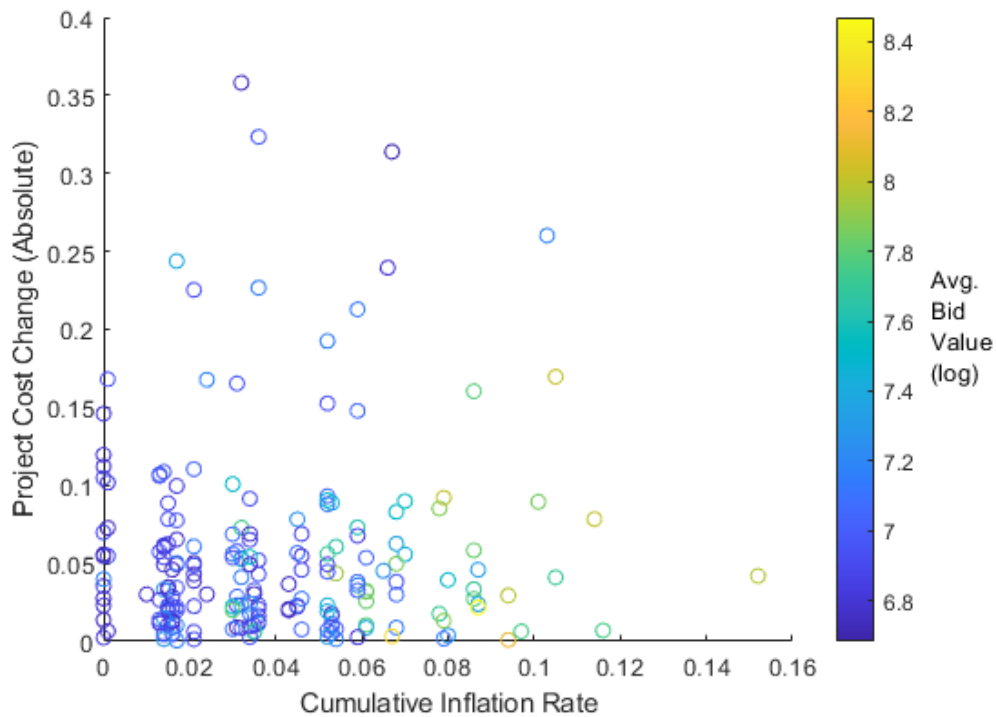


Figure 73 Cumulative inflation rate and Project Cost Change (Absolute) scatter diagram

Table 46 Regression analysis output summary – Cumulative inflation rate and Project Cost

Change (Absolute)

Regression Statistics	
R Square	0.002
Adjusted R Square	-0.002
Standard Error	0.060
Observations	210

The correlation between the cumulative rate of inflation and Project Cost Change (Absolute) was less than weak and virtually unrelated. Please see Table 47.

Table 47 Correlation between inflation rate and Project Cost Change (Absolute)

	Cumulative rate of inflation	Project Cost Change
Cumulative rate of inflation	1	
Project Cost Change	0.049	1

Appendix C: Outcomes of regression analyses with transformations

Linear-log model

In a linear-log model, which takes the form of $\hat{y} = b_0 + b_1 \log x_1$, one unit change in x , on average, leads to a $b \div 100$ unit change in y (UWA School of Agriculture and Environment, 2021). A series of regression analyses with linear-log transformations were carried out. Unfortunately, there was no additional insightful observation. Please see the following sections for detail.

Log (C.V.) and Project Cost Change (Actual)

Figure 74 is the scattergram between the Log (C.V.) and Project Cost Change (Actual). Table 48 is the output summary of the regression analysis.

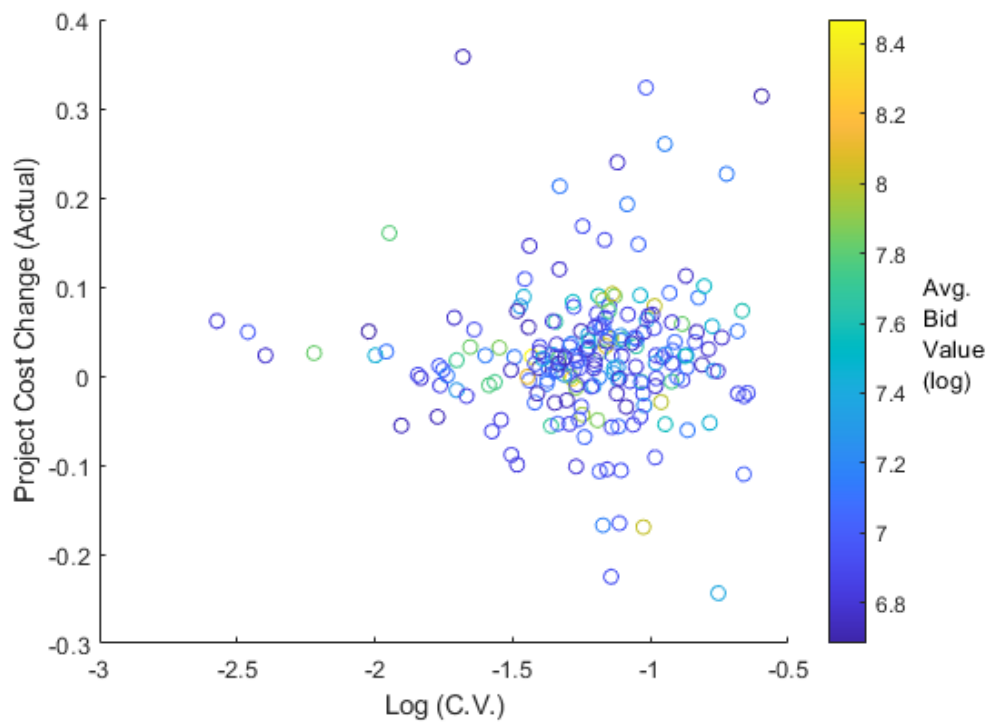


Figure 74 Log (C.V.) and Project Cost Change (Actual) scatter diagram

Table 48 Regression analysis output summary – Log (C.V.) and Project Cost Change
(Actual)

Regression Statistics	
R Square	0.000
Adjusted R Square	-0.005
Standard Error	0.077
Observations	210

The correlation between the Log (C.V.) and Project Cost Change (Actual) was less than weak and virtually unrelated. Please see Table 49.

Table 49 Correlation between Log (C.V.) and Project Cost Change (Actual)

	Log CV	Project Cost Change (Actual)
Log CV	1	
Project Cost Change (Actual)	0.010	1

Log (C.V.) and Project Cost Change (Absolute)

Figure 75 is the scattergram between the Log (C.V.) and Project Cost Change (Absolute). Table 50 is the output summary of the regression analysis.

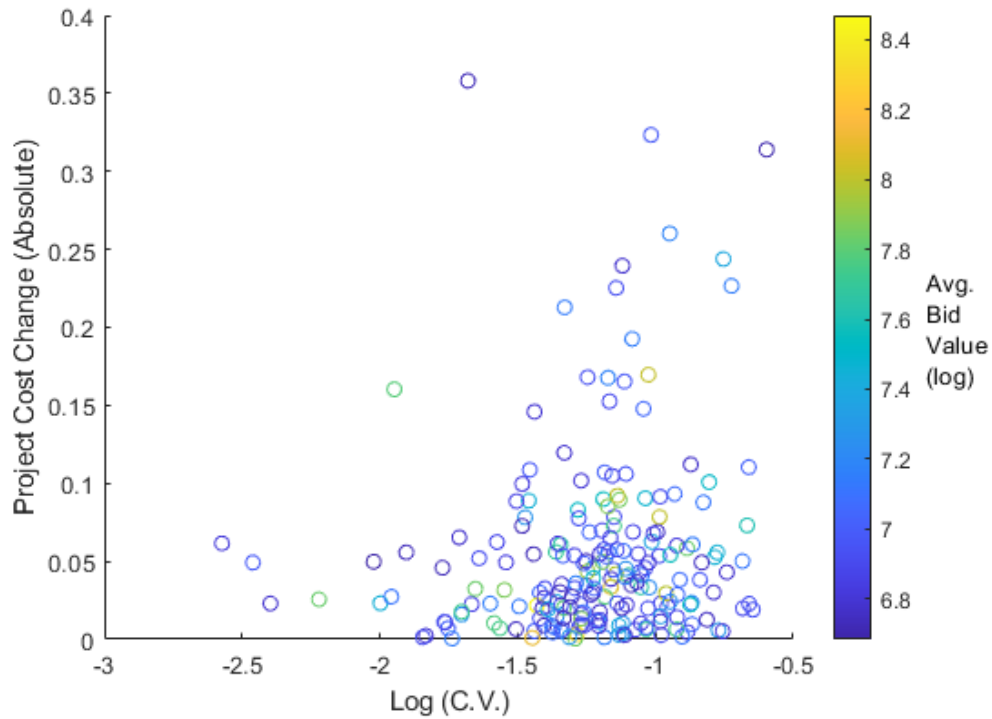


Figure 75 Log (C.V.) and Project Cost Change (Absolute) scatter diagram

Table 50 Regression analysis output summary – Log (C.V.) and Project Cost Change (Absolute)

Regression Statistics	
R Square	0.018
Adjusted R Square	0.013
Standard Error	0.059
Observations	210

The correlation between the Log (C.V.) and Project Cost Change (Absolute) was weak. Please see Table 51.

Table 51 Correlation between Log (C.V.) and Project Cost Change (Absolute)

	Log CV	Project Cost Change (Absolute)
Log CV	1	
Project Cost Change (Absolute)	0.135	1

Log (Planned Project Duration) and Project Cost Change (Actual)

Figure 76 is the scattergram between the Log (Planned project duration) and Project Cost Change (Actual). Table 52 is the output summary of the regression analysis.

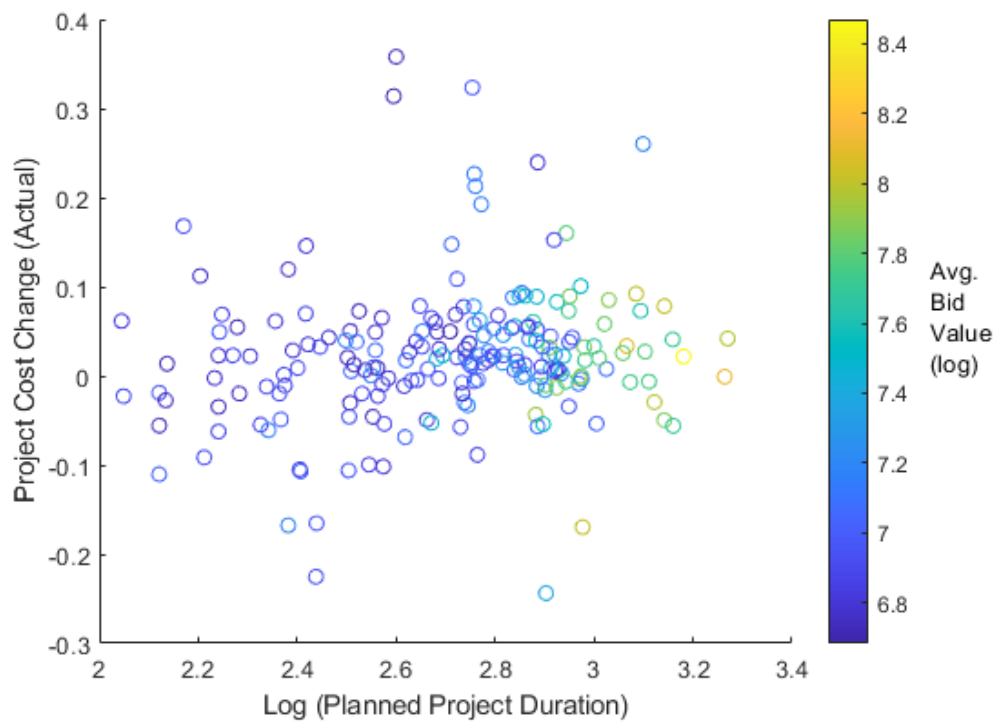


Figure 76 Log (Planned project duration) and Project Cost Change (Actual) scatter diagram

Table 52 Regression analysis output summary – Log (Planned project duration) and Project Cost Change (Actual)

Regression Statistics	
R Square	0.022
Adjusted R Square	0.018
Standard Error	0.077
Observations	210

The correlation between the Log (Planned project duration) and Project Cost Change (Actual) was weak. Please see Table 53.

Table 53 Correlation between Log (C.V.) and Project Cost Change (Actual)

	Log Planned Project Duration	Project Cost Change (Actual)
Log Planned Project Duration	1	
Project Cost Change (Actual)	0.149	1

Log (Planned Project Duration) and Project Cost Change (Absolute)

Figure 77 is the scattergram between the Log (Planned project duration) and Project Cost Change (Absolute). Table 54 is the output summary of the regression analysis.

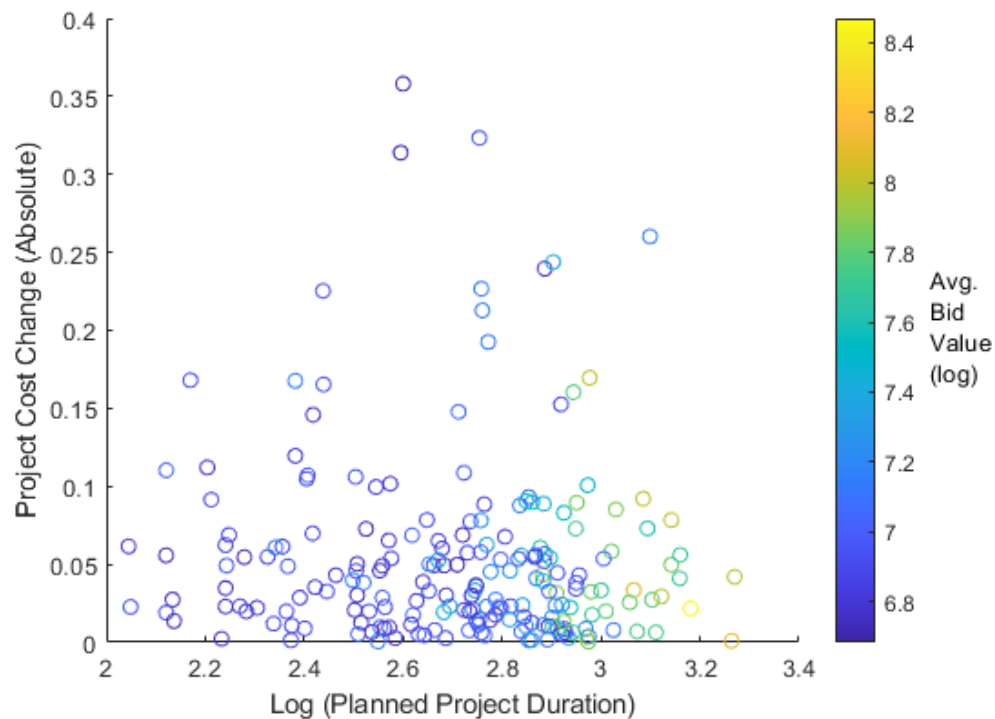


Figure 77 Log (Planned project duration) and Project Cost Change (Absolute) scatter diagram

Table 54 Regression analysis output summary – Log (Planned project duration) and Project Cost Change (Absolute)

Regression Statistics	
R Square	0.003
Adjusted R Square	-0.002
Standard Error	0.060
Observations	210

The correlation between the Log (Planned project duration) and Project Cost Change (Absolute) was less than weak and virtually unrelated. Please see Table 55.

Table 55 Correlation between Log (Planned project duration) and Project Cost Change (Absolute)

	<i>Project Cost Change (Absolute)</i>	<i>Log Planned Project Duration</i>
Project Cost Change (Absolute)	1	
Log Planned Project Duration	-0.055	1

Log (Actual Project Duration) and Project Cost Change (Actual)

Figure 78 is the scattergram between the Log (Actual project duration) and Project Cost Change (Actual). Table 56 is the output summary of the regression analysis.

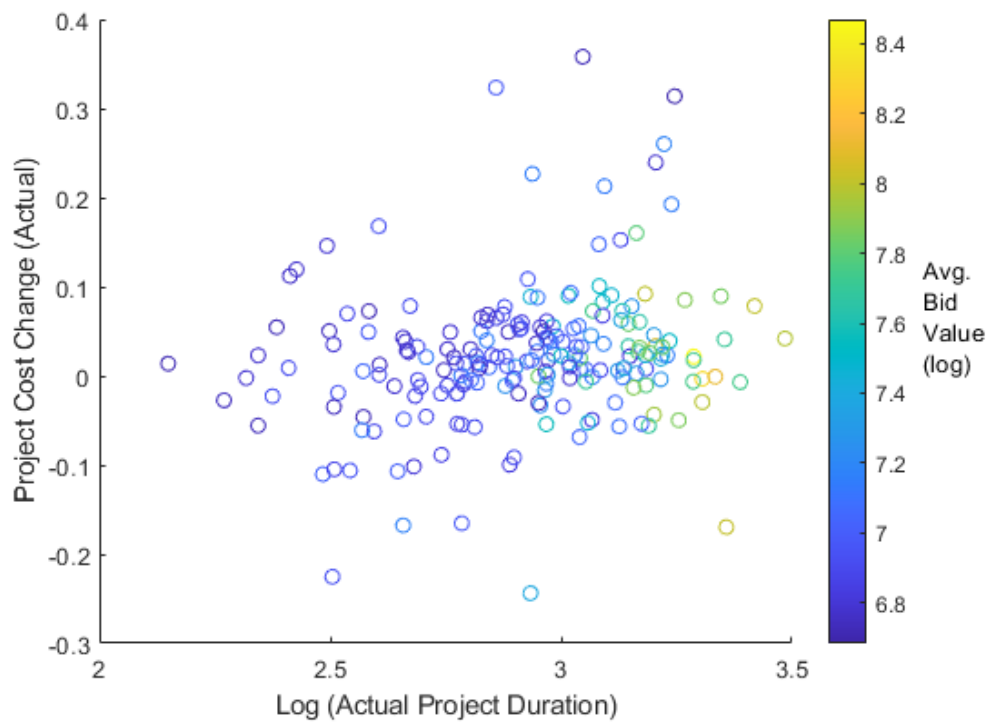


Figure 78 Log (Actual project duration) and Project Cost Change (Actual) scatter diagram

Table 56 Regression analysis output summary – Log (Actual project duration) and Project Cost Change (Actual)

Regression Statistics	
R Square	0.043
Adjusted R Square	0.039
Standard Error	0.076
Observations	210

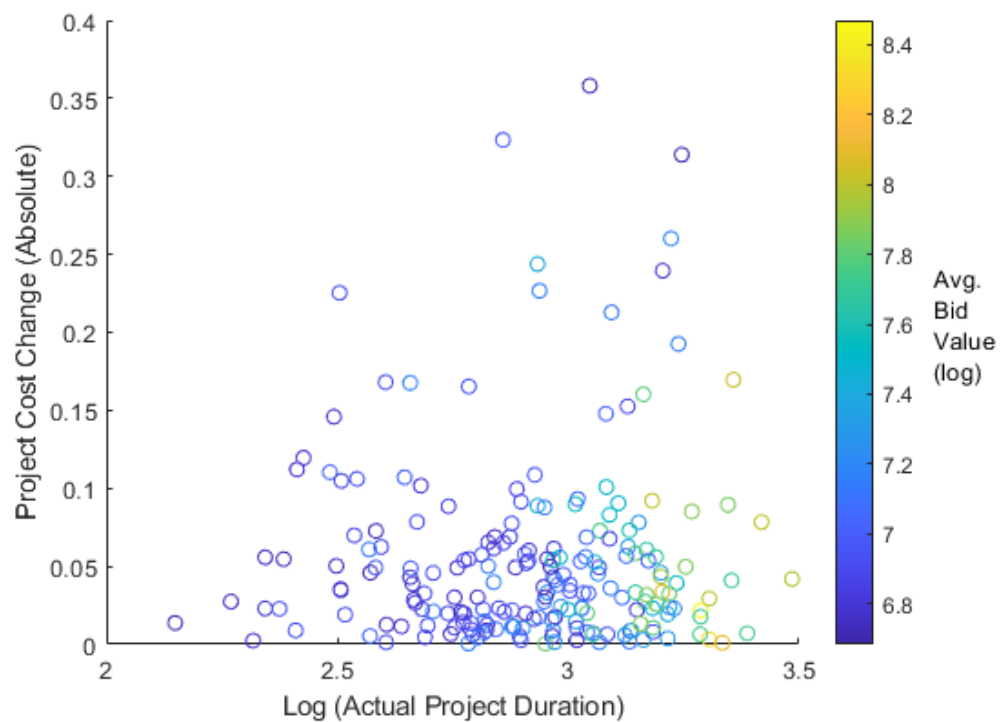
The correlation between the Log (Actual project duration) and Project Cost Change (Actual) was weak. Please see Table 67.

*Table 57 Correlation between Log (Actual project duration) and Project Cost Change
(Actual)*

	<i>Log Actual Project Duration</i>	<i>Project Cost Change (Actual)</i>
Log Actual Project Duration	1	
Project Cost Change	0.208	1

Log (Actual Project Duration) and Project Cost Change (Absolute)

Figure 79 is the scattergram between the Log (Actual project duration) and Project Cost Change (Absolute). Table 58 is the output summary of the regression analysis.



*Figure 79 Log (Actual project duration) and Project Cost Change (Absolute) scatter
diagram*

Table 58 Regression analysis output summary – Log (Actual project duration) and Project Cost Change (Absolute)

Regression Statistics	
R Square	0.002
Adjusted R Square	-0.003
Standard Error	0.060
Observations	210

The correlation between the Log (Actual project duration) and Project Cost Change (Absolute) was less than weak and virtually unrelated. Please see Table 59.

Table 59 Correlation between Log (Actual project duration) and Project Cost Change (Absolute)

	<i>Project Cost Change (Absolute)</i>	<i>Log Actual Project Duration</i>
Project Cost Change (Absolute)	1	
Log Actual Project Duration	0.040	1

Log (Project Duration Change) and Project Cost Change (Actual)

Figure 80 is the scattergram between the Log (Project duration change) and Project Cost Change (Actual). The project duration change in the negative territory was dropped since the logarithmic transformation cannot take a negative value. Table 60 is the output summary of the regression analysis.

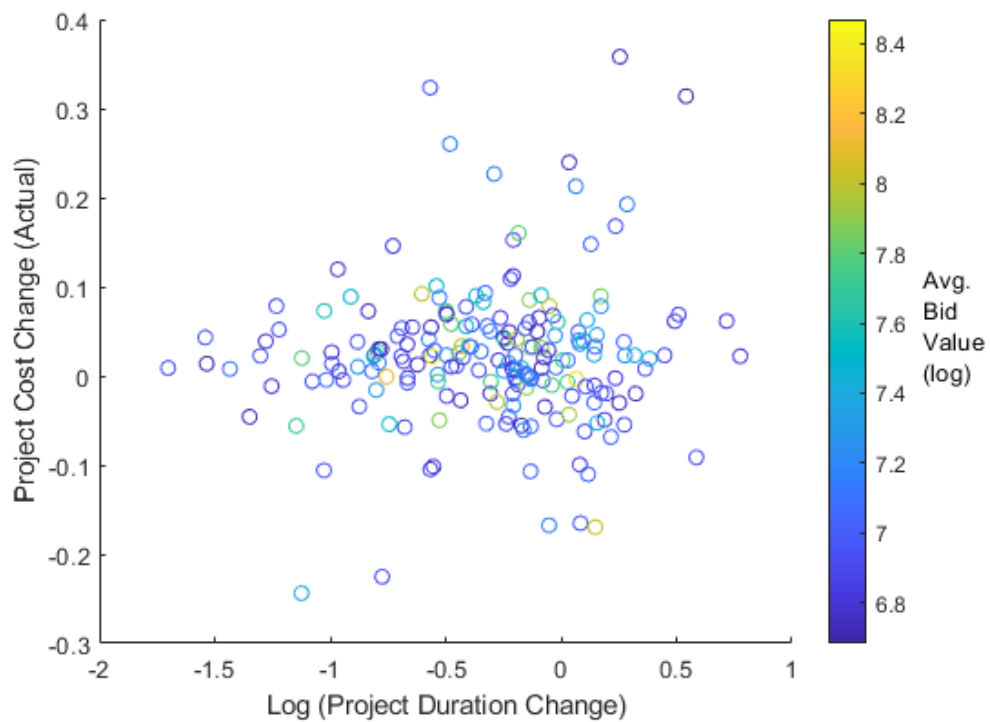


Figure 80 Log (Project duration change) and Project Cost Change (Actual) scatter diagram

Table 60 Regression analysis output summary – Log (Project duration change) and Project Cost Change (Actual)

Regression Statistics	
R Square	0.007
Adjusted R Square	0.001
Standard Error	0.079
Observations	164

The correlation between the Log (Project duration change) and Project Cost Change (Actual) was less than weak and virtually unrelated. Please see Table 61.

Table 61 Correlation between Log (Project duration change) and Project Cost Change

<i>(Actual)</i>			
	<i>Log Project Duration</i>	<i>Project Cost Change</i>	
	<i>Change</i>	<i>(Actual)</i>	
Log Project Duration Change	1		
Project Cost Change			
(Actual)	0.086		1

Log (Project Duration Change) and Project Cost Change (Absolute)

Figure 81 is the scattergram between the Log (Project duration change) and Project Cost Change (Absolute). The project duration change in the negative territory was dropped since the logarithmic transformation cannot take a negative value. Table 62 is the output summary of the regression analysis.

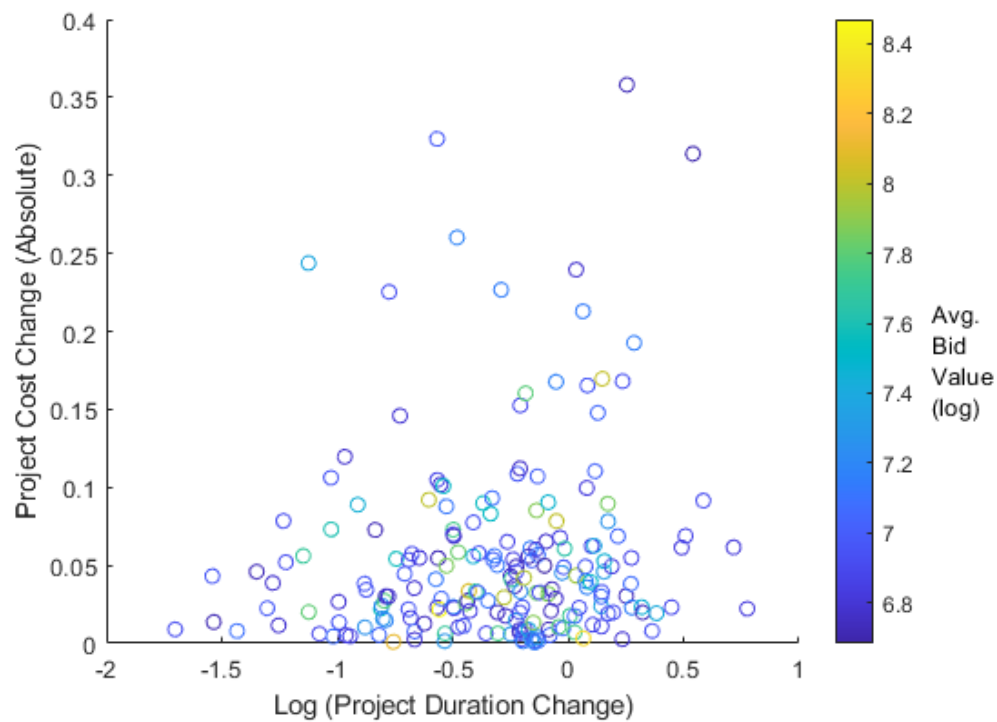


Figure 81 Log (Project duration change) and Project Cost Change (Absolute) scatter diagram

Table 62 Regression analysis output summary – Log (Project duration change) and Project Cost Change (Absolute)

Regression Statistics	
R Square	0.018
Adjusted R Square	0.011
Standard Error	0.062
Observations	164

The correlation between the Log (Project duration change) and Project Cost Change (Absolute) was weak. Please see Table 63.

Table 63 Correlation between Log (Project duration change) and Project Cost Change
(Absolute)

	Project Cost Change (Absolute)	Log Project Duration Change
Project Cost Change (Absolute)	1	
Log Project Duration Change	0.132	1

Log (Number of Bidders) and Project Cost Change (Actual)

Figure 82 is the scattergram between the Log (Number of bidders) and Project Cost Change (Actual). Table 64 is the output summary of the regression analysis.

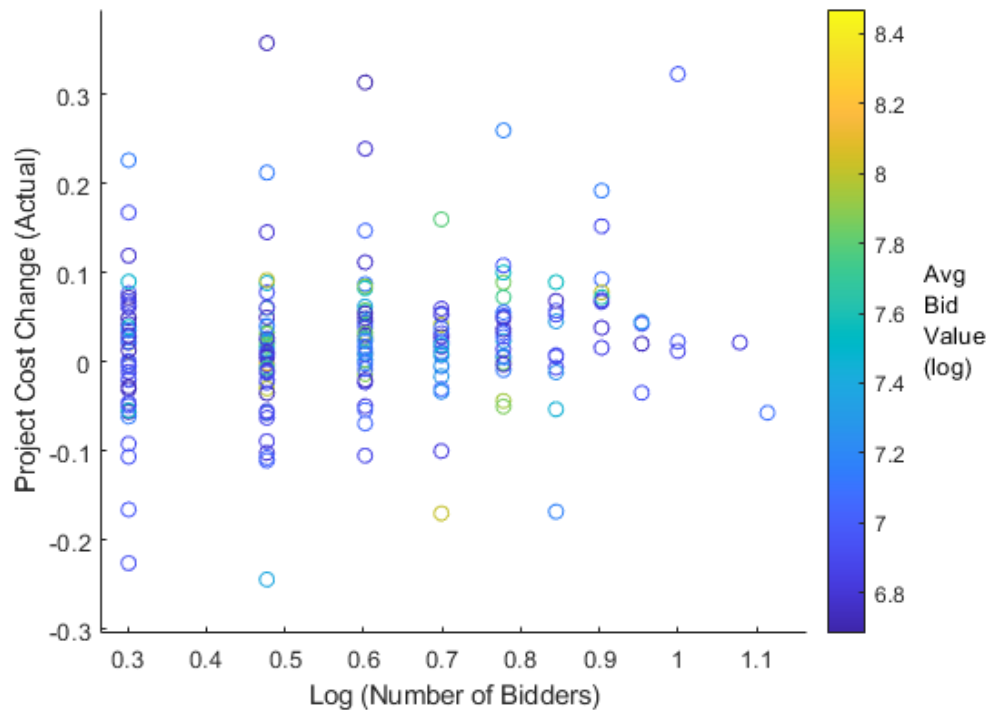


Figure 82 Log (Number of bidders) and Project Cost Change (Actual) scatter diagram

Table 64 Regression analysis output summary – Log (Number of bidders) and Project Cost Change (Actual)

Regression Statistics	
R Square	0.024
Adjusted R Square	0.019
Standard Error	0.077
Observations	210

The correlation between the Log (Number of bidders) and Project Cost Change (Actual) was weak. Please see Table 65.

Table 65 Correlation between Log (Number of bidders) and Project Cost Change (Actual)

	Log Number of Bidders	Project Cost Change
Log Number of Bidders	1	
Project Cost Change	0.155	1

Log (Number of Bidders) and Project Cost Change (Absolute)

Figure 83 is the scattergram between the Log (Number of bidders) and Project Cost Change (Absolute). Table 66 is the output summary of the regression analysis.

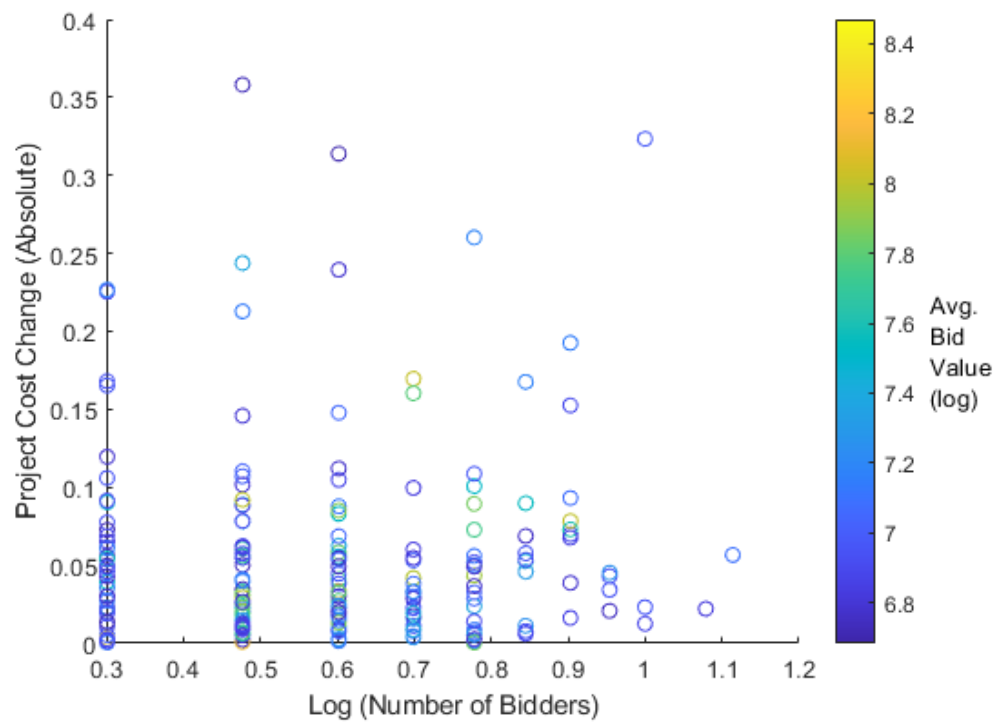


Figure 83 Log (Number of bidders) and Project Cost Change (Absolute) scatter diagram

Table 66 Regression analysis output summary – Log (Number of bidders) and Project Cost Change (Absolute)

Regression Statistics	
R Square	0.000
Adjusted R Square	-0.005
Standard Error	0.060
Observations	210

The correlation between the Log (Number of bidders) and Project Cost Change (Actual) was less than weak and virtually unrelated. Please see Table 67.

*Table 67 Correlation between Log (Number of bidders) and Project Cost Change
(Absolute)*

	Project Cost Change (Absolute)	Log Number of Bidders
Project Cost Change (Absolute)	1	
Log Number of Bidders	0.013	1

Log (Average Bid Value) and Project Cost Change (Actual)

Figure 84 is the scattergram between the Log (Average bid value) and Project Cost Change (Actual). Table 68 is the output summary of the regression analysis.

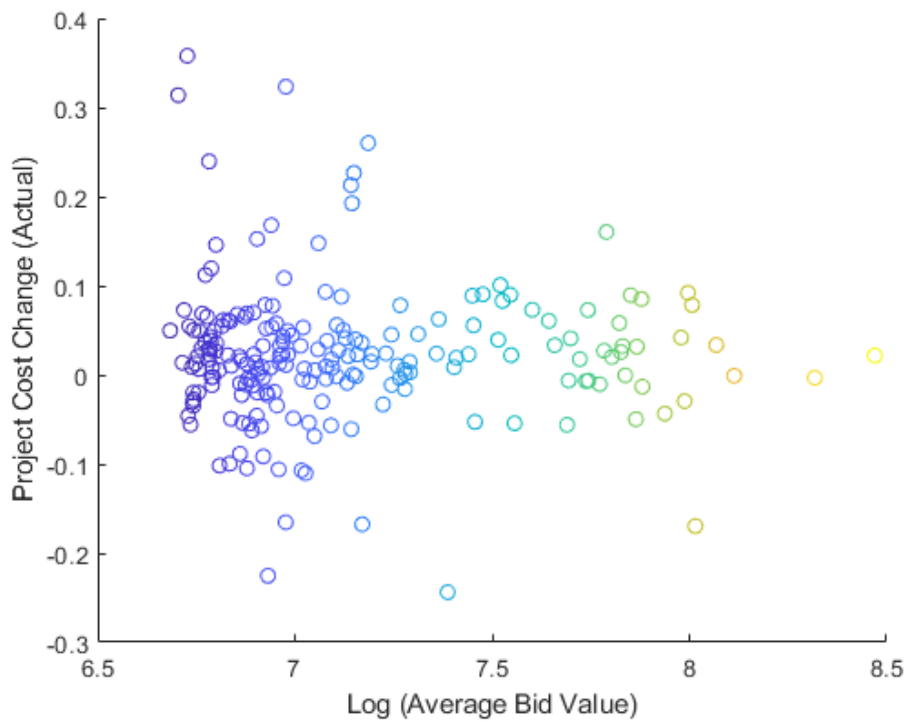


Figure 84 Log (Average bid value) and Project Cost Change (Actual) scatter diagram

Table 68 Regression analysis output summary – Log (Average bid value) and Project Cost Change (Actual)

Regression Statistics	
R Square	0.001
Adjusted R Square	-0.004
Standard Error	0.077
Observations	210

The correlation between the Log (Number of bidders) and Project Cost Change (Actual) was less than weak and virtually unrelated. Please see Table 69.

Table 69 Correlation between Log (Average bid value) and Project Cost Change (Actual)

	Log Average Bid Value	Project Cost Change (Actual)
Log Average Bid Value	1	
Project Cost Change (Actual)	-0.023	1

Log (Average Bid Value) and Project Cost Change (Absolute)

Figure 85 is the scattergram between the Log (Average bid value) and Project Cost Change (Absolute). Table 70 is the output summary of the regression analysis.

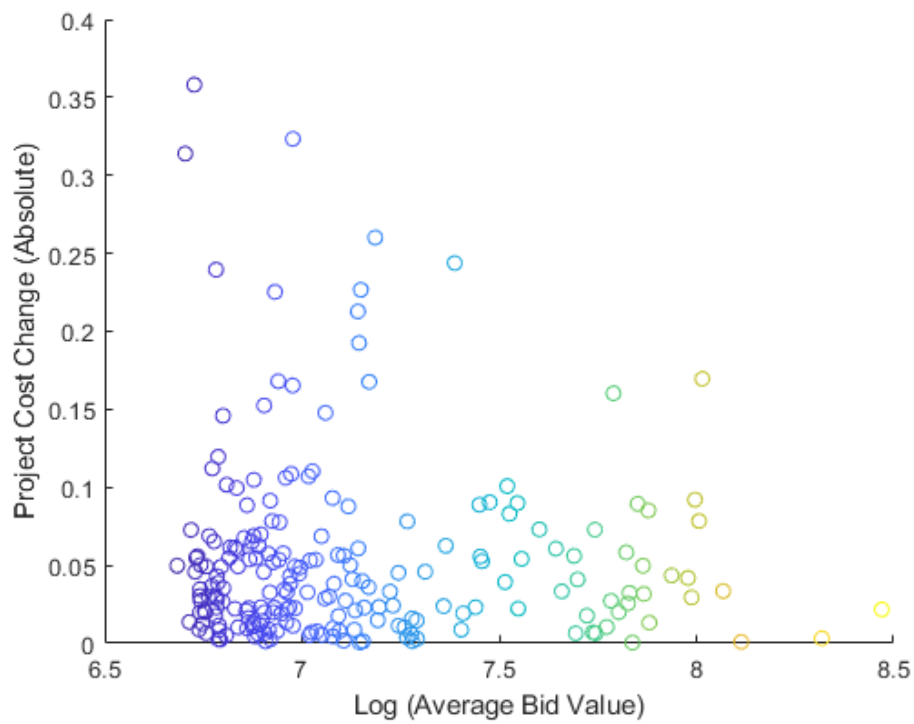


Figure 85 Log (Average bid value) and Project Cost Change (Absolute) scatter diagram

Table 70 Regression analysis output summary – Log (Average bid value) and Project Cost Change (Absolute)

Regression Statistics	
R Square	0.003
Adjusted R Square	-0.002
Standard Error	0.060
Observations	210

The correlation between the Log (Number of bidders) and Project Cost Change (Absolute) was less than weak and virtually unrelated. Please see Table 71.

Table 71 Correlation between Log (Average bid value) and Project Cost Change (Absolute)

	Project Cost Change (Absolute)	Log Average Bid Value
Project Cost Change (Absolute)	1	
Log Average Bid Value	-0.055	1

Log (Winning Bid) and Project Cost Change (Actual)

Figure 86 is the scattergram between the Log (Winning bid) and Project Cost Change (Actual).

Table 72 is the output summary of the regression analysis.

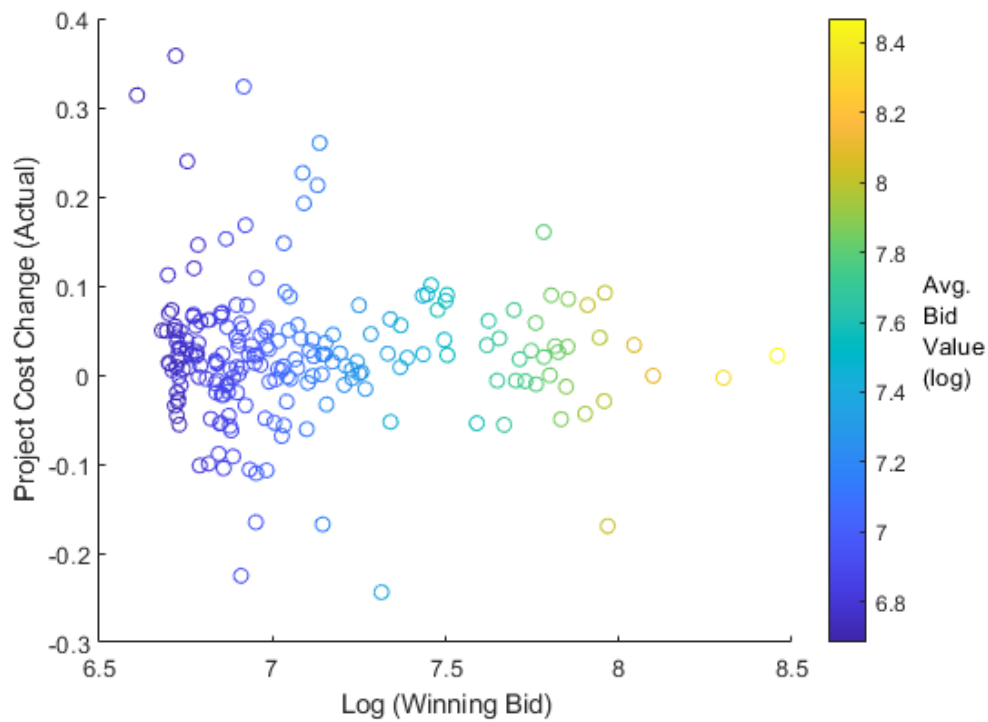


Figure 86 Log (Winning bid) and Project Cost Change (Actual) scatter diagram

Table 72 Regression analysis output summary – Log (Winning bid) and Project Cost Change (Actual)

Regression Statistics	
R Square	0.001
Adjusted R Square	-0.004
Standard Error	0.077
Observations	210

The correlation between the Log (Winning bid) and Project Cost Change (Actual) was less than weak and virtually unrelated. Please see Table 73.

Table 73 Correlation between Log (Winning bid) and Project Cost Change (Actual)

	Log (Winning Bid)	Project Cost Change (Actual)
Log (Winning Bid)	1	
Project Cost Change (Actual)	-0.029	1

Log (Winning Bid) and Project Cost Change (Absolute)

Figure 87 is the scattergram between the Log (Winning bid) and Project Cost Change (Absolute). Table 74 is the output summary of the regression analysis.

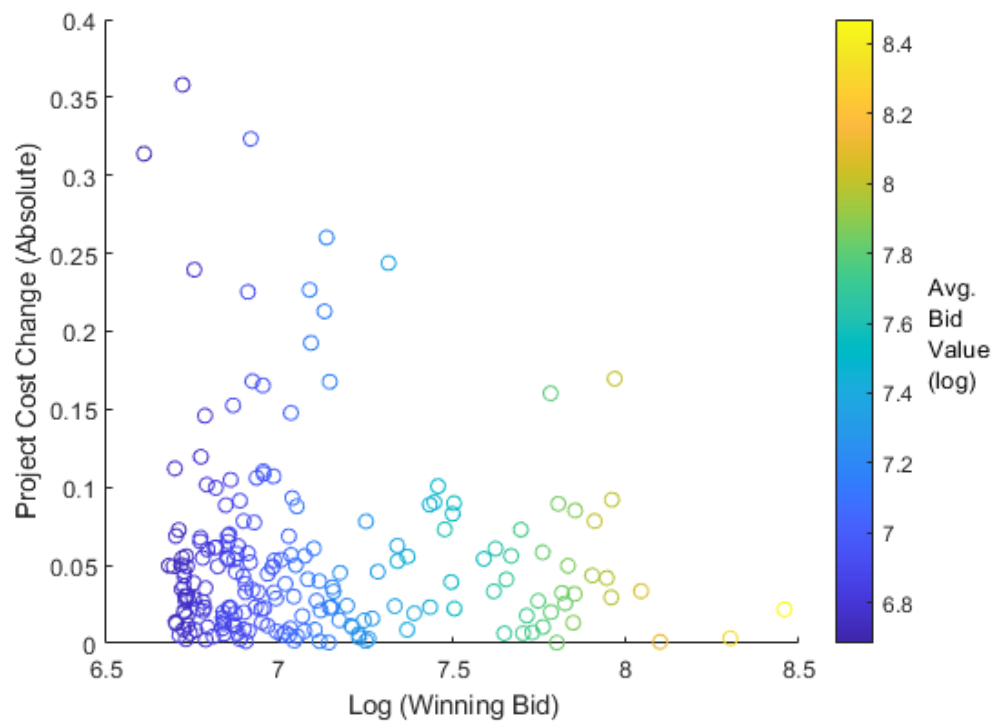


Figure 87 Log (Winning bid) and Project Cost Change (Absolute) scatter diagram

Table 74 Regression analysis output summary – Log (Winning bid) and Project Cost Change (Absolute)

Regression Statistics	
R Square	0.004
Adjusted R Square	-0.001
Standard Error	0.060
Observations	210

The correlation between the Log (Winning bid) and Project Cost Change (Absolute) was less than weak and virtually unrelated. Please see Table 75.

Table 75 Correlation between Log (Winning bid) and Project Cost Change (Absolute)

	Project Cost Change (Absolute)	Log (Winning Bid)
Project Cost Change (Absolute)	1	
Log (Winning Bid)	-0.062	1

Log (Final Construction Cost) and Project Cost Change (Actual)

Figure 88 is the scattergram between the Log (Final construction cost) and Project Cost Change (Actual). Table 76 is the output summary of the regression analysis.

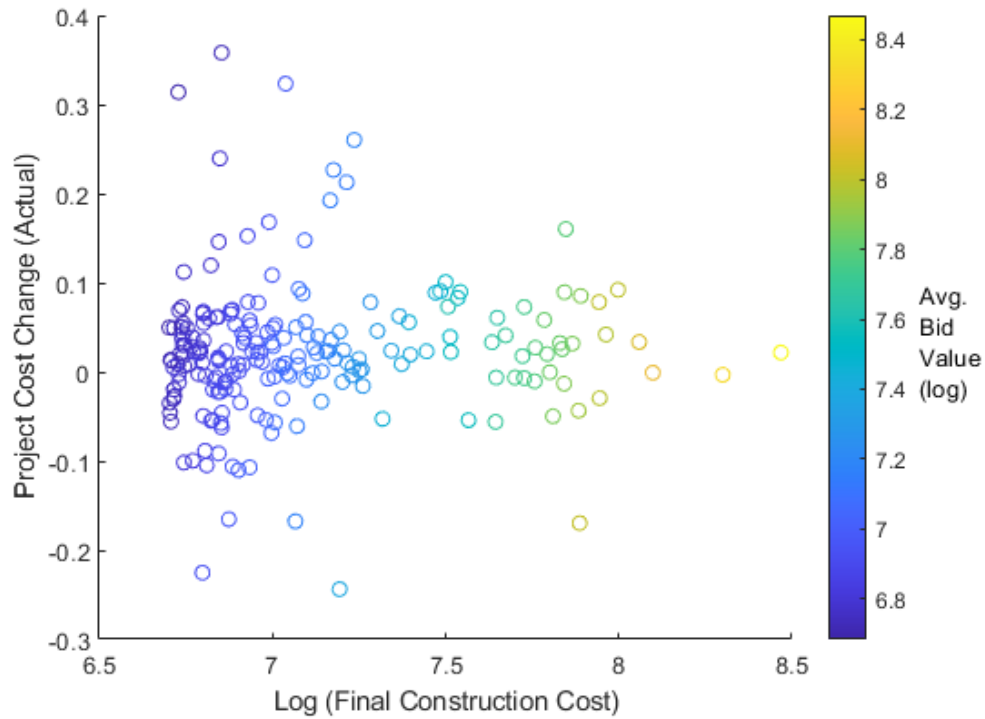


Figure 88 Log (Final construction cost) and Project Cost Change (Actual) scatter diagram

Table 76 Regression analysis output summary – Log (Final construction cost) and Project Cost Change (Actual)

Regression Statistics	
R Square	0.003
Adjusted R Square	-0.002
Standard Error	0.077
Observations	210

The correlation between the Log (Final construction cost) and Project Cost Change (Actual) was less than weak and virtually unrelated. Please see Table 77.

Table 77 Correlation between Log (Final construction cost) and Project Cost Change (Actual)

	<i>Log (Final Construction Cost)</i>	<i>Project Cost Change (Actual)</i>
Log (Final Construction Cost)	1	
Project Cost Change (Actual)	0.056	1

Log (Final Construction Cost) and Project Cost Change (Absolute)

Figure 89 is the scattergram between the Log (Final construction cost) and Project Cost Change (Absolute). Table 78 is the output summary of the regression analysis.

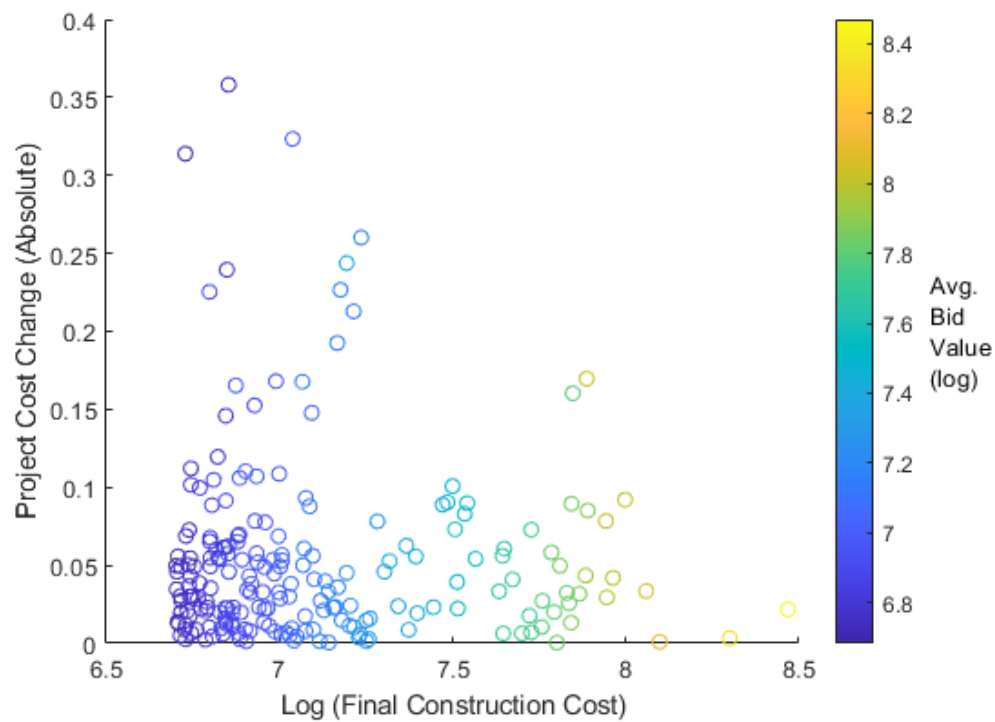


Figure 89 Log (Final construction cost) and Project Cost Change (Absolute) scatter diagram

Table 78 Regression analysis output summary – Log (Final construction cost) and Project Cost Change (Absolute)

Regression Statistics	
R Square	0.001
Adjusted R Square	-0.004
Standard Error	0.060
Observations	210

The correlation between the Log (Final construction cost) and Project Cost Change (Absolute) was less than weak and virtually unrelated. Please see Table 79.

*Table 79 Correlation between Log (Final construction cost) and Project Cost Change
(Absolute)*

	Project Cost Change (Absolute)	Log (Final Construction Cost)
Project Cost Change (Absolute)	1	
Log (Final Construction Cost)	-0.031	1

Log (Cumulative Rate of Inflation) and Project Cost Change (Actual)

Figure 90 is the scattergram between the Log (Cumulative rate of inflation) and Project Cost Change (Actual). Those projects that did not experience inflation were excluded. Table 80 is the output summary of the regression analysis.

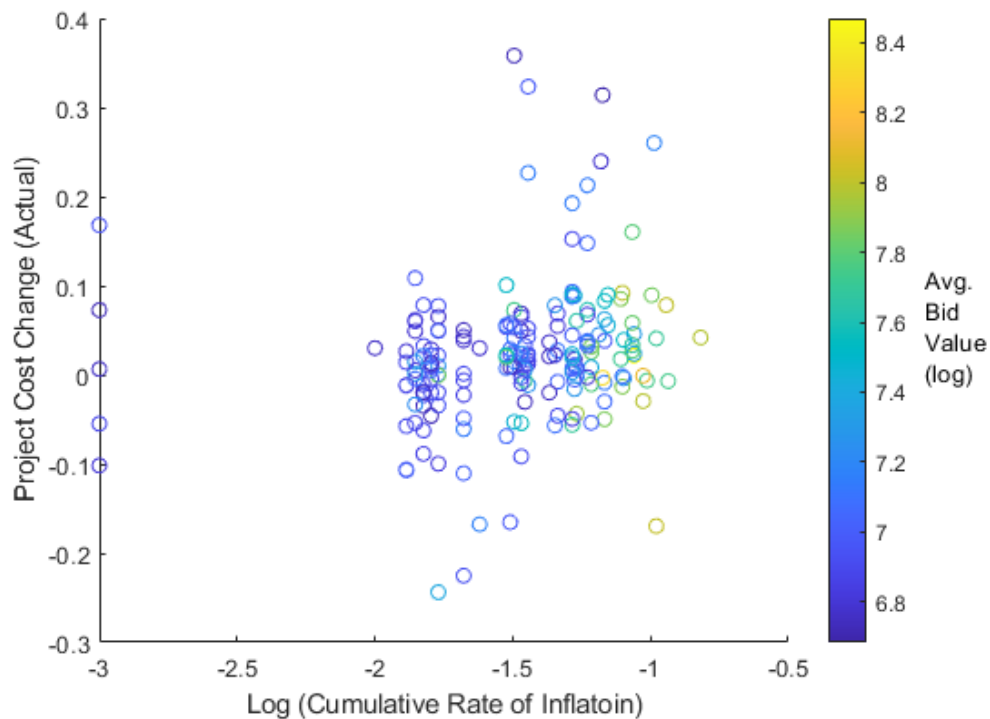


Figure 90 Log (Cumulative rate of inflation) and Project Cost Change (Actual) scatter diagram

Table 80 Regression analysis output summary – Log (Cumulative rate of inflation) and Project Cost Change (Actual)

Regression Statistics	
R Square	0.036
Adjusted R Square	0.031
Standard Error	0.077
Observations	197

The correlation between the Log (Cumulative rate of inflation) and Project Cost Change (Actual) was weak. Please see Table 81.

Table 81 Correlation between Log (Cumulative rate of inflation) and Project Cost Change (Actual)

	Log (Cumulative Rate of Inflation)	Project Cost Change (Actual)
Log (Cumulative Rate of Inflation)	1	
Project Cost Change (Actual)	0.191	1

Log (Cumulative Rate of Inflation) and Project Cost Change (Absolute)

Figure 91 is the scattergram between the Log (Cumulative rate of inflation) and Project Cost Change (Absolute). Those projects that did not experience inflation were excluded. Table 82 is the output summary of the regression analysis.

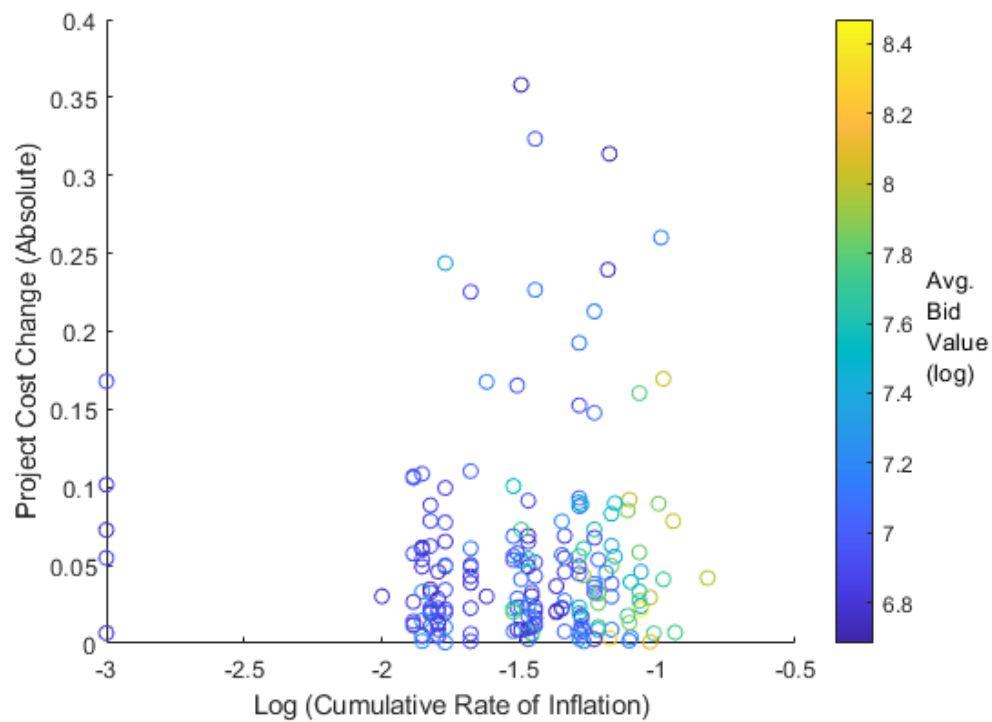


Figure 91 Log (Cumulative rate of inflation) and Project Cost Change (Absolute) scatter diagram

Table 82 Regression analysis output summary – Log (Cumulative rate of inflation) and Project Cost Change (Absolute)

Regression Statistics	
R Square	0.001
Adjusted R Square	-0.005
Standard Error	0.061
Observations	197

The correlation between the Log (Cumulative rate of inflation) and Project Cost Change (Absolute) was less than weak and virtually unrelated. Please see Table 83.

Table 83 Correlation between Log (Cumulative rate of inflation) and Project Cost Change (Absolute)

	Project Cost Change (Absolute)	Log (Cumulative Rate of Inflation)
Project Cost Change (Absolute)	1	
Log (Cumulative Rate of Inflation)	0.023	1

Log-linear model

In a log-linear model, which takes the form of $\log \hat{y} = b_0 + b_1 x_1$, one unit change in x , on average, leads to a $b \times 100$ percent change in y (UWA School of Agriculture and Environment, 2021). A series of regression analyses with linear-log transformations were carried out. Only the dependable variable Project Cost Change (Absolute) was considered since the logarithmic transformation does transform negative values, i.e., Project Cost Change (Actual). Unfortunately, there was no additional insightful observation. Please see the following sections for detail.

C.V. and Log (Project Cost Change (Absolute))

Figure 92 is the scattergram between the C.V. and Log (Project Cost Change (Absolute)). Table 84 is the output summary of the regression analysis.

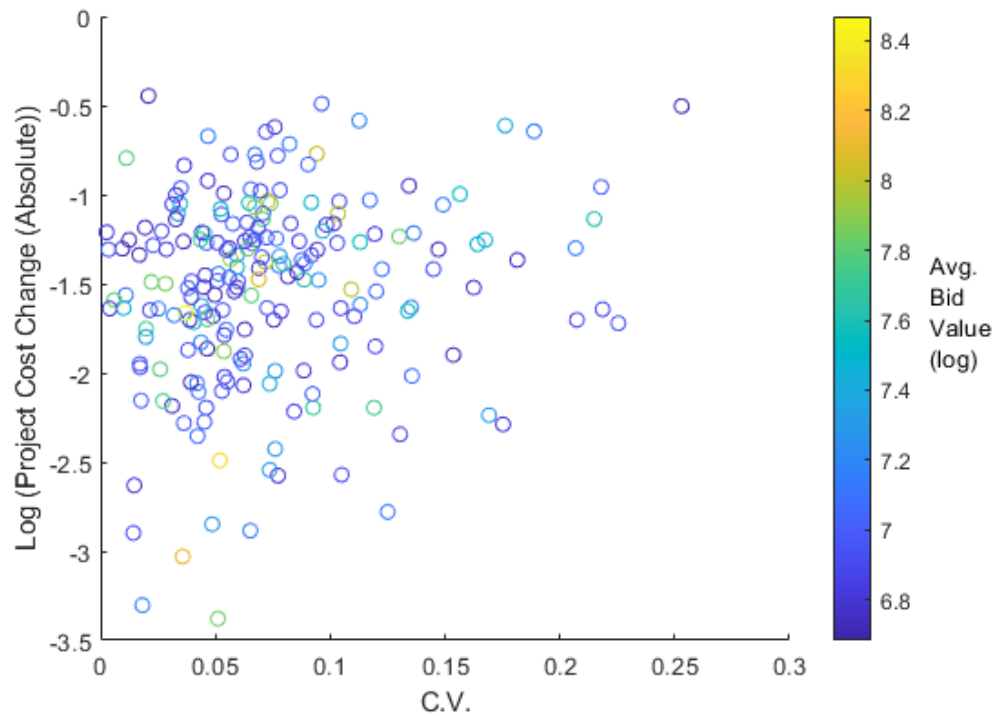


Figure 92 C.V. and Log (Project Cost Change (Absolute)) scatter diagram

Table 84 Regression analysis output summary – C.V. and Log (Project Cost Change (Absolute))

Regression Statistics	
R Square	0.024
Adjusted R Square	0.019
Standard Error	0.523
Observations	0.024

The correlation between the C.V. and Log (Project Cost Change (Absolute)) was weak. Please see Table 85.

Table 85 Correlation between C.V. and Log (Project Cost Change (Absolute))

	Coefficient of Variation	Log (Project Cost Change (Absolute))
Coefficient of Variation	1	
Log (Project Cost Change (Absolute))	0.153	1

Planned Project Duration and Log (Project Cost Change (Absolute))

Figure 93 is the scattergram between the planned project duration and Log (Project Cost Change (Absolute)). Table 86 is the output summary of the regression analysis.

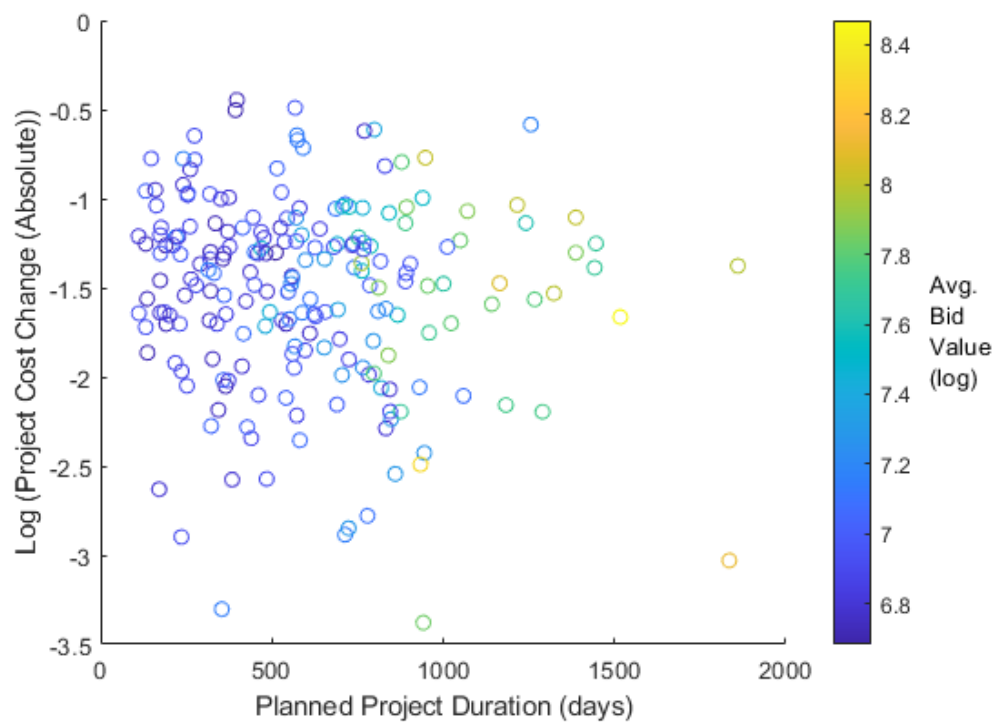


Figure 93 Planned project duration and Log (Project Cost Change (Absolute)) scatter diagram

Table 86 Regression analysis output summary – Planned project duration and Log (Project Cost Change (Absolute))

Regression Statistics	
R Square	0.0108
Adjusted R Square	0.0061
Standard Error	0.5268
Observations	210

The correlation between the planned project duration and Log (Project Cost Change (Absolute)) was weak. Please see Table 87.

Table 87 Correlation between planned project duration and Log (Project Cost Change (Absolute))

	Planned Project Duration	Log (Project Cost Change (Absolute))
Planned Project Duration	1	
Log (Project Cost Change (Absolute))	-0.104	1

Actual Project Duration and Log (Project Cost Change (Absolute))

Figure 94 is the scattergram between the actual project duration and Log (Project Cost Change (Absolute)). Table 88 is the output summary of the regression analysis.

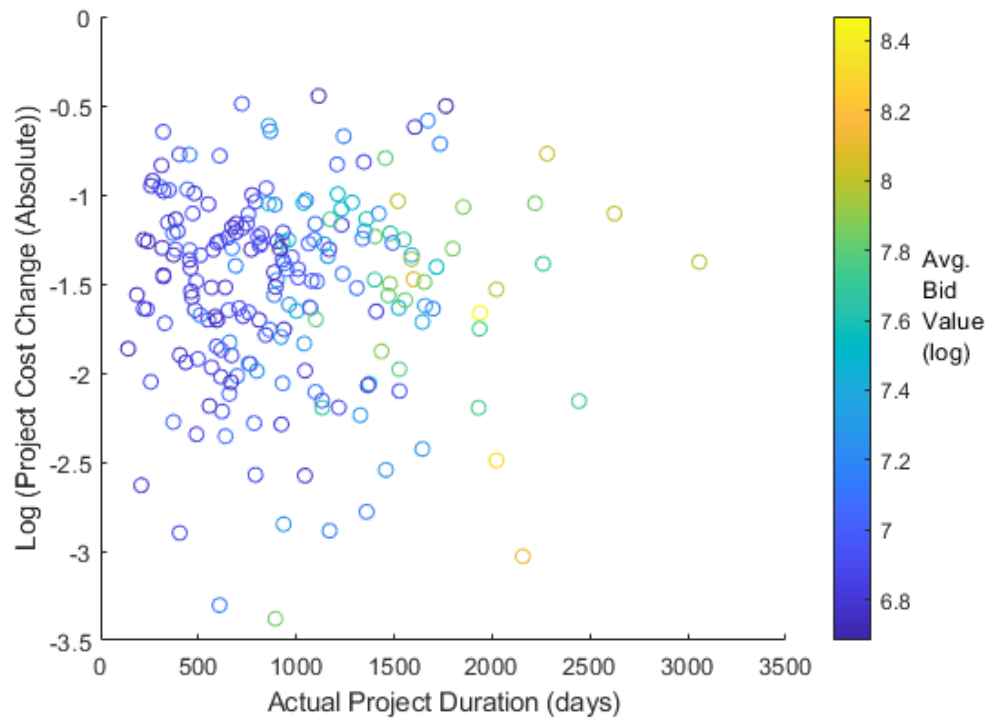


Figure 94 Actual project duration and Log (Project Cost Change (Absolute)) scatter diagram

Table 88 Regression analysis output summary – Actual project duration and Log (Project Cost Change (Absolute))

Regression Statistics	
R Square	0.000
Adjusted R Square	-0.005
Standard Error	0.530
Observations	210

The correlation between the actual project duration and Log (Project Cost Change (Absolute)) was less than weak and virtually unrelated. Please see Table 89.

Table 89 Correlation between actual project duration and Log (Project Cost Change (Absolute))

	Actual Project Duration	Log (Project Cost Change (Absolute))
Actual Project Duration	1	
Log (Project Cost Change (Absolute))	-0.001	1

Project Duration Change and Log (Project Cost Change (Absolute))

Figure 95 is the scattergram between the project duration change and Log (Project Cost Change (Absolute)). Table 90 is the output summary of the regression analysis.

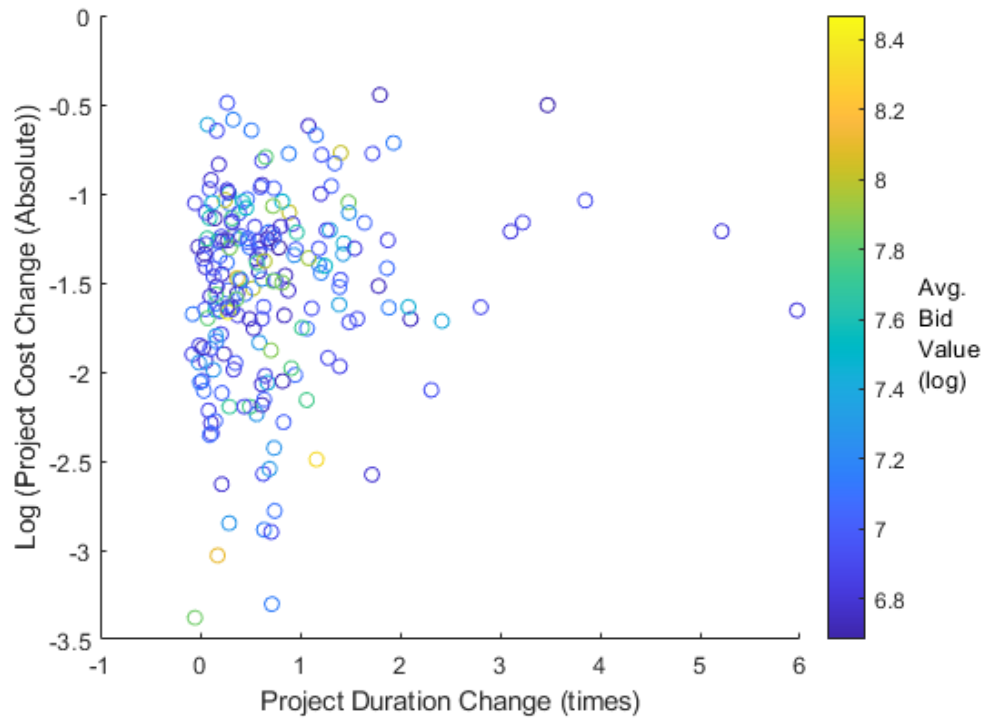


Figure 95 Project duration change and Log (Project Cost Change (Absolute)) scatter diagram

Table 90 Regression analysis output summary – Project duration change and Log (Project Cost Change (Absolute))

Regression Statistics	
R Square	0.0203
Adjusted R Square	0.0156
Standard Error	0.5243
Observations	210

The correlation between the project duration change and Log (Project Cost Change (Absolute)) was weak. Please see Table 91.

Table 91 Correlation between project duration change and Log (Project Cost Change (Absolute))

	<i>Project Duration Change</i>	<i>Log (Project Cost Change (Absolute))</i>
Project Duration Change	1	
Log (Project Cost Change (Absolute))	0.143	1

Number of Bidders and Log (Project Cost Change (Absolute))

Figure 96 is the scattergram between the number of bidders and Log (Project Cost Change (Absolute)). Table 92 is the output summary of the regression analysis.

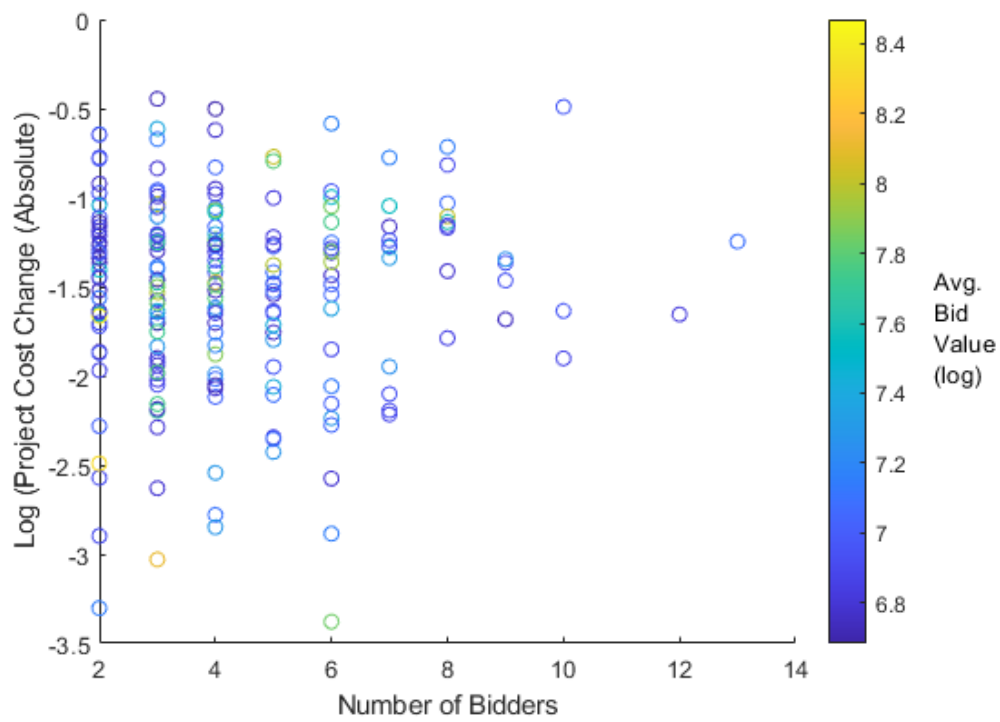


Figure 96 Number of bidders and Log (Project Cost Change (Absolute)) scatter diagram

Table 92 Regression analysis output summary – Number of bidders and Log (Project Cost Change (Absolute))

Regression Statistics	
R Square	0.001
Adjusted R Square	-0.004
Standard Error	0.529
Observations	210

The correlation between the number of bidders and Log (Project Cost Change (Absolute)) was less than weak and virtually unrelated. Please see Table 93.

Table 93 Correlation between number of bidders and Log (Project Cost Change (Absolute))

	Number of Bidders	Log (Project Cost Change (Absolute))
Number of Bidders	1	
Log (Project Cost Change (Absolute))	0.035	1

Average Bid Value and Log (Project Cost Change (Absolute))

Figure 97 is the scattergram between the average bid value and Log (Project Cost Change (Absolute)). Table 94 is the output summary of the regression analysis.

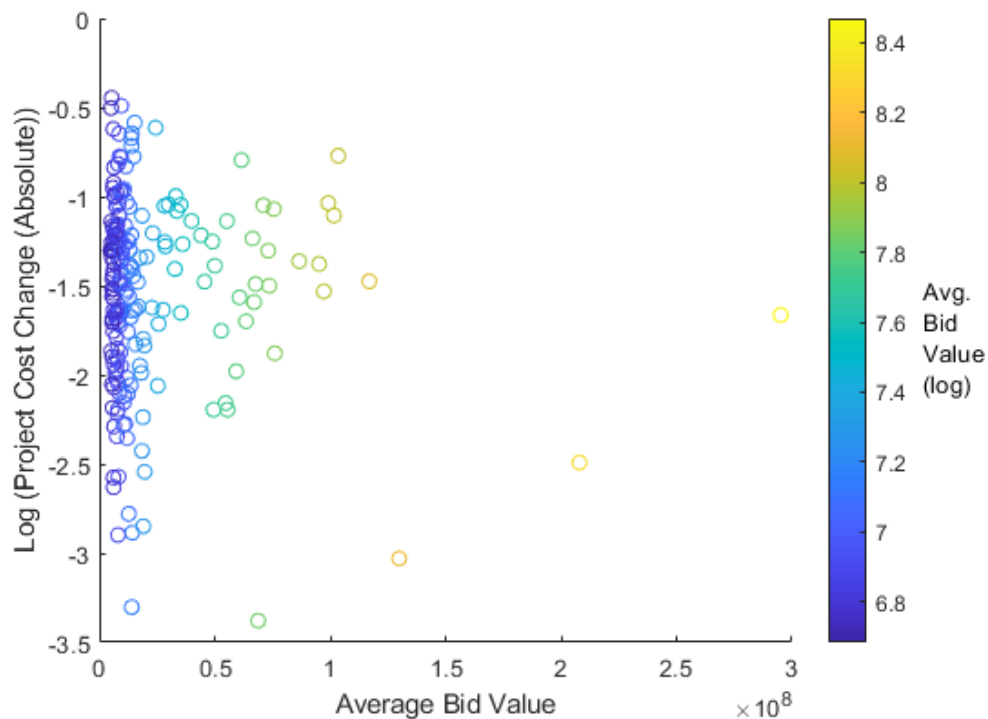


Figure 97 Average bid value and Log (Project Cost Change (Absolute)) scatter diagram

Table 94 Regression analysis output summary – Average bid value and Log (Project Cost Change (Absolute))

Regression Statistics	
R Square	0.007
Adjusted R Square	0.002
Standard Error	0.528
Observations	210

The correlation between the average bid value and Log (Project Cost Change (Absolute)) was less than weak and virtually unrelated. Please see Table 95.

Table 95 Correlation between average bid value and Log (Project Cost Change (Absolute))

	Average Bid Value	Log (Project Cost Change (Absolute))
Average Bid Value	1	
Log (Project Cost Change (Absolute))	-0.082	1

Winning Bid and Log (Project Cost Change (Absolute))

Figure 98 is the scattergram between the winning bid and Log (Project Cost Change (Absolute)).

Table 96 is the output summary of the regression analysis.

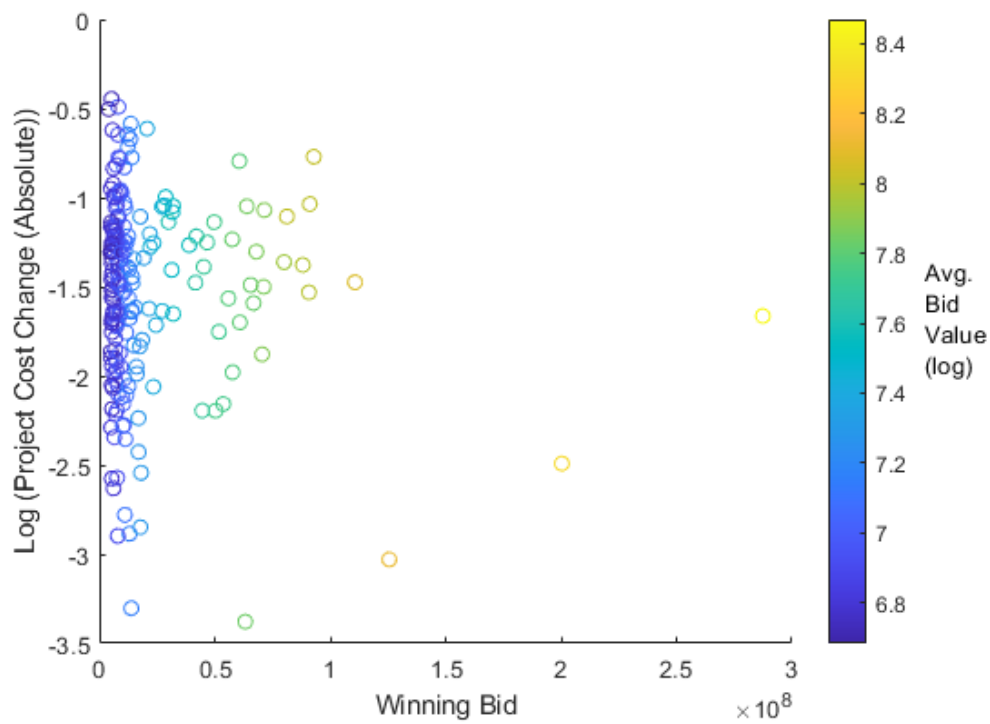


Figure 98 Winning bid and Log (Project Cost Change (Absolute)) scatter diagram

Table 96 Regression analysis output summary – Winning bid and Log (Project Cost Change (Absolute))

Regression Statistics	
R Square	0.008
Adjusted R Square	0.003
Standard Error	0.528
Observations	210

The correlation between the winning bid and Log (Project Cost Change (Absolute)) was less than weak and virtually unrelated. Please see Table 97.

Table 97 Correlation between winning bid and Log (Project Cost Change (Absolute))

	Bidder 1 (Award Bid)	Log (Project Cost Change (Absolute))
Bidder 1 (Award Bid)	1	
Log (Project Cost Change (Absolute))	-0.089	1

Final Construction Cost and Log (Project Cost Change (Absolute))

Figure 99 is the scattergram between the final construction cost and Log (Project Cost Change (Absolute)). Table 98 is the output summary of the regression analysis.

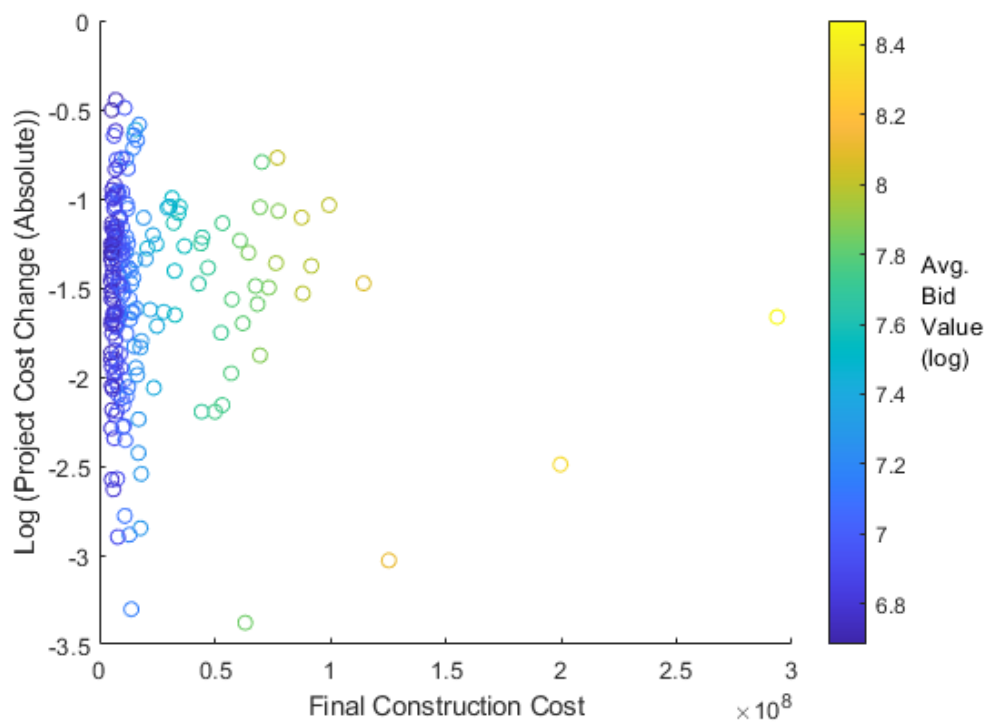


Figure 99 Final construction cost and Log (Project Cost Change (Absolute)) scatter diagram

Table 98 Regression analysis output summary – Final construction cost and Log (Project Cost Change (Absolute))

Regression Statistics	
R Square	0.006
Adjusted R Square	0.002
Standard Error	0.528
Observations	210

The correlation between the final construction cost and Log (Project Cost Change (Absolute)) was less than weak and virtually unrelated. Please see Table 99.

Table 99 Correlation between final construction cost and Log (Project Cost Change (Absolute))

	Log (Project Cost Change (Absolute))	
	TOTAL	
TOTAL	1	
Log (Project Cost Change (Absolute))	-0.080	1

Cumulative Rate of Inflation and Log (Project Cost Change (Absolute))

Figure 106 is the scattergram between the cumulative inflation rate and Log (Project Cost Change (Absolute)). Table 100 is the output summary of the regression analysis.

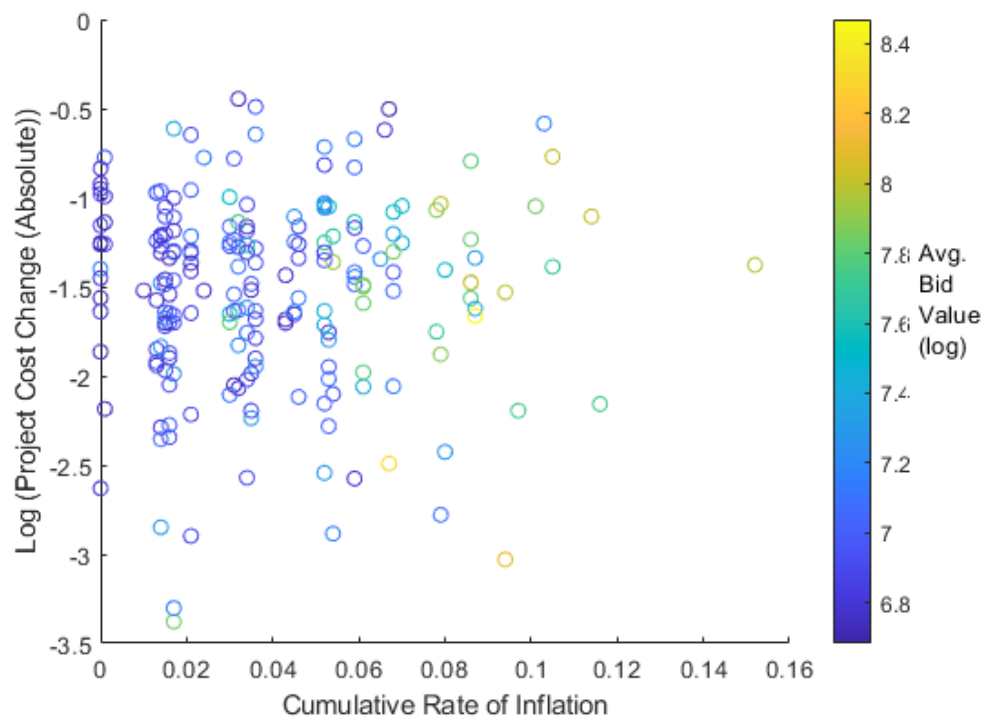


Figure 100 Cumulative inflation rate and Log (Project Cost Change (Absolute)) scatter diagram

Table 100 Regression analysis output summary – Cumulative inflation rate and Log (Project Cost Change (Absolute))

Regression Statistics	
R Square	0.000
Adjusted R Square	-0.005
Standard Error	0.530
Observations	210

The correlation between the cumulative inflation rate and Log (Project Cost Change (Absolute)) was less than weak and virtually unrelated. Please see Table 101.

Table 101 Correlation between cumulative inflation rate and Log (Project Cost Change (Absolute))

	Cumulative rate of inflation	Log (Project Cost Change (Absolute))
Cumulative rate of inflation	1	
Log (Project Cost Change (Absolute))	0.014	1

Log-log model

In a log-linear model, which takes the form of $\log \hat{y} = b_0 + b_1 \log x_1$, one percentage change in x , on average, leads to a b percent change in y (UWA School of Agriculture and Environment, 2021). A series of regression analyses with linear-log transformations were carried out. Only the dependable variable Project Cost Change (Absolute) was considered since the logarithmic transformation does transform negative values, i.e., Project Cost Change (Actual). Unfortunately, there was no additional insightful observation. Please see the following sections for detail.

Log (C.V.) and Log (Project Cost Change (Absolute))

Figure 101 is the scattergram between Log (C.V.) and Log (Project Cost Change (Absolute)).

Table 102 is the output summary of the regression analysis.

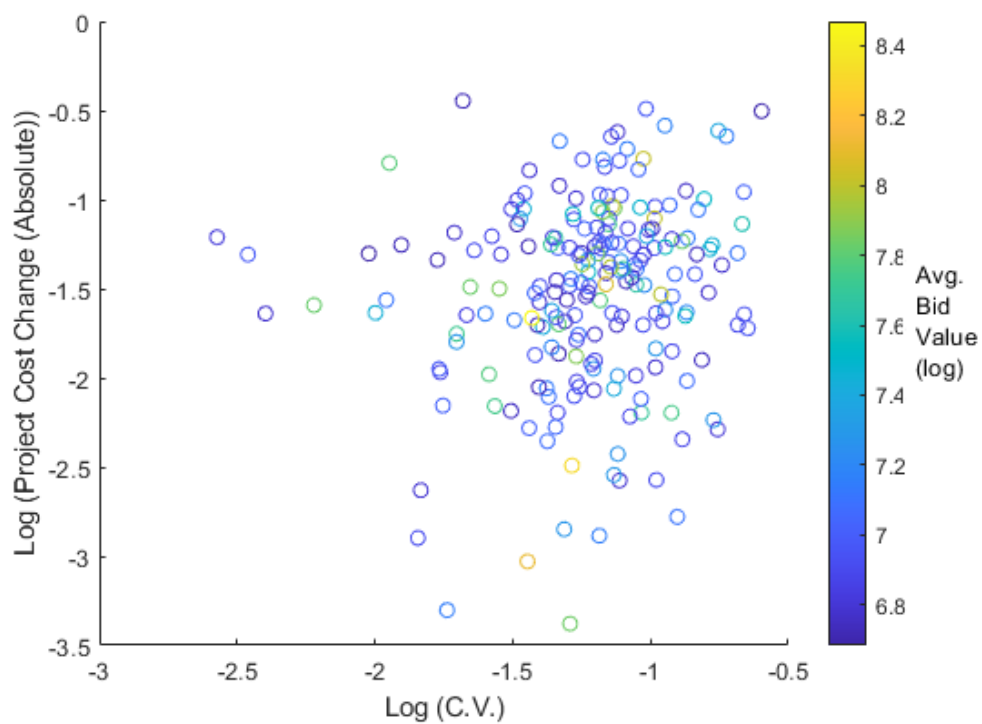


Figure 101 Log (C.V.)and Log (Project Cost Change (Absolute)) scatter diagram

Table 102 Regression analysis output summary – Log (C.V.)and Log (Project Cost Change (Absolute))

Regression Statistics	
R Square	0.017
Adjusted R Square	0.012
Standard Error	0.525
Observations	210

The correlation between Log (C.V.)and Log (Project Cost Change (Absolute)) was weak. Please see Table 103.

Table 103 Correlation between Log (C.V.) and Log (Project Cost Change (Absolute))

	Log CV	Log (Project Cost Change (Absolute))
Log CV	1	
Log (Project Cost Change (Absolute))	0.131	1

Log (Planned Project Duration) and Log (Project Cost Change (Absolute))

Figure 102 is the scattergram between Log (Planned project duration) and Log (Project Cost Change (Absolute)). Table 104 is the output summary of the regression analysis.

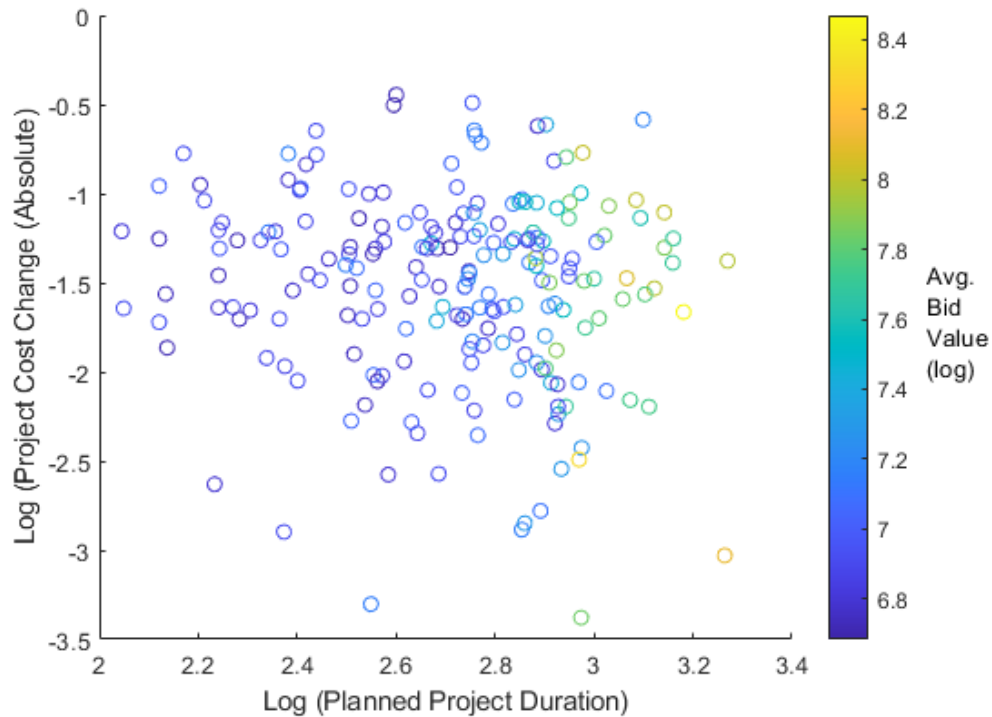


Figure 102 Log (Planned project duration) and Log (Project Cost Change (Absolute))

scatter diagram

Table 104 Regression analysis output summary – Log (Planned project duration) and Log (Project Cost Change (Absolute))

Regression Statistics	
R Square	0.011
Adjusted R Square	0.006
Standard Error	0.527
Observations	210

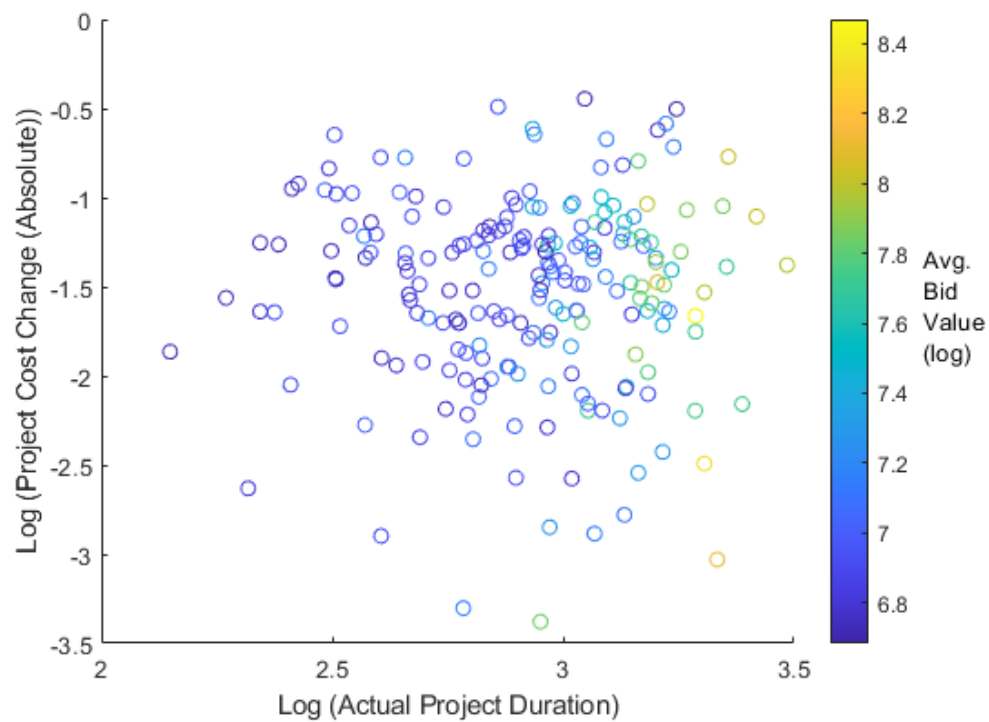
The correlation between Log (Planned project duration) and Log (Project Cost Change (Absolute)) was weak. Please see Table 105.

Table 105 Correlation between Log (Planned project duration) and Log (Project Cost Change (Absolute))

	Log	
	Planned Project Duration	Log (Project Cost Change (Absolute))
Log		
Planned Project Duration	1	
Log (Project Cost Change (Absolute))	-0.106	1

Log (Actual Project Duration) and Log (Project Cost Change (Absolute))

Figure 103 is the scattergram between Log (Actual project duration) and Log (Project Cost Change (Absolute)). Table 106 is the output summary of the regression analysis.



*Figure 103 Log (Actual project duration) and Log (Project Cost Change (Absolute))
scatter diagram*

*Table 106 Regression analysis output summary – Log (Actual project duration) and Log
(Project Cost Change (Absolute))*

Regression Statistics	
R Square	0.000
Adjusted R Square	-0.005
Standard Error	0.530
Observations	210

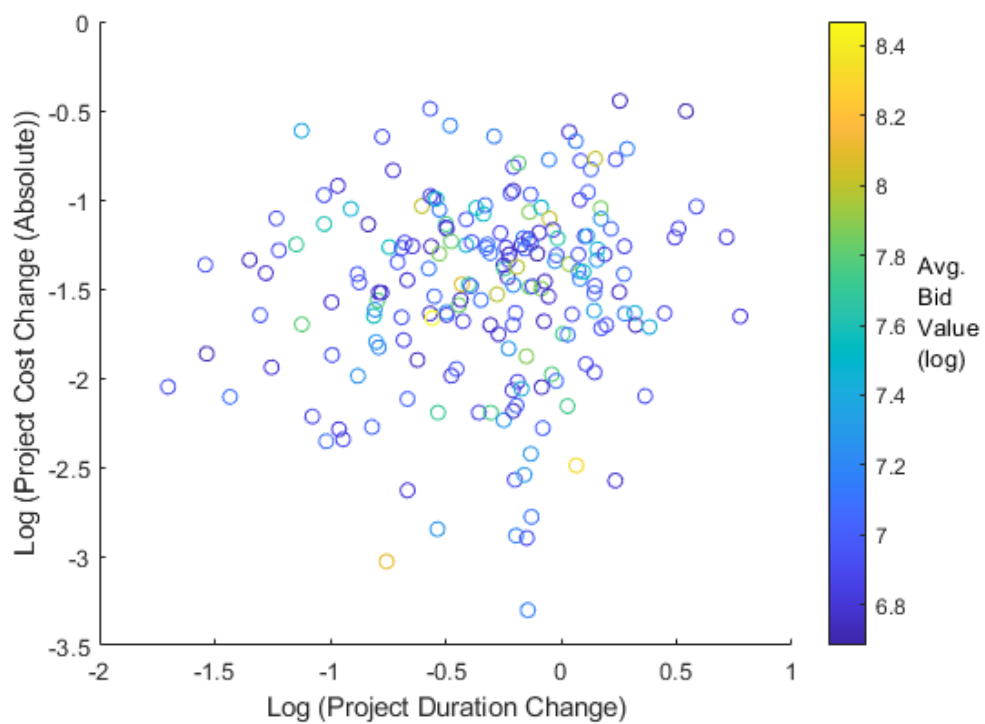
The correlation between Log (Actual project duration) and Log (Project Cost Change (Absolute)) was less than weak and virtually unrelated. Please see Table 107.

Table 107 Correlation between Log (Actual project duration) and Log (Project Cost Change (Absolute))

	Log Actual Project Duration	Log (Project Cost Change (Absolute))
Log Actual Project Duration	1	
Log (Project Cost Change (Absolute))	-0.012	1

Log (Project Duration Change) and Log (Project Cost Change (Absolute))

Figure 104 is the scattergram between Log (Project duration change) and Log (Project Cost Change (Absolute)). The project duration change in the negative territory was dropped since the logarithmic transformation cannot take a negative value. Table 108 is the output summary of the regression analysis.



*Figure 104 Log (Project duration change) and Log (Project Cost Change (Absolute))
scatter diagram*

*Table 108 Regression analysis output summary – Log (Project duration change) and Log
(Project Cost Change (Absolute))*

Regression Statistics	
R Square	0.013
Adjusted R Square	0.008
Standard Error	0.516
Observations	202

The correlation between Log (Project duration change) and Log (Project Cost Change (Absolute)) was weak. Please see Table 109.

Table 109 Correlation between Log (Project duration change) and Log (Project Cost Change (Absolute))

	Log Project Duration Change	Log (Project Cost Change (Absolute))
Log Project Duration Change	1	
Log (Project Cost Change (Absolute))	0.113	1

Log (Number of Bidders) and Log (Project Cost Change (Absolute))

Figure 105 is the scattergram between Log (Number of bidders) and Log (Project Cost Change (Absolute)). Table 110 is the output summary of the regression analysis.

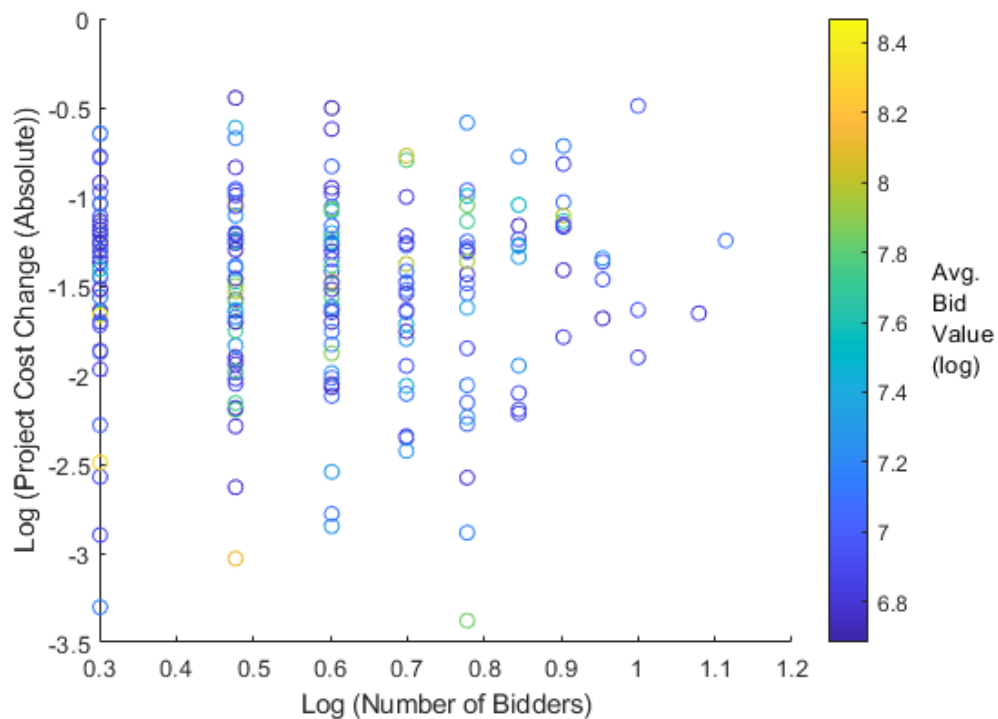


Figure 105 Log (Number of bidders) and Log (Project Cost Change (Absolute)) scatter diagram

Table 110 Regression analysis output summary – Log (Number of bidders) and Log (Project Cost Change (Absolute))

Regression Statistics	
R Square	0.000
Adjusted R Square	-0.005
Standard Error	0.530
Observations	210

The correlation between Log (Number of bidders) and Log (Project Cost Change (Absolute)) was less than weak and virtually unrelated. Please see Table 111.

Table 111 Correlation between Log (Number of bidders) and Log (Project Cost Change (Absolute))

	Log Number of Bidders	Log (Project Cost Change (Absolute))
Log Number of Bidders	1	
Log (Project Cost Change (Absolute))	0.009	1

Log (Average Bid Value) and Log (Project Cost Change (Absolute))

Figure 106 is the scattergram between Log (Average bid value) and Log (Project Cost Change (Absolute)). Table 112 is the output summary of the regression analysis.

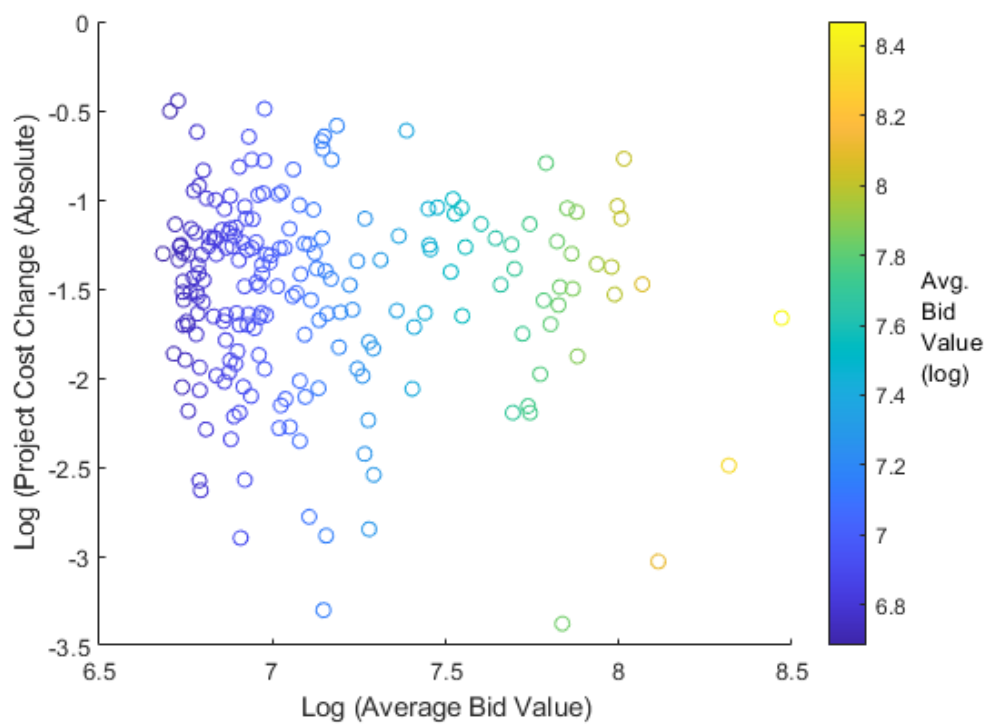


Figure 106 Log (Average bid value) and Log (Project Cost Change (Absolute)) scatter diagram

Table 112 Regression analysis output summary – Log (Average bid value) and Log (Project Cost Change (Absolute))

Regression Statistics	
R Square	0.004
Adjusted R Square	0.000
Standard Error	0.529
Observations	210

The correlation between Log (Average bid value) and Log (Project Cost Change (Absolute)) was less than weak and virtually unrelated. Please see Table 113.

Table 113 Correlation between Log (Average bid value) and Log (Project Cost Change (Absolute))

	Log Average Bid Value	Log (Project Cost Change (Absolute))
Log Average Bid Value	1	
Log (Project Cost Change (Absolute))	-0.065	1

Log (Winning Bid) and Log (Project Cost Change (Absolute))

Figure 107 is the scattergram between Log (Winning bid) and Log (Project Cost Change (Absolute)). Table 114 is the output summary of the regression analysis.

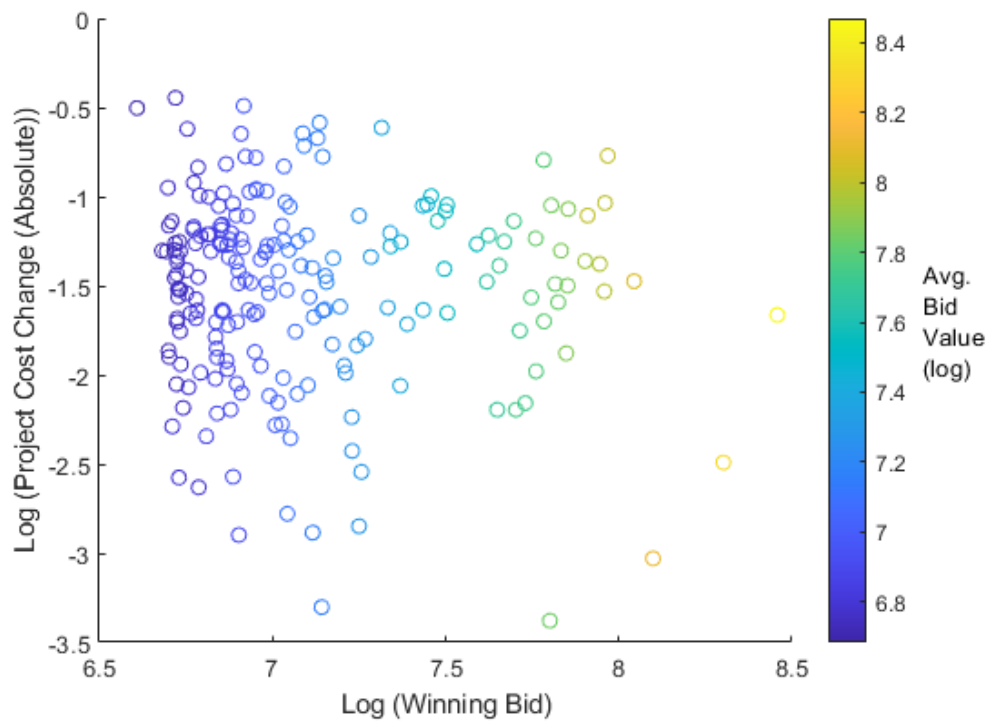


Figure 107 Log (Winning bid) and Log (Project Cost Change (Absolute)) scatter diagram

Table 114 Regression analysis output summary – Log (Winning bid) and Log (Project Cost Change (Absolute))

Regression Statistics	
R Square	0.005
Adjusted R Square	0.000
Standard Error	0.528
Observations	210

The correlation between Log (Winning bid) and Log (Project Cost Change (Absolute)) was less than weak and virtually unrelated. Please see Table 115.

Table 115 Correlation between Log (Winning bid) and Log (Project Cost Change (Absolute))

	Log Winning Bid	Log (Project Cost Change (Absolute))
Log Winning Bid	1	
Log (Project Cost Change (Absolute))	-0.071	1

Log (Final Construction Cost) and Log (Project Cost Change (Absolute))

Figure 108 is the scattergram between Log (Final construction cost) and Log (Project Cost Change (Absolute)). Table 116 is the output summary of the regression analysis.

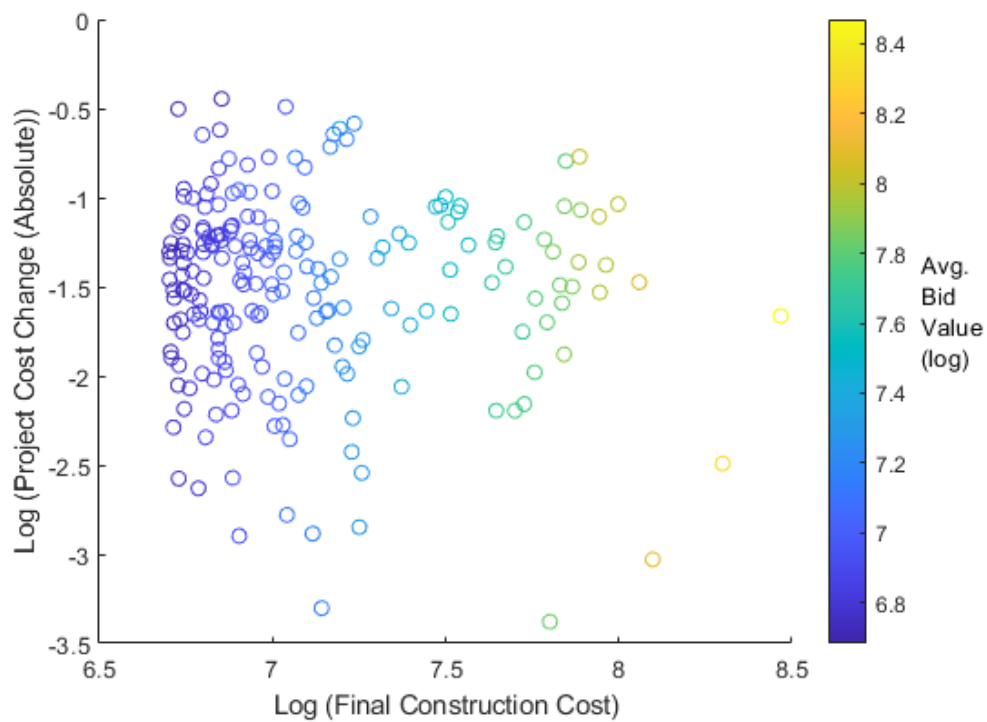


Figure 108 Log (Final construction cost) and Log (Project Cost Change (Absolute)) scatter diagram

Table 116 Regression analysis output summary – Log (Final construction cost) and Log (Project Cost Change (Absolute))

Regression Statistics	
R Square	0.003
Adjusted R Square	-0.002
Standard Error	0.529
Observations	210

The correlation between Log (Final construction cost) and Log (Project Cost Change (Absolute)) was less than weak and virtually unrelated. Please see Table 117.

Table 117 Correlation between Log (Final construction cost) and Log (Project Cost Change (Absolute))

	Log (Final Construction Cost)	Log (Project Cost Change (Absolute))
Log (Final Construction Cost)	1	
Log (Project Cost Change (Absolute))	-0.051	1

Log (Cumulative Inflation Rate) and Log (Project Cost Change (Absolute))

Figure 106 is the scattergram between Log (Cumulative inflation rate) and Log (Project Cost Change (Absolute)). Those projects that did not experience inflation were excluded. Table 118 is the output summary of the regression analysis.

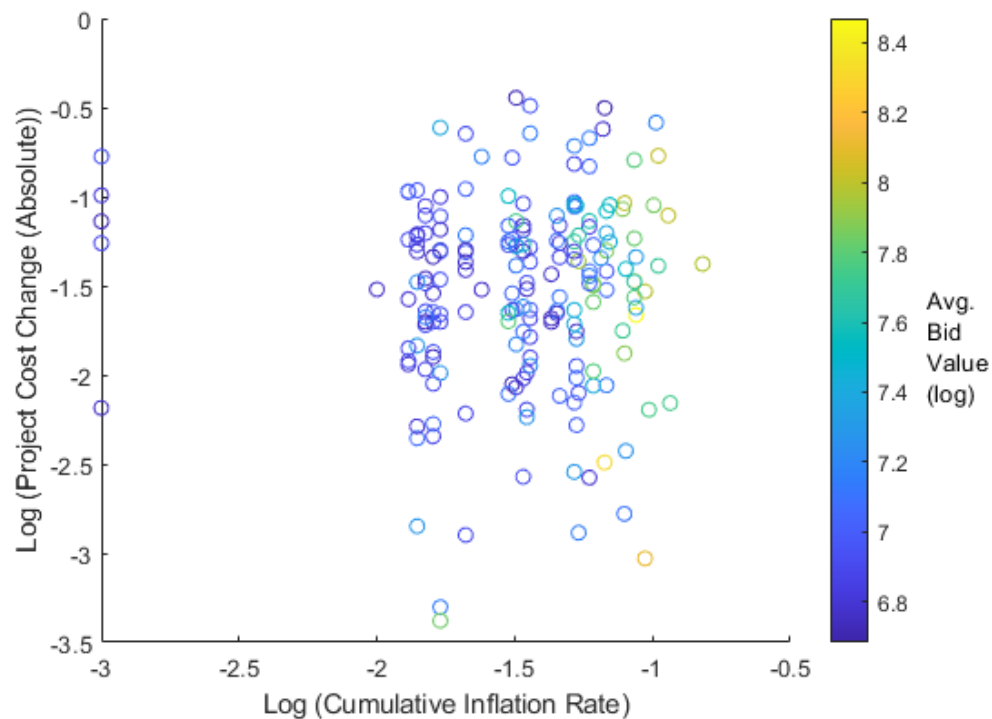


Figure 109 Log (Cumulative inflation rate) and Log (Project Cost Change (Absolute)) scatter diagram

Table 118 Regression analysis output summary – Log (Cumulative inflation rate) and Log (Project Cost Change (Absolute))

Regression Statistics	
R Square	0.000
Adjusted R Square	-0.005
Standard Error	0.532
Observations	197

The correlation between the Log (Cumulative inflation rate) and Log (Project Cost Change (Absolute)) was less than weak and virtually unrelated. Please see Table 119.

Table 119 Correlation between Log (Cumulative inflation rate) and Log (Project Cost Change (Absolute))

	Log (Cumulative Inflation Rate, absolute)	Log (Project Cost Change (Absolute))
Log (Cumulative Inflation Rate, absolute)	1	
Log (Project Cost Change (Absolute))	0.001	1

Appendix D: Synopses of analyzed bid protest cases

This section provides a brief account of each bid protest case analyzed.

Matter of Netizen Corporation (Case 1)

The scope of work for this case included cybersecurity network assessments of the information systems. The protester was the prime contractor on the incumbent contract, whereas the awardee was the protester's subcontractor; the protester performed about 65% of the value of the incumbent contract, and the awardee as a subcontractor performed about 15% of the value of the same contract. Both proposals received the same outstanding ratings under the factor of corporate experience. Challenging the award decision, the protester argued that the awardee was only a subcontractor to the protester on the prior contract and, therefore, should not have received the same outstanding rating under the corporate experience factor. The protester also contended that the subcontractor/awardee's relevant corporate experience did not meet the magnitude (size) requirement of relevant corporate experience. According to the GAO, however, the argument that the work performed by a subcontractor was inferior to the work performed by a prime contractor was not supported by what was stipulated in the request for proposals. Further, the GAO considered that the magnitude (size) of corporate experience was not limited strictly to the monetary amount of work performed (GAO, 2020a).

Matter of Pond Constructors, Inc. (Case 2)

The scope of work for this case included recurring maintenance and repair services of petroleum facilities on the U.S. government's overseas installations. The quotations were evaluated against the technical approach, past performance, price, and small business participation. The source selection authority rated the technical approach of the protester's quotation a significant weakness; the authority assessed that the protester's quotation failed to discuss how the proposer would effectively prioritize service orders. The protester challenged and argued that the request for quotations did not require such discussion in the quotation. The protester also argued that it was the government's responsibility to prioritize service orders.

The protesters, in essence, argued that the source selection authority applied an unwritten evaluation criterion. However, the GAO viewed that the agencies could apply unwritten considerations as long as such “considerations are reasonably and logically encompassed” within the written evaluation criteria and “there is a clear nexus between” the unwritten and written criteria. By not providing an effective approach to service order prioritization, the protester failed to demonstrate that the protester thoroughly understood the contract’s requirements (GAO, 2020j).

Matter of Facility Services Management, Inc. (Case 3)

The scope of work for this case included facility operations and maintenance (O&M hereafter) services for a military hospital. The proposals were evaluated based on technical, experience, past performance, and price. The agency required the proposed O&M supervisors can perform the maintenance work—a requirement included due to previous failures—to ensure that the O&M supervisors had direct knowledge of the task at hand to timely and adequately supervise the maintenance work. The agency assessed that the resume of the O&M supervisor proposed by the protester failed to demonstrate any experience performing the subject maintenance work or the capacity to perform the work. The protester challenged and argued that requiring the O&M supervisor be able to personally perform the maintenance work was an unstated evaluation factor since the O&M supervisor position was managerial, not hands-on. After examining the plain language of the solicitation, the GAO viewed that the protester’s interpretation of the requirement was not reasonable. The required ability to perform maintenance operations personally would not be substituted with other credentials, including professional certifications (GAO, 2020l).

Matter of NIKA Technologies, Inc. (Case 4)

The scope of work for this case included facilities maintenance and specialized O&M services for military medical facilities at locations inside and outside of the U.S. The evaluation factor at issue was the corporate experience factor. The agency considered that the protester failed to demonstrate “acceptable O&M experience in medical facilities as the [prime contractor],

specifically preventive maintenance experience.” Challenging, the protester contended that the evaluation factor made no reference to preventive maintenance experience and that the agency used an unstated evaluation criterion. The GAO acknowledged that the protester was correct in pointing out that the phrase “preventive maintenance” was not expressly mentioned in the language of the corporate experience factor. Nevertheless, no merit was found in the protester’s argument. First, an examination of the request for proposals, when read in its entirety, including its technical exhibit, demonstrated a heavy emphasis on preventive maintenance services. Next, O&M services, by their nature, would include preventive maintenance services; further, as a small business, the protester was required to demonstrate its full spectrum of O&M services experiences at ambulatory care facilities. Finally, the protester lacked any direct O&M experience, not to mention preventive maintenance experience (GAO, 2020i; U.S. Army Corps of Engineers, 2019a).

Matter of J&J Worldwide Services (Case 5)

The scope of work for this case included the repair and renewal work for the radiology department at an Army medical center. Relevant requirements included replacing the existing HAVC system with a new system; the request for proposals also stated that less disruption to the customer during the work would be valued higher. The protester offered to provide a “new or renovated” HVAC system and proposed to reuse the existing exhaust fan duct risers limitedly. The agency rated the protester’s proposal technically unacceptable. Along with other allegations, the protester argued that its limited reuse of some HAVC components was justified as such limited reuse would lessen the disruption to the customer. The protester also contended that the proposed reuse was not a deficiency, i.e., a material failure, but a minor deviation. However, the GAO viewed that deviating from the expressly stated requirement to satisfy the directive would be an allegation of a patent ambiguity in the solicitation; thus, the bid protest should have been filed before the bid opening. The GAO also rejected the protester’s argument of a minor deviation because the agency’s judgment carried considerable weight in matters related to human safety (GAO, 2020f).

Matter of Prestige Lawncare, Inc. (Case 6)

The scope of work for this case included the provision of gate attendant services such as fee collections, reservations, and security; cleanup and solid waste removal services for, including picnic areas, restrooms, and fish-cleaning stations; and mowing and trimming services in parks and facilities in Pine Bluff, Arkansas. Table 120 summarizes interactions between the protester and the agency before and after the bid due date.

Table 120 A summary of interactions between the protester and the agency before and after the bid due date

Date	Time	Activity
Friday, 6 March 2020		The agency issued the request for quotations
Thursday, 19 March 2020	18:00	The protester emailed questions to the contracting officer.
Monday, 23 March 2020	11:05	The contracting officer responded.
Monday, 23 March 2020	12:00	Quotations were due.
Monday, 23 March 2020	12:29	The protester submitted its quotation.
Monday, 24 March 2020	12:40	The contracting officer informed the protester that the quotation was not accepted.
Tuesday, 24 March 2020		The protest was filed.

The protester argued that its quotation should have been acceptable because the agency failed to respond to its timely inquiries. The request for quotations stated that the provision of Federal Acquisition Regulation 52.212-1 applied to this acquisition; this provision incorporated by reference expressly limits the agency's consideration of late submission (U.S. Government, n.d.). The GAO pointed out that no applicable circumstances were present for the agency to accept the protester's late quotation (GAO, 2020e; U.S. Army Corps of Engineers, 2020a).

Matter of Benaka Inc. (Case 7)

The scope of work for this case included design-building services at sites across twelve states. The agency would select four small businesses and give each a five-year indefinite-delivery, indefinite-quantity contract. The request for proposal specified the format of the proposal. The protester's proposal was rated technically unacceptable due to the lack of the organizational chart required by the request for proposal. The issue was the requirement of a 35-page limit. The protester's proposal was 36-page long, and the organizational chart was on page 36. The protester challenged that the agency unreasonably counted the unnumbered and non-substantive cover page. The protester contended that cover pages were not identified as countable by the language of the page limit requirement. However, the GAO found that the inclusion of the cover page in the agency's calculation was reasonable as the plain language required the agency to count all pages; the exemption to this requirement was expressly limited to past performance questionnaires (GAO, 2020d; U.S. Army Corps of Engineers, 2019b).

Matter of Re-Engineered Business Solutions, Inc. (Case 8)

The scope of work for this case included the maintenance, repair, minor construction, and operation of parks, dams, a power plant, and a pumping station located at a public recreational lake. Evaluation factors were technical, past performance, and price. The technical factor was further broken down into workforce, service approach; equipment, materials, supplies; and management approach. The protester's proposal received a marginal mark under the equipment material and suppliers subfactor. The protester argued that the agency used an unstated criterion—the age of the vehicle fleet—in its technical evaluation. The GAO acknowledged that no specific vehicle age requirement was mentioned in the solicitation. However, the GAO also acknowledged that the agency's concern over the reliability of the protester's vehicles was based on information provided by the protester in its proposal, information such as "[the protester] has vehicles with over 200,000 miles that run and operate like new", "... we are proposing used vehicles that may experience an engine or transmission failure...", and, "... vehicles with engine or transmission failures will be repaired at ... no cost

to the Government.” Thus, the GAO decided that the agency’s concern about delays in contract performance due to the use of an aged vehicle was reasonable (GAO, 2020m; U.S. Army Corps of Engineers, 2019c).

Matter of Artek Construction (Case 9)

The scope of work for this case included design-build or design-bid-build services for the construction, renovation, and repair of general buildings in support of defense operations in Turkey. The management approach of the protester’s proposal was rated marginal/high risk by the technical evaluation board. The submitted organizational chart and narrative description of the overall structure and management of the project team from the back office to the site office were evaluated as incomplete, confusing, and incorrect. As a result, the protester was excluded from the next phase competition. Challenging, the protester argued that the identified concerns were relatively minor and should have been resolved through clarifications. The protesters also alleged that its proposal received unequal treatment compared to similar organizational charts submitted by other proposers. However, the GAO highlighted that the protester’s organizational chart failed to identify the highest on-site authority, the site superintendent position, as required and that the provided narrative description of the position was scarce and cryptic. The GAO also highlighted that the agency was not required to engage in clarifications or discussions since the proposers had been advised of the agency’s intention to evaluate proposals as submitted. The GAO viewed that the protesters failed to establish that its management approach was substantively indistinguishable from or identical to other submitted management approaches (GAO, 2020n; U.S. Army Corps of Engineers, 2019d).

Matter of Pacific Dredge and Construction, LLC (Case 10)

The scope of work for this case included maintenance dredging of a deep-water shipping channel. The protester submitted its bid bond on the American Institute of Architects (AIA) form instead of a federal standard form. The AIA form included a default clause—a provision limiting the surety’s liability to the delta between the original bid amount and the replacement contract amount—as well as a savings clause—any provision conflicting with/conforming to a statutory

or legal requirement is deemed deleted/incorporated—and had been accepted by the agency. However, the protester’s bid was rejected as nonresponsive; the agency cited the GAO’s prior decision, the “G2G decision,” that decided the same bid bond form ambiguous and defective. The protester argued that this case was distinguishable since there was an established course of dealing and mutual understanding between the parties: The agency had accepted the same bid bond form before and after the G2G decision. The GAO pointed out that the fact that the agency had accepted the same bond bid form, whether before or after the G2G decision, did not prohibit the agency from rejecting the same bid bond form by later invoking the legal requirements. The improper award in the past did not justify the repetition of the same error (GAO, 2020k).

Matter of C.I. Lovell, Inc. (Case 11)

The scope of work for this case included the provision of heavy construction equipment with operators for a month to be used at a dam. The protester initially filed a bid protest after being excluded from award consideration; after five days, the agency informed the GAO that the agency would take necessary corrective action and requested the dismissal of the case. Accordingly, the GAO dismissed the protest. Then, the protester asked that the GAO recommend reimbursement of costs and attorney’s fees associated with the dismissed bid protest. The requester argued that such fees and costs could have been avoided should the agency have responded to the requester’s agency-level inquiry. Although the relevant bid protest regulations allowed the recommendation of the reimbursement of such costs, the GAO viewed that the agency took prompt corrective action in response to the bid protest and that the requester was not required to expend unnecessary costs (GAO, 2020c).

Matter of Severson Environmental Services, Inc. (Case 12)

The scope of work for this case included the performance of environmental remediation activities such as analyzing soil, excavating contaminated soil, transporting the waste, and restoring properties located in an active industrial area along the Delaware River. The most important evaluation factor was company experience, followed by past performance. These

two factors, when combined, were significantly more important than the cost factor. The awardee's technical proposal was evaluated as superior in multiple sub-criteria over the protester's technical proposal; nevertheless, both proposals were given identical ratings under the two non-cost factors. On the other hand, the protester's proposed cost was about 10% lower than the awardee's proposed cost. The protester argued that, along with different allegations, the agency failed to account for the significant cost advantage offered by the protester's proposal; the protester maintained that cost should have become the decisive factor. In its decision, the GAO noted that the source selection authority had broad discretion in exercising judgment and, therefore, did not question the source selection authority's determination that the non-cost advantages offered by the awardee's proposal outweighed the proposal's higher cost (GAO, 2020b).

Matter of W-T, Joint Venture (Case 13)

The scope of work for this case included the provision of general construction work on military bases in three states. The protester challenged the selection of the higher-rated, higher-priced proposal. Among other arguments, the protester took an issue with the agency's waiver of the requirement of using a specified construction cost estimation software; the protester used the specified software, whereas the awardee did not. As a fundamental principle of federal procurement, a contracting agency must treat all offers equally and even-handedly. Also, the GAO would sustain a bid protest when an agency improperly waives or relaxes its solicitation requirements for the awardee. However, the protester needs to establish a reasonable possibility that the agency's such action prejudices it. In other words, the protester must demonstrate that it would have had a substantial chance of winning the award, but for the agency's waiver of the requirement in the solicitation for the awardee. In this case, the protester failed to explain what it would have done differently had it known that the agency relaxed the requirement of the specified cost estimation software (GAO, 2020g).

Matter of Wolff-Mueller Government Services GmbH & Company KG (Case 14)

The scope of work included general building renovation work, incidental minor construction work, and environmental remedial work at U.S. government facilities in Europe. The protester challenged the selection of the higher-rated, higher-priced proposal. In addition, the protester argued that the agency erroneously assigned a weakness under the management approach factor based on information from its separate proposal for another related procurement. The protester also contended that the agency was reasonable in considering negative past preformation evaluations beyond the reference projects identified in the protester's proposal. The GAO noted the agency's acknowledgment of its error in citing key personnel from a wrong proposal; however, the GAO denied this aspect of the protest as the mistake did not affect the award; the record showed that the agency intended to assign the same rating. Thus, the protester was not prejudiced by this particular error. Regarding the agency's considering negative past preformation evaluations, the request for proposal plainly stated that the agency reserved the right to review all recent past performance records, including other projects not submitted by the proposer (GAO, 2020h).

Matter of KMK Construction, Inc. (Case 15)

The scope of work included the provision of design-build services in several states. After the initial round of evaluation, the qualified proposers were asked to submit a design-build proposal for an operations office for an existing dam. The protester's proposal was rated unacceptable as the proposer failed to discuss the provision of a 12-foot-wide gravel driveway. The protester argued that the requirement for the driveway was essentially eliminated by a subsequent amendment to the request for proposal that stated the driveway should be provided from the basement access door to the end of the retaining walls; the protester contended that a driveway must connect a building to a road or parking lot. The GAO agreed with the protester that the specification for the gravel driveway was unclear; however, the GAO noted that the protester failed to timely protest the relevant terms for ambiguity. Further, the GAO disagreed with the

protester's assertion that the ambiguity was not patent but latent, and therefore the matter could be protested after the award (GAO, 2020o).

Matter of Bodell Construction Company (Case 16)

The scope of work included providing a hydrant fuel system for an air force base. Evaluation factors were contractor qualifications, subcontractor qualifications, past performance, small business participation, and price. The proposers submitted initial proposals, engaged in discussions with the agency, and resubmitted their proposals. Discussions were limited to issues relating to small business participation and price factors. The agency concluded that the awardee's proposal was technically superior. The protester alleged, among other allegations, that the awardee was afforded discussions to improve its weakness under the small business participation factor. In contrast, the protester was not afforded meaningful discussions to address its weaknesses under other factors. The GAO found no basis to object to the agency's conduct of discussions because none of the proposers were allowed to revise their proposals in areas other than the price and small business participation factors; the agency was not required to discuss identified weaknesses with the proposers; and, it was not apparent how discussions would have materially improved the protester's proposal (GAO, 2020p; U.S. Army Corps of Engineers, 2020b).

Matter of Butt Construction Company, Inc. (Case 17)

The scope of work included adding an exterior elevator to a building. The invitation for bids required bidders to be registered in a certification program at the time of bid submission. The lowest bidder did not have a currently active registration, and its bid was rejected as nonresponsive. Then, the lowest bidder filed a bid protest and argued that the rejection of its bid as nonresponsive was improper because having an active registration did not fall within the definition of responsiveness by the Federal Acquisition Regulation. On the other hand, the lowest bidder contended that the issue was a matter of responsibility that could be corrected after the bid opening before the award; later, the agency announced that it would rescind the rejection. Then, the protester, the bidder next in line, filed its protest, arguing that the lowest

bid should not be considered. The protester contended that the issue must be treated as a matter of responsiveness. In its decision, the GAO viewed that the requirement for registration was a matter of responsibility, regardless of how the requirement was phrased in the solicitation (GAO, 2021b).

Appendix E: Findings

The following is the *Coding Summary by Code Formatted Report* generated by NVivo.

Coding Summary by Code

Protests denied

10/11/2022 9:10 AM

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Code

Codes\\A protester must build credible post-protest arguments that can be supported by contemporaneous records.

PDF

Files\\Case 1 Netizen Corporation Decision

No	0.0315	10
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1	YJK	9/7/2022 3:33 PM
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Based on our review of the record, we find reasonable the agency's conclusion that BreakPoint's proposal warranted an outstanding rating under the corporate experience factor. Bot

2	YJK	9/7/2022 3:33 PM
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Indeed, as evidenced by the record, the agency's evaluation team examined a number of factors to gauge magnitude/size relevancy, to include total dollar value, number of project tasks performed, breadth of capabilities utilized, and variety of project contributions. See

3	YJK	9/7/2022 2:40 PM
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In reviewing an agency's evaluation, we do not limit our review to contemporaneous evidence, but consider all of the information provided, including the parties' arguments and explanations. Sci

4	YJK	9/7/2022 2:55 PM
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Although we generally give little weight to reevaluations and judgments prepared in the heat of the adversarial process, se

5	YJK	9/7/2022 2:55 PM
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post-protest explanations that provide a detailed rationale for contemporaneous conclusions and simply fill in previously unrecorded details will generally be considered in our review of the rationality of selection decisions, P

6	YJK	9/7/2022 2:40 PM
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Here, the evaluators' explanations are credible and consistent with the contemporaneous record. 6 T

7	YJK	9/7/2022 2:55 PM
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While our Office will accord lesser weight to post hoc arguments or analyses made in response to protest allegations, se

8	YJK	9/7/2022 2:40 PM
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we will consider the explanation if it is credible and consistent with the contemporaneous record. SEN

9	YJK	9/7/2022 3:33 PM
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Based on our review of BreakPoint's technical solution and the record as a whole, we cannot conclude that the agency's analysis was unreasonable. Acc

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				10	YJK	9/7/2022 2:40 PM

Here, the contemporaneously documented price evaluation suggests that the agency did, in fact, consider price realism, as reflected by the agency's concerns with the low labor rates of another offeror. See

Files\\Case 12 Severson Environmental Services Decision

No	0.0038	1				
				1	YJK	9/7/2022 3:33 PM

The record is also clear that the agency, in fact, gave considerable credit to the experience of Severson's proposed subcontractor, assigning multiple strengths to Severson's proposal based on its subcontractor's experience. See

Files\\Case 13 W-T Join Venture Decision

No	0.0068	2				
				1	YJK	9/7/2022 3:33 PM

The agency provided a detailed explanation of how it estimated the design fee for each project considering the required engineering effort and the percentage of the cost of the project included in R.S. Means. MOL

				2	YJK	9/7/2022 3:33 PM
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Despite this contention, the record shows that G.M. Hill proposed to be the designer of record and perform the construction services, and shows that the company had the capability to do so. AR,

Files\\Case 14 Wolff & Mueller Government Services GmbH Decision

No	0.0080	3				
				1	YJK	9/7/2022 2:55 PM

Our Office generally accords lesser weight to post-hoc arguments or analyses made in response to protest allegations because we are concerned that new judgments made in the heat of an adversarial process may not represent the fair and considered judgment of the agency. Boe

				2	YJK	9/7/2022 2:40 PM
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In contrast, we will consider agencies' explanations that provide a detailed rationale for contemporaneous conclusions and fill in previously unrecorded details, so long as the explanations are credible and consistent with the contemporaneous record. Nat

				3	YJK	9/7/2022 2:55 PM
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On this record, we find that the agency's post-protest explanations for the error in the TEB report and SSDD are consistent with the contemporaneous record. See

Files\\Case 3 Facility Services Management Decision

No	0.0147	2				
				1	YJK	9/7/2022 3:33 PM

The record does not support this argument because, if nothing else, the agency found that Facility's proposed CM O&M supervisor possessed the qualifications that met the PWS requirements--the exact same requirements that applied for the PM O&M supervisor. In

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				2	YJK	9/7/2022 3:33 PM

Based on our review of the record, we find nothing objectionable with the agency's assessment that the experience examples provided in the resume for the PM O&M supervisor did not demonstrate that the individual had actually performed or was able to perform the required maintenance work. COS

Files\\Case 4 NIKA Technologies Decision

No	0.0123	3
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1	YJK	9/7/2022 3:33 PM
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As discussed in detail below, the record shows that NIKA's lack of experience is more fundamental and far reaching than simply a lack of preventive maintenance experience; NIK

2	YJK	9/7/2022 3:33 PM
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As noted above, the record shows that, although the evaluators specifically made reference to NIKA's lack of preventive maintenance experience, the agency's evaluators were more broadly concerned about a lack of any medical operations and maintenance experience.

3	YJK	9/7/2022 3:33 PM
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However, the record shows that neither of the subcontractors included in the Zero Waste team were identified as "key" subcontractors. AR,

Files\\Case 5 J&J Worldwide Services Decision

No	0.0219	3
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1	YJK	9/7/2022 2:40 PM
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In response to this protest, the agency provided a document, dated February 14, 2020, which the agency explains is the document containing its reevaluation of proposals. COS

2	YJK	9/7/2022 3:33 PM
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We find the record demonstrates that the contracting officer, acting as the SSA, made an independent assessment with respect to the award decision. In this regard, we accept the agency's assertion that the March 5 memorandum represents the basis of the contracting officer's source selection decision. First, the record shows that the revised memorandum was finalized and signed prior to J&J filing its protest, and therefore was not created "in the heat of the adversarial process." See

3	YJK	9/7/2022 2:40 PM
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Indeed, as relevant here, both the February 27 and March 5 memoranda contain a contemporaneous finding by the contracting officer that J&J's proposal was rated as unacceptable under the technical approach factor. A

Files\\Case 8 Re-Engineered Business Solutions Decision

No	0.0484	5
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1	YJK	9/7/2022 3:33 PM
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The record shows that the agency had concerns about the relative age of the fleet of vehicles being proposed by the protester, and also was not able to discern precisely which of Re-Engineered's proposed vehicles were new or used. For

2	YJK	9/7/2022 3:33 PM
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While the protester is correct that there was no specific vehicle age requirement stated in the solicitation, the record shows that the agency reached its conclusion about the relative age of Re-Engineered's proposed vehicle fleet based on information contained in its

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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3 YJK 9/7/2022 3:33 PM

The record therefore shows that the agency had a reasonable concern about delays in performance that might be occasioned by the use of a fleet of vehicles that was not adequately described in Re-Engineered's proposal, and that also would necessarily require more repair and maintenance than a newer fleet of vehicles.

W

4 YJK 9/7/2022 3:33 PM

Unlike Re-Engineered's proposal, R&D's proposal identified the year of manufacture for all of its vehicles (in

5 YJK 9/7/2022 3:33 PM

The record therefore shows R&D's vehicles are no more than five years old, and some of them will be newer. Mor

Files\\Case 9 Artek Construction Company Decision

No 0.0152 4

1 YJK 9/7/2022 3:33 PM

While an agency's judgment must be documented in sufficient detail to show it is not arbitrary, a failure to discuss every detail regarding the relative merit of a proposal in an evaluation decision document does not affect the validity of the evaluation. The

2 YJK 9/7/2022 2:55 PM

Post-protest explanations that simply fill in previously unrecorded details will generally be considered in our review of the rationality of selection decisions, so long as those explanation are credible and consistent with the contemporaneous record. S

3 YJK 9/7/2022 3:33 PM

Here, the record reflects that the agency evaluated the protester's and the competing offerors' management plans based on both their individual organizational charts and their management plan narratives. See

4 YJK 9/7/2022 3:33 PM

While Artek's arguments rely on comparisons of the agency's evaluation of the seven offerors' organizational charts, the record shows that the agency's evaluation findings were based on the entirety of the proposals, which reflect fundamentally different information. W

Codes\\A protester must build credible post-protest arguments that can be supported by contemporaneous records.\\Contemporaneous PDF

Files\\Case 1 Netizen Corporation Decision

No 0.0110 4

1 YJK 9/5/2022 12:15 PM

In reviewing an agency's evaluation, we do not limit our review to contemporaneous evidence, but consider all of the information provided, including the parties' arguments and explanations.

2 YJK 9/5/2022 12:21 PM

Here, the evaluators' explanations are credible and consistent with the contemporaneous record.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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3 YJK 9/5/2022 12:31 PM

we will consider the explanation if it is credible and consistent with the contemporaneous record.

4 YJK 9/5/2022 12:34 PM

Here, the contemporaneously documented price evaluation suggests that the agency did, in fact, consider price realism, as reflected by the agency's concerns with the low labor rates of another offeror.

Files\\Case 14 Wolff & Mueller Government Services GmbH Decision

No 0.0029 1

1 YJK 9/6/2022 2:29 PM

In contrast, we will consider agencies' explanations that provide a detailed rationale for contemporaneous conclusions and fill in previously unrecorded details, so long as the explanations are credible and consistent with the contemporaneous record.

Files\\Case 5 J&J Worldwide Services Decision

No 0.0133 3

1 YJK 9/5/2022 6:23 PM

In response to this protest, the agency provided a document, dated February 14, 2020, which the agency explains is the document containing its reevaluation of proposals.

2 YJK 9/5/2022 6:24 PM

In this regard, we accept the agency's assertion that the March 5 memorandum represents the basis of the contracting officer's source selection decision.

3 YJK 9/5/2022 6:26 PM

Indeed, as relevant here, both the February 27 and March 5 memoranda contain a contemporaneous finding by the contracting officer that J&J's proposal was rated as unacceptable under the technical approach factor.

Codes\\A protester must build credible post-protest arguments that can be supported by contemporaneous records.\\Post-protest PDF

Files\\Case 1 Netizen Corporation Decision

No 0.0087 3

1 YJK 9/5/2022 12:20 PM

Although we generally give little weight to reevaluations and judgments prepared in the heat of the adversarial process

2 YJK 9/7/2022 2:47 PM

post-protest explanations that provide a detailed rationale for contemporaneous conclusions and simply fill in previously unrecorded details will generally be considered in our review of the rationality of selection decisions,

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				3	YJK	9/5/2022 12:31 PM

While our Office will accord lesser weight to post hoc arguments or analyses made in response to protest allegations

Files\\Case 14 Wolff & Mueller Government Services GmbH Decision

No	0.0049	2			
			1	YJK	9/6/2022 2:29 PM

Our Office generally accords lesser weight to post-hoc arguments or analyses made in response to protest allegations because we are concerned that new judgments made in the heat of an adversarial process may not represent the fair and considered judgment of the

2 YJK 9/6/2022 2:29 PM

On this record, we find that the agency's post-protest explanations for the error in the TEB report and SSDD are consistent with the contemporaneous record.

Files\\Case 5 J&J Worldwide Services Decision

No	0.0045	1			
			1	YJK	9/5/2022 6:25 PM

First, the record shows that the revised memorandum was finalized and signed prior to J&J filing its protest, and therefore was not created "in the heat of the adversarial process."

Files\\Case 9 Artek Construction Company Decision

No	0.0038	1			
			1	YJK	9/5/2022 7:53 PM

Post-protest explanations that simply fill in previously unrecorded details will generally be considered in our review of the rationality of selection decisions, so long as those explanation are credible and consistent with the contemporaneous record.

Codes\\A protester must build credible post-protest arguments that can be supported by contemporaneous records.\\Review of the record PDF

Files\\Case 1 Netizen Corporation Decision

No	0.0110	3			
			1	YJK	9/5/2022 12:11 PM

Based on our review of the record, we find reasonable the agency's conclusion that BreakPoint's proposal warranted an outstanding rating under the corporate experience factor.

2 YJK 9/5/2022 12:14 PM

Indeed, as evidenced by the record, the agency's evaluation team examined a number of factors to gauge magnitude/size relevancy, to include total dollar value, number of project tasks performed, breadth of capabilities utilized, and variety of project contributions.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				3	YJK	9/5/2022 12:33 PM

Based on our review of BreakPoint's technical solution and the record as a whole, we cannot conclude that the agency's analysis was unreasonable.

Files\\Case 12 Severson Environmental Services Decision

No	0.0037	1				
				1	YJK	9/6/2022 1:42 PM

The record is also clear that the agency, in fact, gave considerable credit to the experience of Severson's proposed subcontractor, assigning multiple strengths to Severson's proposal based on its subcontractor's experience.

Files\\Case 13 W-T Join Venture Decision

No	0.0067	2				
				1	YJK	9/6/2022 1:59 PM

The agency provided a detailed explanation of how it estimated the design fee for each project considering the required engineering effort and the percentage of the cost of the project included in R.S. Means.

				2	YJK	9/6/2022 2:15 PM
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Despite this contention, the record shows that G.M. Hill proposed to be the designer of record and perform the construction services, and shows that the company had the capability to do so.

Files\\Case 3 Facility Services Management Decision

No	0.0145	2				
				1	YJK	9/5/2022 4:53 PM

The record does not support this argument because, if nothing else, the agency found that Facility's proposed CM O&M supervisor possessed the qualifications that met the PWS requirements--the exact same requirements that applied for the PM O&M supervisor.

				2	YJK	9/5/2022 4:58 PM
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Based on our review of the record, we find nothing objectionable with the agency's assessment that the experience examples provided in the resume for the PM O&M supervisor did not demonstrate that the individual had actually performed or was able to perform the required maintenance work.

Files\\Case 4 NIKA Technologies Decision

No	0.0120	3				
				1	YJK	9/5/2022 5:54 PM

As discussed in detail below, the record shows that NIKA's lack of experience is more fundamental and far reaching than simply a lack of preventive maintenance experience;

				2	YJK	9/5/2022 5:59 PM
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As noted above, the record shows that, although the evaluators specifically made reference to NIKA's lack of preventive maintenance experience, the agency's evaluators were more broadly concerned about a lack of any medical operations and maintenance experience.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				3	YJK	9/5/2022 6:08 PM

However, the record shows that neither of the subcontractors included in the Zero Waste team were identified as “key” subcontractors.

Files\\Case 5 J&J Worldwide Services Decision

No	0.0036	1			
			1	YJK	9/5/2022 6:24 PM

We find the record demonstrates that the contracting officer, acting as the SSA, made an independent assessment with respect to the award decision.

Files\\Case 8 Re-Engineered Business Solutions Decision

No	0.0475	5			
			1	YJK	9/5/2022 7:07 PM

The record shows that the agency had concerns about the relative age of the fleet of vehicles being proposed by the protester, and also was not able to discern precisely which of Re-Engineered’s proposed vehicles were new or used.

2	YJK	9/5/2022 7:08 PM
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While the protester is correct that there was no specific vehicle age requirement stated in the solicitation, the record shows that the agency reached its conclusion about the relative age of Re-Engineered’s proposed vehicle fleet based on information contained in its

3	YJK	9/5/2022 7:08 PM
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The record therefore shows that the agency had a reasonable concern about delays in performance that might be occasioned by the use of a fleet of vehicles that was not adequately described in Re-Engineered’s proposal, and that also would necessarily require more repair and maintenance than a newer fleet of vehicles.

4	YJK	9/5/2022 7:10 PM
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Unlike Re-Engineered’s proposal, R&D’s proposal identified the year of manufacture for all of its vehicles

5	YJK	9/5/2022 7:10 PM
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The record therefore shows R&D’s vehicles are no more than five years old, and some of them will be newer.

Files\\Case 9 Artek Construction Company Decision

No	0.0112	3			
			1	YJK	9/5/2022 7:53 PM

While an agency’s judgment must be documented in sufficient detail to show it is not arbitrary, a failure to discuss every detail regarding the relative merit of a proposal in an evaluation decision document does not affect the validity of the evaluation.

2	YJK	9/5/2022 7:58 PM
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Here, the record reflects that the agency evaluated the protester’s and the competing offerors’ management plans based on both their individual organizational charts and their management plan narratives.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				3	YJK	9/5/2022 7:59 PM

While Artek's arguments rely on comparisons of the agency's evaluation of the seven offerors' organizational charts, the record shows that the agency's evaluation findings were based on the entirety of the proposals, which reflect fundamentally different information.

Codes\\A protester must counter-argue the agency's contentions one by one.

PDF

Files\\Case 1 Netizen Corporation Decision

No	0.0157	2
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1	YJK	9/9/2022 1:05 PM
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Where an agency provides a detailed response to a protester's allegations and the protester fails to rebut or otherwise substantively address the agency's arguments in its comments, the protester provides us with no basis to conclude that the agency's position with respect to the issue in question is unreasonable or improper, and we therefore find this protest ground abandoned and do not consider it

2	YJK	9/9/2022 1:05 PM
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Moreover, the protester does not substantively address the source selection authority's contention that BreakPoint's low cost was realistic due to the firms' use of "less costly personnel who could satisfy the [RFP's] requirements" and that BreakPoint's "competitive price was due predominately to [its] unique staffing solution, which was deemed sufficient to accomplish the work" as provided in the

Files\\Case 11 C.I. Lovell Decision

No	0.0157	1
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1	YJK	9/9/2022 1:05 PM
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C.I. Lovell would not be entitled to reimbursement of protest costs here because it was not required to expend unnecessary costs preparing comments on an agency report since none was filed. Kno

Files\\Case 13 W-T Join Venture Decision

No	0.0066	2
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1	YJK	9/9/2022 1:05 PM
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Where, as here, an agency responds to allegations in its report but the protester does not rebut the agency's positions in its comments, we dismiss the allegations as abandoned because the protester has not provided us with a basis to find the agency's positions

2	YJK	9/9/2022 1:05 PM
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Since W-T did not respond to the agency's position in its comments, we dismiss these arguments as abandoned. 6 O

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 16 Bodell Construction Decision

No		0.0162	2
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1	YJK	9/9/2022 1:05 PM
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In its comments responding to the agency report, Bodell made no further reference to its allegation that the agency failed to assign additional strengths to its proposal. We deem this aspect of Bodells' protest abandoned. Yan

2	YJK	9/9/2022 1:05 PM
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While Bodell's initial protest challenged the assignment of a weakness to its proposal based on this project not having been completed, it made no further mention of this weakness in its comments. We therefore conclude that Bodell effectively concedes the propriety of the agency's assignment of a weakness for this reason.³ In

Files\\Case 4 NIKA Technologies Decision

No		0.0046	1
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1	YJK	9/9/2022 1:05 PM
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First, and most obviously, as pointed out by the agency evaluators, preventive maintenance comprises approximately 75 percent of all of the work contemplated under the solicitation, and NIKA has not shown otherwise. An

Files\\Case 5 J&J Worldwide Services Decision

No		0.0090	2
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1	YJK	9/9/2022 1:05 PM
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Furthermore, J&J has not shown the agency's conclusion that installation of an entirely new HVAC system was an important aspect of the project to be unreasonable. On

2	YJK	9/9/2022 1:05 PM
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Second, we note that even though J&J has access to both the February 27 and March 5 memoranda, it has not identified any specific reason to question the veracity of the agency's assertions. Ind

Files\\Case 9 Artek Construction Company Decision

No		0.0024	1
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1	YJK	9/9/2022 1:05 PM
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none of the arguments advanced by the protester refute the agency's conclusion that only Artek's proposal failed to address the site superintendent position. A

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Codes\\A protester must counter-argue the agency's contentions one by one.\\Fail to rebut

PDF

Files\\Case 1 Netizen Corporation Decision

No	0.0156	2
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1	YJK	9/5/2022 12:03 PM
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Where an agency provides a detailed response to a protester's allegations and the protester fails to rebut or otherwise substantively address the agency's arguments in its comments, the protester provides us with no basis to conclude that the agency's position with respect to the issue in question is unreasonable or improper, and we therefore find this protest ground abandoned and do not consider it

2	YJK	9/5/2022 12:29 PM
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Moreover, the protester does not substantively address the source selection authority's contention that BreakPoint's low cost was realistic due to the firms' use of "less costly personnel who could satisfy the [RFP's] requirements" and that BreakPoint's "competitive price was due predominately to [its] unique staffing solution, which was deemed sufficient to accomplish the work" as provided in the

Files\\Case 11 C.I. Lovell Decision

No	0.0153	1
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1	YJK	9/6/2022 1:38 PM
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C.I. Lovell would not be entitled to reimbursement of protest costs here because it was not required to expend unnecessary costs preparing comments on an agency report since none was filed.

Files\\Case 13 W-T Join Venture Decision

No	0.0064	2
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1	YJK	9/6/2022 1:53 PM
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Where, as here, an agency responds to allegations in its report but the protester does not rebut the agency's positions in its comments, we dismiss the allegations as abandoned because the protester has not provided us with a basis to find the agency's positions

2	YJK	9/6/2022 1:54 PM
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Since W-T did not respond to the agency's position in its comments, we dismiss these arguments as abandoned.

Files\\Case 16 Bodell Construction Decision

No	0.0159	3
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1	YJK	9/6/2022 2:51 PM
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In its comments responding to the agency report, Bodell made no further reference to its allegation that the agency failed to assign additional strengths to its proposal. We deem this aspect of Bodells' protest abandoned.

2	YJK	9/6/2022 2:51 PM
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While Bodell's initial protest challenged the assignment of a weakness to its proposal based on this project not having been completed, it made no further mention of this weakness in its comments.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				3	YJK	9/6/2022 2:51 PM

We therefore conclude that Bodell effectively concedes the propriety of the agency's assignment of a weakness for this reason.3

Files\\Case 4 NIKA Technologies Decision

No	0.0045	1			
			1	YJK	9/5/2022 5:05 PM

First, and most obviously, as pointed out by the agency evaluators, preventive maintenance comprises approximately 75 percent of all of the work contemplated under the solicitation, and NIKA has not shown otherwise.

Files\\Case 5 J&J Worldwide Services Decision

No	0.0088	2			
			1	YJK	9/5/2022 6:22 PM

Furthermore, J&J has not shown the agency's conclusion that installation of an entirely new HVAC system was an important aspect of the project to be unreasonable.

			2	YJK	9/5/2022 6:26 PM
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Second, we note that even though J&J has access to both the February 27 and March 5 memoranda, it has not identified any specific reason to question the veracity of the agency's assertions.

Files\\Case 9 Artek Construction Company Decision

No	0.0024	1			
			1	YJK	9/5/2022 8:00 PM

none of the arguments advanced by the protester refute the agency's conclusion that only Artek's proposal failed to address the site superintendent position.

Codes\\A protester must demonstrate that it could have won the contract but failed explicitly due to the agency's defective evaluation.

PDF

Files\\Case 1 Netizen Corporation Decision

No	0.0041	1			
			1	YJK	9/9/2022 11:25 AM

specific information to challenge the Corps' evaluation of its proposal or the assignment of an outstanding rating (the highest possible rating), nor does Netizen explain how it was prejudiced by the agency's actions.

P

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 13 W-T Join Venture Decision

No 0.0258 6

1 YJK 9/9/2022 11:25 AM

We note that contracting officials may not announce in the solicitation that they will use one evaluation scheme and then follow another without informing offerors of the changed

Page 7 B-417905.2

plan and providing them an opportunity to submit proposals on that basis. Fintr

2 YJK 9/9/2022 11:25 AM

An agency may waive compliance with a material solicitation requirement in awarding a contract only if the award will meet the agency's actual needs without prejudice to other offerors. Loc

3 YJK 9/9/2022 11:25 AM

Our Office will sustain a protest that an agency improperly waived or relaxed its requirements for the awardee where the protester establishes a reasonable possibility that it was prejudiced by the agency's actions. Dat

4 YJK 9/9/2022 11:25 AM

Competitive prejudice is an essential element of a viable protest, and we will sustain a protest only where the protester demonstrates that, but for the agency's improper actions, it would have had a substantial chance of receiving the award. DRS

5 YJK 9/9/2022 11:25 AM

even where an agency waives a material solicitation requirement, our Office will not sustain the protest unless the protester can demonstrate that it was prejudiced by the waiver, i.e., that the protester would have submitted a different proposal or that it could have done something else to improve its chances for award had it known that the agency would waive the requirement. AAR

6 YJK 9/9/2022 11:25 AM

W-T does not explain how it was prejudiced by the waiver of this requirement, that is, what the protester would have done differently had it been given an opportunity to use a different estimating software. For

Files\\Case 14 Wolff & Mueller Government Services GmbH Decision

No 0.0079 3

1 YJK 9/9/2022 11:25 AM

Competitive prejudice is an essential element of a viable protest, and we will sustain a protest only where the protester demonstrates that, but for the agency's improper actions, it would have had a substantial chance of receiving the award. See

2 YJK 9/9/2022 11:25 AM

Where the record establishes no reasonable possibility of prejudice, we will not sustain a protest even if a defect in the procurement is found. See

3 YJK 9/9/2022 11:26 AM

Here, we find no basis to conclude that the error in recording the intended weakness for the protester's proposal had any effect on the evaluation or the award; recording of the actual, essentially identical, weakness would not have improved WMGS's chance for receiving the award.

T

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 15 KMK Construction Decision

No		0.0076	1
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1	YJK	9/9/2022 11:26 AM
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even if we found that KMK's remaining allegations had merit, KMK's proposal would still be unacceptable under the technical and management approach factor, and we have found no basis to disagree with the agency's decision to eliminate KMK's proposal from the

Files\\Case 16 Bodell Construction Decision

No		0.0227	4
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1	YJK	9/9/2022 11:25 AM
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Prejudice is an essential element of every viable protest, and where none is shown or otherwise evident, our Office will not sustain a protest, even where an agency's actions arguably are improper. AEC

2	YJK	9/9/2022 11:25 AM
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Accordingly, while the agency may have erred in failing to assign this same weakness to the awardee's proposal as well as to Bodell's proposal, its actions did not prejudice the protester. We

3	YJK	9/9/2022 11:26 AM
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the protester has not alleged or demonstrated that it would have substituted either of its contractor qualifications (past performance) examples for different examples if given the opportunity to do so. Ins

4	YJK	9/9/2022 11:26 AM
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It is not apparent how discussions in those areas would have served to materially improve Bodell's proposal under the circumstances, and in light of our discussion above.5 We

Files\\Case 2 Pond Constructors Decision

No		0.0136	2
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1	YJK	9/9/2022 11:26 AM
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Pond is correct that prioritization of service orders into one of the three order categories delineated in the PWS was the responsibility of the government, however, how the contractor was to identify and perform the service orders was a matter of the contractor's approach.

2	YJK	9/9/2022 11:26 AM
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Pond's argument that its experience managing hundreds of simultaneous work orders shows that completion time would not be impacted in a significant manner, even if true, does not negate the concern of the agency had with the protester's approach. Pro

Files\\Case 3 Facility Services Management Decision

No		0.0116	2
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1	YJK	9/9/2022 11:25 AM
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Competitive prejudice is also an essential element of a viable protest, and we will sustain a protest only where the protester demonstrates that, but for the agency's improper actions, it would have had a substantial chance of receiving the award. Ear

2	YJK	9/9/2022 11:25 AM
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Because we conclude that the agency reasonably found Facility's proposal was otherwise ineligible for award, the protester cannot show it was competitively prejudiced by this error. E

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 4 NIKA Technologies Decision

No		0.0051	1			
				1	YJK	9/9/2022 11:26 AM

NIKA also has not argued or demonstrated that it would have submitted different corporate experience examples if it had known of the agency's intent to evaluate whether offerors had, among other things, preventive maintenance experience.
P

Files\\Case 7 Benaka Decision

No		0.0108	1			
				1	YJK	9/9/2022 11:26 AM

Consequently, even if we found that Benaka's remaining allegations had merit, Benaka's proposal would still be unacceptable under the technical and management approach factor, and we would have no basis to disagree with the agency's decision to eliminate Benaka's proposal from the competition. A

Codes\\A protester must demonstrate that it could have won the contract but failed explicitly due to the agency's defective evaluation.\\Even if

PDF

Files\\Case 14 Wolff & Mueller Government Services GmbH Decision

No		0.0032	1			
				1	YJK	9/6/2022 2:30 PM

Here, we find no basis to conclude that the error in recording the intended weakness for the protester's proposal had any effect on the evaluation or the award; recording of the actual, essentially identical, weakness would not have improved WMGS's chance for receiving the award.

Files\\Case 15 KMK Construction Decision

No		0.0074	1			
				1	YJK	9/6/2022 2:48 PM

even if we found that KMK's remaining allegations had merit, KMK's proposal would still be unacceptable under the technical and management approach factor, and we have found no basis to disagree with the agency's decision to eliminate KMK's proposal from the

Files\\Case 16 Bodell Construction Decision

No		0.0109	2			
				1	YJK	9/6/2022 2:54 PM

the protester has not alleged or demonstrated that it would have substituted either of its contractor qualifications (past performance) examples for different examples if given the opportunity to do so.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				2	YJK	9/6/2022 2:54 PM

It is not apparent how discussions in those areas would have served to materially improve Bodell's proposal under the circumstances, and in light of our discussion above.5

Files\\Case 2 Pond Constructors Decision

No	0.0134	2			
			1	YJK	9/9/2022 10:17 AM

Pond is correct that prioritization of service orders into one of the three order categories delineated in the PWS was the responsibility of the government, however, how the contractor was to identify and perform the service orders was a matter of the contractor's approach.

2 YJK 9/9/2022 10:15 AM

Pond's argument that its experience managing hundreds of simultaneous work orders shows that completion time would not be impacted in a significant manner, even if true, does not negate the concern of the agency had with the protester's approach.

Files\\Case 4 NIKA Technologies Decision

No	0.0050	1			
			1	YJK	9/5/2022 5:56 PM

NIKA also has not argued or demonstrated that it would have submitted different corporate experience examples if it had known of the agency's intent to evaluate whether offerors had, among other things, preventive maintenance experience.

Files\\Case 7 Benaka Decision

No	0.0107	1			
			1	YJK	9/5/2022 7:01 PM

Consequently, even if we found that Benaka's remaining allegations had merit, Benaka's proposal would still be unacceptable under the technical and management approach factor, and we would have no basis to disagree with the agency's decision to eliminate Benaka's proposal from the competition.

Codes\\A protester must demonstrate that it could have won the contract but failed explicitly due to the agency's defective evaluation.\\Prejudiced PDF

Files\\Case 1 Netizen Corporation Decision

No	0.0041	1			
			1	YJK	9/5/2022 12:00 PM

specific information to challenge the Corps' evaluation of its proposal or the assignment of an outstanding rating (the highest possible rating), nor does Netizen explain how it was prejudiced by the agency's actions.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 13 W-T Join Venture Decision

No 0.0253 6

1 YJK 9/6/2022 2:08 PM

We note that contracting officials may not announce in the solicitation that they will use one evaluation scheme and then follow another without informing offerors of the changed

Page 7 B-417905.2

plan and providing them an opportunity to submit proposals on that basis.

2 YJK 9/6/2022 2:08 PM

An agency may waive compliance with a material solicitation requirement in awarding a contract only if the award will meet the agency's actual needs without prejudice to other offerors.

3 YJK 9/6/2022 2:09 PM

Our Office will sustain a protest that an agency improperly waived or relaxed its requirements for the awardee where the protester establishes a reasonable possibility that it was prejudiced by the agency's actions.

4 YJK 9/6/2022 2:09 PM

Competitive prejudice is an essential element of a viable protest, and we will sustain a protest only where the protester demonstrates that, but for the agency's improper actions, it would have had a substantial chance of receiving the award.

5 YJK 9/6/2022 2:09 PM

even where an agency waives a material solicitation requirement, our Office will not sustain the protest unless the protester can demonstrate that it was prejudiced by the waiver, i.e., that the protester would have submitted a different proposal or that it could have done something else to improve its chances for award had it known that the agency would waive the requirement.

6 YJK 9/6/2022 2:10 PM

W-T does not explain how it was prejudiced by the waiver of this requirement, that is, what the protester would have done differently had it been given an opportunity to use a different estimating software.

Files\\Case 14 Wolff & Mueller Government Services GmbH Decision

No 0.0045 2

1 YJK 9/6/2022 2:30 PM

Competitive prejudice is an essential element of a viable protest, and we will sustain a protest only where the protester demonstrates that, but for the agency's improper actions, it would have had a substantial chance of receiving the award.

2 YJK 9/6/2022 2:30 PM

Where the record establishes no reasonable possibility of prejudice, we will not sustain a protest even if a defect in the procurement is found.

Files\\Case 16 Bodell Construction Decision

No 0.0113 2

1 YJK 9/6/2022 2:51 PM

Prejudice is an essential element of every viable protest, and where none is shown or otherwise evident, our Office will not sustain a protest, even where an agency's actions arguably are improper.

2 YJK 9/6/2022 2:52 PM

Accordingly, while the agency may have erred in failing to assign this same weakness to the awardee's proposal as well as to Bodell's proposal, its actions did not prejudice the protester.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 3 Facility Services Management Decision

No 0.0114 2

1 YJK 9/5/2022 4:47 PM

Competitive prejudice is also an essential element of a viable protest, and we will sustain a protest only where the protester demonstrates that, but for the agency's improper actions, it would have had a substantial chance of receiving the award.

2 YJK 9/5/2022 5:01 PM

Because we conclude that the agency reasonably found Facility's proposal was otherwise ineligible for award, the protester cannot show it was competitively prejudiced by this error.

Codes\\A protester must highlight substantive flaws in the agency's judgments, treatments, or actions, not mere disagreements.

PDF

Files\\Case 1 Netizen Corporation Decision

No 0.0098 3

1 YJK 9/7/2022 12:53 PM

An offeror's disagreement with the agency's judgment, without more, is insufficient to establish that the agency acted unreasonably. STG

2 YJK 9/7/2022 12:53 PM

While the protester disagrees with the evaluation team's approach and contends that the agency never meaningfully addressed relevancy with respect to magnitude/size, such disagreement with the agency's judgment, without more, is insufficient to render the evaluation unreasonable.5 Win

3 YJK 9/7/2022 12:53 PM

Netizen simply fails to identify any substantive flaws with the basis of the agency's analysis. See

Files\\Case 11 C.I. Lovell Decision

No 0.0548 3

1 YJK 9/7/2022 12:52 PM

This does not mean that costs should be reimbursed in every case in which an agency decides to take corrective action; rather, a protester should be reimbursed its costs where an agency unduly delayed its decision to take corrective action in the face of a clearly meritorious protest. Kno

2 YJK 9/7/2022 12:52 PM

When an agency takes corrective action on or before the due date set for receipt of the agency report, our Office views such action as prompt and will not recommend the reimbursement of costs. Id.

3 YJK 9/7/2022 12:53 PM

rather, those provisions are intended to ensure fair treatment of protesters who make substantial investments of time and resources to pursue clearly meritorious protests in this forum. Kno

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 12 Severson Environmental Services Decision

No 0.0036 2

1 YJK 9/7/2022 12:53 PM

A protester's disagreement with an agency's judgments does not render the evaluation unreasonable. Id.

2 YJK 9/7/2022 12:53 PM

Although Severson may disagree with the SSA's judgments, it has failed to demonstrate that they were unreasonable; ac

Files\\Case 13 W-T Join Venture Decision

No 0.0147 5

1 YJK 9/7/2022 12:53 PM

An offeror's disagreement with an agency's evaluation, without more, does not establish that the evaluation was unreasonable.
2

2 YJK 9/7/2022 12:53 PM

While the protester may disagree with the agency's assessment of a weakness, its disagreement alone provides no basis to sustain the protest. The

3 YJK 9/7/2022 12:53 PM

It is a fundamental principle of federal procurement law that a contracting agency must treat all vendors equally and evaluate their proposals evenhandedly against the solicitation's requirements and evaluation criteria. Roc

4 YJK 9/7/2022 12:53 PM

However, when a protester alleges unequal treatment in a technical evaluation, it must show that the differences in the evaluation did not stem from differences between the proposals. Ind

5 YJK 9/7/2022 12:53 PM

While W-T disagrees with the agency's judgment regarding the relative merits of the offerors' proposals, this disagreement, without more, does not provide a basis to sustain the protest. See

Files\\Case 14 Wolff & Mueller Government Services GmbH Decision

No 0.0134 5

1 YJK 9/7/2022 12:53 PM

An offeror's disagreement with the agency's evaluation judgment, without more, is insufficient to establish that the agency acted unreasonably. See

2 YJK 9/7/2022 12:53 PM

An offeror's disagreement with an agency's evaluation, without more, does not demonstrate that those judgments are unreasonable. Cap

3 YJK 9/7/2022 12:52 PM

Our Office has recognized that in certain limited circumstances an agency evaluating a proposal has an obligation (as opposed to the discretion) to consider outside information bearing on the offeror's proposal. Int

4 YJK 9/7/2022 12:52 PM

we find no basis to conclude that the agency was obligated to seek out or consider additional correspondence which detailed information that the protester already did or could have addressed in its proposal.10

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				5	YJK	9/7/2022 12:53 PM

The protester's disagreement with the agency's conclusions about the importance of its negative CPARS ratings, relative to the positive information identified in the two strengths assigned for the five project references identified in its proposal, does not provide a basis to find that the agency's judgment was unreasonable. A protester's disagreement with the agency's judgment, without more, does not provide a basis to sustain the protest. See

Files\\Case 2 Pond Constructors Decision

No	0.0081	2			
			1	YJK	9/7/2022 12:53 PM

A protester's disagreement with the agency's judgment does not establish that an evaluation was unreasonable. DEI

2	YJK	9/7/2022 12:53 PM
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Since the protester has not shown that the evaluation was defective, and the source selection decision sets forth a reasoned basis for the selection of the awardees, we deny this ground of protest. Ban

Files\\Case 3 Facility Services Management Decision

No	0.0039	1			
			1	YJK	9/7/2022 12:53 PM

An offeror's or vendor's disagreement with the agency's judgment, without more, is insufficient to establish that the agency acted unreasonably. M

Files\\Case 4 NIKA Technologies Decision

No	0.0084	2			
			1	YJK	9/7/2022 12:53 PM

Where a protester alleges unequal treatment in a technical evaluation, it must show that the differences in ratings did not stem from differences in the proposals. IPK

2	YJK	9/7/2022 12:53 PM
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The protester's allegations in this respect are based on a flawed premise, namely that these offerors did not demonstrate preventive maintenance experience that was comparable to the preventive maintenance experience of NIKA. As

Files\\Case 8 Re-Engineered Business Solutions Decision

No	0.0080	1			
			1	YJK	9/7/2022 12:53 PM

reliability of the actual, historical data used by the agency in arriving at its estimate, nor has it shown that the agency's data is in any way materially flawed or incorrect.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 9 Artek Construction Company Decision

No		0.0096	3			
				1	YJK	9/7/2022 12:53 PM

A contracting agency must treat all competitors equally and evaluate their proposals evenhandedly against the solicitation's requirements and evaluation criteria. Will

2	YJK	9/7/2022 12:53 PM
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Where a protester alleges unequal treatment in a technical evaluation, it must show that the differences in ratings or relative standing do not stem from differences between the proposals. ASR

3	YJK	9/7/2022 12:53 PM
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Accordingly, to prevail on an allegation of disparate treatment, a protester must show that the agency unreasonably downgraded its proposal for deficiencies that were substantively indistinguishable from, or nearly identical to, those contained in other proposals.

Codes\\A protester must highlight substantive flaws in the agency's judgments, treatments, or actions, not mere disagreements.\\Action or inaction PDF

Files\\Case 11 C.I. Lovell Decision

No		0.0388	2			
				1	YJK	9/6/2022 1:36 PM

This does not mean that costs should be reimbursed in every case in which an agency decides to take corrective action; rather, a protester should be reimbursed its costs where an agency unduly delayed its decision to take corrective action in the face of a clearly meritorious

2	YJK	9/6/2022 1:36 PM
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When an agency takes corrective action on or before the due date set for receipt of the agency report, our Office views such action as prompt and will not recommend the reimbursement of costs.

Files\\Case 14 Wolff & Mueller Government Services GmbH Decision

No		0.0049	2			
				1	YJK	9/6/2022 2:36 PM

Our Office has recognized that in certain limited circumstances an agency evaluating a proposal has an obligation (as opposed to the discretion) to consider outside information bearing on the offeror's proposal.

2	YJK	9/6/2022 2:36 PM
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we find no basis to conclude that the agency was obligated to seek out or consider additional correspondence which detailed information that the protester already did or could have addressed in its proposal.10

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Codes\\A protester must highlight substantive flaws in the agency's judgments, treatments, or actions, not mere disagreements.\\Substantive flaws
PDF

Files\\Case 1 Netizen Corporation Decision

No	0.0017	1			
			1	YJK	9/5/2022 12:32 PM

Netizen simply fails to identify any substantive flaws with the basis of the agency's analysis.

Files\\Case 2 Pond Constructors Decision

No	0.0050	1			
			1	YJK	9/5/2022 4:45 PM

Since the protester has not shown that the evaluation was defective, and the source selection decision sets forth a reasoned basis for the selection of the awardees, we deny this ground of protest.

Files\\Case 4 NIKA Technologies Decision

No	0.0047	1			
			1	YJK	9/5/2022 6:04 PM

The protester's allegations in this respect are based on a flawed premise, namely that these offerors did not demonstrate preventive maintenance experience that was comparable to the preventive maintenance experience of NIKA.

Files\\Case 8 Re-Engineered Business Solutions Decision

No	0.0080	1			
			1	YJK	9/5/2022 7:11 PM

reliability of the actual, historical data used by the agency in arriving at its estimate, nor has it shown that the agency's data is in any way materially flawed or incorrect.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Codes\\A protester must highlight substantive flaws in the agency's judgments, treatments, or actions, not mere disagreements.\\Unequal treatment
PDF

Files\\Case 11 C.I. Lovell Decision

No	0.0150	1			
			1	YJK	9/6/2022 1:37 PM

rather, those provisions are intended to ensure fair treatment of protesters who make substantial investments of time and resources to pursue clearly meritorious protests in this forum.

Files\\Case 13 W-T Join Venture Decision

No	0.0068	2			
			1	YJK	9/6/2022 2:02 PM

It is a fundamental principle of federal procurement law that a contracting agency must treat all vendors equally and evaluate their proposals evenhandedly against the solicitation's requirements and evaluation criteria.

			2	YJK	9/6/2022 2:03 PM
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However, when a protester alleges unequal treatment in a technical evaluation, it must show that the differences in the evaluation did not stem from differences between the proposals.

Files\\Case 4 NIKA Technologies Decision

No	0.0034	1			
			1	YJK	9/7/2022 10:38 AM

Where a protester alleges unequal treatment in a technical evaluation, it must show that the differences in ratings did not stem from differences in the proposals.

Files\\Case 9 Artek Construction Company Decision

No	0.0094	3			
			1	YJK	9/5/2022 7:56 PM

A contracting agency must treat all competitors equally and evaluate their proposals evenhandedly against the solicitation's requirements and evaluation criteria.

			2	YJK	9/5/2022 7:57 PM
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Where a protester alleges unequal treatment in a technical evaluation, it must show that the differences in ratings or relative standing do not stem from differences between the proposals.

			3	YJK	9/5/2022 7:57 PM
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Accordingly, to prevail on an allegation of disparate treatment, a protester must show that the agency unreasonably downgraded its proposal for deficiencies that were substantively indistinguishable from, or nearly identical to, those contained in other proposals.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Codes\\A protester must highlight substantive flaws in the agency's judgments, treatments, or actions, not mere disagreements.\\Without more
PDF

Files\\Case 1 Netizen Corporation Decision

No 0.0078 2

1 YJK 9/5/2022 12:10 PM

An offeror's disagreement with the agency's judgment, without more, is insufficient to establish that the agency acted unreasonably.

2 YJK 9/5/2022 12:14 PM

While the protester disagrees with the evaluation team's approach and contends that the agency never meaningfully addressed relevancy with respect to magnitude/size, such disagreement with the agency's judgment, without more, is insufficient to render the evaluation unreasonable.5

Files\\Case 12 Severson Environmental Services Decision

No 0.0035 2

1 YJK 9/6/2022 1:45 PM

A protester's disagreement with an agency's judgments does not render the evaluation unreasonable.

2 YJK 9/6/2022 1:51 PM

Although Severson may disagree with the SSA's judgments, it has failed to demonstrate that they were unreasonable

Files\\Case 13 W-T Join Venture Decision

No 0.0076 3

1 YJK 9/6/2022 1:54 PM

An offeror's disagreement with an agency's evaluation, without more, does not establish that the evaluation was unreasonable.

2 YJK 9/6/2022 1:58 PM

While the protester may disagree with the agency's assessment of a weakness, its disagreement alone provides no basis to sustain the protest.

3 YJK 9/6/2022 2:16 PM

While W-T disagrees with the agency's judgment regarding the relative merits of the offerors' proposals, this disagreement, without more, does not provide a basis to sustain the protest.

Files\\Case 14 Wolff & Mueller Government Services GmbH Decision

No 0.0083 4

1 YJK 9/6/2022 2:18 PM

An offeror's disagreement with the agency's evaluation judgment, without more, is insufficient to establish that the agency acted unreasonably.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				2	YJK	9/6/2022 2:34 PM
An offeror's disagreement with an agency's evaluation, without more, does not demonstrate that those judgments are unreasonable.						
				3	YJK	9/6/2022 2:37 PM
The protester's disagreement with the agency's conclusions about the importance of its negative CPARS ratings, relative to the positive information identified in the two strengths assigned for the five project references identified in its proposal, does not provide a basis to find that the agency's judgment was unreasonable.						
				4	YJK	9/6/2022 2:37 PM
A protester's disagreement with the agency's judgment, without more, does not provide a basis to sustain the protest.						

Files\\Case 2 Pond Constructors Decision

No 0.0028 1

1 YJK 9/5/2022 12:40 PM

A protester's disagreement with the agency's judgment does not establish that an evaluation was unreasonable.

Files\\Case 3 Facility Services Management Decision

No 0.0038 1

1 YJK 9/5/2022 4:47 PM

An offeror's or vendor's disagreement with the agency's judgment, without more, is insufficient to establish that the agency acted unreasonably.

Codes\\A protester must know that the GAO does not question the source selection authority's broad discretion in exercising their judgment over matters enclosed by high-level requirements PDF

Files\\Case 1 Netizen Corporation Decision

No 0.0093 2

1 YJK 9/9/2022 12:55 PM

The evaluation of proposals, including the determination of the relative merits of proposals, is primarily a matter within the agency's discretion. Sev

2 YJK 9/9/2022 12:55 PM

Where, as here, an RFP contemplates the award of a fixed-price contract, or a fixed-price portion of a contract, an agency may provide in the solicitation for the use of a price realism analysis for the limited purpose of measuring an offeror's understanding of the requirements or to assess the risk inherent in an offeror's proposal.7 Ball

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 12 Severson Environmental Services Decision

No 0.0125 3

1 YJK 9/9/2022 12:55 PM

experience is a matter of contracting officer discretion. Arc

2 YJK 9/9/2022 12:55 PM

In making best-value tradeoff determinations, source selection officials have broad discretion in exercising their judgment; specifically, in comparing technical merit, risk, and cost/price, the extent to which one may be sacrificed for another is subject only to rationality and consistency with the evaluation criteria. See

3 YJK 9/9/2022 12:55 PM

Accordingly, we will not question the award to higher-rated, higher-priced offerors where the agency's documentation regarding its source selections establishes that the SSA was aware of, and considered, the relative strengths, weaknesses, and costs of the competing proposals, and made judgments that were rational and consistent with the evaluation criteria. OnP

Files\\Case 13 W-T Join Venture Decision

No 0.0231 5

1 YJK 9/9/2022 12:55 PM

Information regarding strengths and weaknesses of proposals is the type of information that source selection officials should consider, in addition to ratings, to enable them to determine whether and to what extent meaningful differences exist between proposals. Wel

2 YJK 9/9/2022 12:55 PM

the SSA's tradeoff decision did not rely solely on the adjectival ratings alone but a detailed comparative assessment of the offerors' strengths and weaknesses.

F

3 YJK 9/9/2022 12:55 PM

Source selection officials have broad discretion in determining the manner and extent to which they will make use of the technical and cost evaluation results, and their judgments are governed only by the tests of rationality and consistency with the stated evaluation

4 YJK 9/9/2022 12:55 PM

Where, as here, a solicitation provides for a tradeoff between price and non-price factors, the agency retains discretion to make award to a firm with a higher technical rating, despite the higher price, so long as the tradeoff decision is properly justified and otherwise consistent with the stated evaluation and source selection scheme. FAR

5 YJK 9/9/2022 12:49 PM

Although agencies are required to identify in a solicitation all major evaluation factors they are not required to identify all areas of each factor that might be taken into account in an evaluation, provided that the unidentified areas are reasonably related to, or encompassed by, the established factors. Nor

Files\\Case 14 Wolff & Mueller Government Services GmbH Decision

No 0.0032 2

1 YJK 9/9/2022 12:55 PM

The evaluation of an offeror's proposal is a matter within the agency's discretion. Nat

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				2	YJK	9/9/2022 12:55 PM

An agency's evaluation of past performance, which includes its consideration of the relevance, scope, and significance of an offeror's performance history, is a matter of agency discretion. Cyb

Files\\Case 16 Bodell Construction Decision

No	0.0168	3
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1	YJK	9/9/2022 12:55 PM
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When agencies engage in discussions, they must be meaningful, equitable and not misleading. DynCorp

2	YJK	9/9/2022 12:55 PM
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While discussions must address deficiencies and significant weaknesses identified in a proposal, they need not be all-encompassing; agencies are not required "spoon-feed" offerors, or to discuss every weakness in a proposal that is found to be technically acceptable, but that receives less than the maximum possible score. Id.; Le

3	YJK	9/9/2022 12:55 PM
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While the agency did identify weaknesses in Bodell's proposal under these factors, the agency was not required to discuss those weaknesses. Lex

Files\\Case 2 Pond Constructors Decision

No	0.0238	4
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1	YJK	9/9/2022 12:49 PM
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Agencies may properly evaluate a proposal based on considerations not expressly stated in the RFP where those considerations are reasonably and logically encompassed within the stated evaluation criteria and where there is a clear nexus between the stated and

2	YJK	9/9/2022 12:49 PM
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While Pond argues that the evaluation criteria did not require vendors to include the government stakeholder group in its approach, we conclude that such consideration is reasonably and logically encompassed within the stated evaluation criteria. As

3	YJK	9/9/2022 12:49 PM
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Given the government stakeholder group's involvement in the service order process, how the protester's approach was to be conducted vis-à-vis the government stakeholder group is logically encompassed within the stated evaluation criteria. Ex

4	YJK	9/9/2022 12:55 PM
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As such, we deny Pond's challenge to the agency's assignment of a significant weakness to the firm's quotation under the technical approach factor. DEI

Files\\Case 4 NIKA Technologies Decision

No	0.0236	5
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1	YJK	9/9/2022 12:49 PM
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While procuring agencies are required to identify significant evaluation factors and subfactors in a solicitation, they are not required to identify every aspect of each factor that might be taken into account; rather, agencies reasonably may take into account considerations, even if unstated, that are reasonably related to or encompassed by the stated evaluation criteria. Ray

2	YJK	9/9/2022 12:49 PM
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While we agree with NIKA that the corporate experience factor did not expressly use the phrase "preventive maintenance," we nonetheless conclude that experience contemplated by the RFP reasonably encompassed preventive maintenance experience for several reasons.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				3	YJK	9/9/2022 12:49 PM
Preventive maintenance clearly is related to, and encompassed by, these broad, overarching requirements.						
				4	YJK	9/9/2022 12:49 PM
Rather, preventive maintenance is clearly related to, and encompassed by, the stated evaluation factor. W						
				5	YJK	9/9/2022 12:55 PM
As discussed above, the agency's concern about NIKA was more fundamental; NIKA's lack of any actual operations and maintenance experience, a central deficiency that extended to the firm's lack of any actual preventive maintenance experience as well.						
I						

Files\\Case 5 J&J Worldwide Services Decision

No 0.0023 1

1 YJK 9/9/2022 12:55 PM

that an agency's judgment in matters related to human safety carries considerable weight. See

Files\\Case 9 Artek Construction Company Decision

No 0.0034 1

1 YJK 9/9/2022 12:55 PM

Even if FAR part 15 applied, an agency is not required to engage in clarifications or discussions where the agency has advised offerors that the agency intends to evaluate proposals as submitted, without further exchanges. S

Codes\\A protester must know that the GAO does not question the source selection authority's broad discretion in exercising their judgment over matters enclosed by high-level requirements\\Broad discretion PDF

Files\\Case 1 Netizen Corporation Decision

No 0.0092 2

1 YJK 9/5/2022 12:08 PM

The evaluation of proposals, including the determination of the relative merits of proposals, is primarily a matter within the agency's discretion.

2 YJK 9/9/2022 12:55 PM

Where, as here, an RFP contemplates the award of a fixed-price contract, or a fixed-price portion of a contract, an agency may provide in the solicitation for the use of a price realism analysis for the limited purpose of measuring an offeror's understanding of the requirements or to assess the risk inherent in an offeror's proposal.7 Bal

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 12 Severson Environmental Services Decision

No 0.0123 3

1 YJK 9/6/2022 1:41 PM

experience is a matter of contracting officer discretion.

2 YJK 9/6/2022 1:50 PM

In making best-value tradeoff determinations, source selection officials have broad discretion in exercising their judgment; specifically, in comparing technical merit, risk, and cost/price, the extent to which one may be sacrificed for another is subject only to rationality and consistency with the evaluation criteria.

3 YJK 9/6/2022 1:51 PM

Accordingly, we will not question the award to higher-rated, higher-priced offerors where the agency's documentation regarding its source selections establishes that the SSA was aware of, and considered, the relative strengths, weaknesses, and costs of the competing proposals, and made judgments that were rational and consistent with the evaluation criteria.

Files\\Case 13 W-T Join Venture Decision

No 0.0175 4

1 YJK 9/6/2022 2:02 PM

Information regarding strengths and weaknesses of proposals is the type of information that source selection officials should consider, in addition to ratings, to enable them to determine whether and to what extent meaningful differences exist between proposals.

2 YJK 9/6/2022 2:05 PM

the SSA's tradeoff decision did not rely solely on the adjectival ratings alone but a detailed comparative assessment of the offerors' strengths and weaknesses.

3 YJK 9/6/2022 2:10 PM

Source selection officials have broad discretion in determining the manner and extent to which they will make use of the technical and cost evaluation results, and their judgments are governed only by the tests of rationality and consistency with the stated evaluation

4 YJK 9/6/2022 2:12 PM

Where, as here, a solicitation provides for a tradeoff between price and non-price factors, the agency retains discretion to make award to a firm with a higher technical rating, despite the higher price, so long as the tradeoff decision is properly justified and otherwise consistent with the stated evaluation and source selection scheme.

Files\\Case 14 Wolff & Mueller Government Services GmbH Decision

No 0.0031 2

1 YJK 9/6/2022 2:17 PM

The evaluation of an offeror's proposal is a matter within the agency's discretion.

2 YJK 9/6/2022 2:34 PM

An agency's evaluation of past performance, which includes its consideration of the relevance, scope, and significance of an offeror's performance history, is a matter of agency discretion.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 16 Bodell Construction Decision

No		0.0164	3			
				1	YJK	9/9/2022 12:55 PM

When agencies engage in discussions, they must be meaningful, equitable and not misleading. Dyn

				2	YJK	9/9/2022 12:55 PM
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While discussions must address deficiencies and significant weaknesses identified in a proposal, they need not be all-encompassing; agencies are not required "spoon-feed" offerors, or to discuss every weakness in a proposal that is found to be technically acceptable, but that receives less than the maximum possible score. Id.

				3	YJK	9/9/2022 12:55 PM
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While the agency did identify weaknesses in Bodell's proposal under these factors, the agency was not required to discuss those weaknesses.

Files\\Case 2 Pond Constructors Decision

No		0.0037	1			
				1	YJK	9/5/2022 4:42 PM

As such, we deny Pond's challenge to the agency's assignment of a significant weakness to the firm's quotation under the technical approach factor.

Files\\Case 4 NIKA Technologies Decision

No		0.0053	1			
				1	YJK	9/5/2022 6:05 PM

As discussed above, the agency's concern about NIKA was more fundamental; NIKA's lack of any actual operations and maintenance experience, a central deficiency that extended to the firm's lack of any actual preventive maintenance experience as well.

Files\\Case 5 J&J Worldwide Services Decision

No		0.0022	1			
				1	YJK	9/5/2022 6:21 PM

that an agency's judgment in matters related to human safety carries considerable weight.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 9 Artek Construction Company Decision

No		0.0034	1			
				1	YJK	9/5/2022 7:50 PM

Even if FAR part 15 applied, an agency is not required to engage in clarifications or discussions where the agency has advised offerors that the agency intends to evaluate proposals as submitted, without further exchanges.

Codes\\A protester must know that the GAO does not question the source selection authority's broad discretion in exercising their judgment over matters enclosed by high-level requirements\\Logically encompassed PDF

Files\\Case 13 W-T Join Venture Decision

No		0.0051	1			
				1	YJK	9/6/2022 2:14 PM

Although agencies are required to identify in a solicitation all major evaluation factors they are not required to identify all areas of each factor that might be taken into account in an evaluation, provided that the unidentified areas are reasonably related to, or encompassed by, the established factors.

Files\\Case 2 Pond Constructors Decision

No		0.0196	3			
				1	YJK	9/5/2022 12:44 PM

Agencies may properly evaluate a proposal based on considerations not expressly stated in the RFP where those considerations are reasonably and logically encompassed within the stated evaluation criteria and where there is a clear nexus between the stated and

2	YJK	9/5/2022 12:41 PM
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While Pond argues that the evaluation criteria did not require vendors to include the government stakeholder group in its approach, we conclude that such consideration is reasonably and logically encompassed within the stated evaluation criteria

3	YJK	9/5/2022 4:35 PM
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Given the government stakeholder group's involvement in the service order process, how the protester's approach was to be conducted vis-à-vis the government stakeholder group is logically encompassed within the stated evaluation criteria

Files\\Case 4 NIKA Technologies Decision

No		0.0179	4			
				1	YJK	9/5/2022 5:04 PM

While procuring agencies are required to identify significant evaluation factors and subfactors in a solicitation, they are not required to identify every aspect of each factor that might be taken into account; rather, agencies reasonably may take into account considerations, even if unstated, that are reasonably related to or encompassed by the stated evaluation criteria.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				2	YJK	9/5/2022 5:04 PM
While we agree with NIKA that the corporate experience factor did not expressly use the phrase “preventive maintenance,” we nonetheless conclude that experience contemplated by the RFP reasonably encompassed preventive maintenance experience for several						
				3	YJK	9/5/2022 5:53 PM
Preventive maintenance clearly is related to, and encompassed by, these broad, overarching requirements						
				4	YJK	9/5/2022 5:55 PM
Rather, preventive maintenance is clearly related to, and encompassed by, the stated evaluation factor.						

Codes\\A protester must maintain the ground of being the interested party throughout the decision-making process.

PDF

Files\\Case 1 Netizen Corporation Decision

No	0.0214	4				
				1	YJK	9/9/2022 10:40 AM
Although a close call, we conclude that Netizen’s protest alleged, with sufficient information, the factual predicate which forms the basis of its protest argument concerning the Corps’ evaluation of BreakPoint’s proposal. See						
				2	YJK	9/9/2022 10:40 AM
To the extent the protester challenges the evaluation of its own proposal under the corporate experience factor, we dismiss the allegation because it fails to state a valid basis of protest. 4 C.F.R						
				3	YJK	9/9/2022 10:40 AM
Here, as an initial matter, Netizen has failed to allege facts that would support a conclusion that BreakPoint’s price was unrealistic. In this regard, the protester has not marshalled any arguments concerning how BreakPoint’s price was unrealistic, how the awardee’s proposal demonstrated a lack of understanding of the solicitation’s requirements, or how BreakPoint’s proposal represented a risk to successful performance of the contract, notwithstanding that the record included the awardee’s staffing levels, staffing mix, and proposed labor rates. The onl						
				4	YJK	9/9/2022 10:40 AM
Accordingly, and in the absence of a supported allegation that the awardee’s price is unrealistic, our Office has no basis to sustain the protest.9						

Files\\Case 11 C.I. Lovell Decision

No	0.0092	1				
				1	YJK	9/9/2022 10:40 AM
Therefore, C.I. Lovell’s request does not meet our standard for recommending reimbursement of protests costs.						
T						

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 13 W-T Join Venture Decision

No		0.0034	1			
				1	YJK	9/9/2022 10:40 AM

W-T has not shown that these two issues were interchangeable in their impact, but were rated differently, which is a prerequisite for showing that the agency treated the two proposals unequally. Alphapo

Files\\Case 15 KMK Construction Decision

No		0.0238	4			
				1	YJK	9/9/2022 10:40 AM

Accordingly, we find no basis to disturb the agency's assessment of a deficiency to KMK's proposal for failing to address the gravel driveway requirement.

A				2	YJK	9/9/2022 10:40 AM
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On this record, given that the RFP provided that an unacceptable rating would render a proposal ineligible for award, we see no basis to object to the agency's decision not to further consider KMK for award. Thi

				3	YJK	9/9/2022 10:40 AM
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We dismiss these remaining allegations because KMK, having been found unacceptable under the phase 2 technical and management approach factor, is not an interested party to raise them.

Under our Bid Protest Regulations, a protester must be an interested party, that is, an actual or prospective offeror whose direct economic interest would be affected by the award of a contract. 4 C

				4	YJK	9/9/2022 10:40 AM
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A protester is not an interested party if it would not be in line for award if its protest were sustained. BAN

Files\\Case 17 Butt Construction Decision

No		0.0141	3			
				1	YJK	9/9/2022 10:40 AM

Accordingly we dismiss this aspect of the protest as lacking a factual basis, which our Bid Protest Regulations require. 4 C.F.R

				2	YJK	9/9/2022 10:40 AM
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Butt has not shown that JCP registration determines or affects the manner of contract performance; that i

				3	YJK	9/9/2022 10:40 AM
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Neither has Butt shown that JCP registration would affect price, quantity, quality, or delivery.
In our

Files\\Case 2 Pond Constructors Decision

No		0.0222	4			
				1	YJK	9/9/2022 10:40 AM

As a preliminary matter, we dismiss Pond's challenge to the evaluation of its quotation under the small business participation factor. The pro

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				2	YJK	9/9/2022 10:40 AM
This challenge, however, results from a clear misreading of the evaluation criteria, and, as such, we dismiss this allegation as failing to state a valid basis of protest. T						
				3	YJK	9/9/2022 10:40 AM
As Pond's argument finds no basis in the terms of the solicitation, we dismiss the allegation as factually and legally insufficient to form a valid basis of protest.4 4						
				4	YJK	9/9/2022 10:40 AM
Having resolved Pond's challenges to the evaluation of its quotation, and finding no merits to its protest, we conclude that the firm's challenge to the agency's best-value tradeoff decision is also without merit. In this regard, Pond bases its claim that the bestvalue tradeoff was improper on the assertion that the tradeoff was based on the flawed technical evaluation. Si						

Files\\Case 3 Facility Services Management Decision

No 0.0075 1

1 YJK 9/9/2022 10:40 AM

Consequently, Facility is not an interested party to maintain any other challenges to the evaluation of J&J's proposal or the award decision because Facility's proposal is not eligible for award, and the protester has not otherwise challenged the acceptability of J&J's proposal. 4 C

Files\\Case 5 J&J Worldwide Services Decision

No 0.0229 3

1 YJK 9/9/2022 10:40 AM

Because any one deficiency would result in J&J's technical proposal being rated as unacceptable and thus unawardable, we need not address the reasonableness of the agency's assessment of the remaining four deficiencies and two significant weaknesses assigned to J&J's proposal. Olg

2 YJK 9/9/2022 10:40 AM

Because the protester's argument is premised on the contention that at the time of award there was no contemporaneous record of the contracting officer's independent assessment, we deny this protest ground.

To the extent the protester challenges the adequacy of the agency's best-value decision, we need not resolve the protester's arguments because J&J is not an interested party to raise these allegations. As

3 YJK 9/9/2022 10:40 AM

Therefore, J&J cannot establish that it is an actual or prospective bidder or offeror whose direct economic interest would be affected by the agency's best-value decision because its proposal is ineligible for award. All

Files\\Case 7 Benaka Decision

No 0.0302 4

1 YJK 9/9/2022 10:40 AM

This argument does not provide a basis to sustain a protest because, as we discuss below, Benaka does not put forth a reasonable interpretation of the page limit requirement.

Page 4

2 YJK 9/9/2022 10:40 AM

We dismiss these remaining allegations because Benaka, having been found unacceptable under the technical and management approach factor, is not an interested party to raise them.

Under our Bid Protest Regulations, a protester must be an interested party, that is, an actual or prospective offeror whose direct economic interest would be affected by the award of a contract. 4 C

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				3	YJK	9/9/2022 10:40 AM
A protester is not an interested party if it would not be in line for award if its protest were sustained. BAN						
				4	YJK	9/9/2022 10:40 AM
Benaka is not an interested party to maintain these remaining allegations because, as discussed above, its proposal was reasonably found unacceptable. C						

Files\\Case 8 Re-Engineered Business Solutions Decision

No 0.0078 1

1 YJK 9/9/2022 10:40 AM

Simply stated, the agency's IGE calculation was entirely reasonable inasmuch as it was based on actual historical data that Re-Engineered has not drawn into question. We th

Files\\Case 9 Artek Construction Company Decision

No 0.0053 2

1 YJK 9/9/2022 10:40 AM

While the protester wades through the minutiae of the various charts and evaluation findings, its arguments fail to establish that these proposals were substantively indistinguishable, or included nearly identical information. For

2 YJK 9/9/2022 10:40 AM

Accordingly, we find that Artek has failed to establish the necessary basis for its claims of disparate treatment. I

Codes\\A protester must maintain the ground of being the interested party throughout the decision-making process.\\Form the basis of the protest PDF

Files\\Case 1 Netizen Corporation Decision

No 0.0211 4

1 YJK 9/5/2022 12:05 PM

Although a close call, we conclude that Netizen's protest alleged, with sufficient information, the factual predicate which forms the basis of its protest argument concerning the Corps' evaluation of BreakPoint's proposal.

2 YJK 9/9/2022 10:20 AM

To the extent the protester challenges the evaluation of its own proposal under the corporate experience factor, we dismiss the allegation because it fails to state a valid basis of protest. 4 C

3 YJK 9/9/2022 10:22 AM

Here, as an initial matter, Netizen has failed to allege facts that would support a conclusion that BreakPoint's price was unrealistic. In this regard, the protester has not marshalled any arguments concerning how BreakPoint's price was unrealistic, how the awardee's proposal demonstrated a lack of understanding of the solicitation's requirements, or how BreakPoint's proposal represented a risk to successful performance of the contract, notwithstanding that the record included the awardee's staffing levels, staffing mix, and proposed labor

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				4	YJK	9/5/2022 12:33 PM

Accordingly, and in the absence of a supported allegation that the awardee's price is unrealistic, our Office has no basis to sustain the protest.

Files\\Case 11 C.I. Lovell Decision

No		0.0088	1			
				1	YJK	9/6/2022 1:39 PM

Therefore, C.I. Lovell's request does not meet our standard for recommending reimbursement of protests costs.

Files\\Case 13 W-T Join Venture Decision

No		0.0033	1			
				1	YJK	9/9/2022 10:22 AM

W-T has not shown that these two issues were interchangeable in their impact, but were rated differently, which is a prerequisite for showing that the agency treated the two proposals unequally. Alp

Files\\Case 15 KMK Construction Decision

No		0.0099	2			
				1	YJK	9/6/2022 2:46 PM

Accordingly, we find no basis to disturb the agency's assessment of a deficiency to KMK's proposal for failing to address the gravel driveway requirement.

				2	YJK	9/6/2022 2:47 PM
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On this record, given that the RFP provided that an unacceptable rating would render a proposal ineligible for award, we see no basis to object to the agency's decision not to further consider KMK for award.

Files\\Case 17 Butt Construction Decision

No		0.0136	3			
				1	YJK	9/9/2022 10:20 AM

Accordingly we dismiss this aspect of the protest as lacking a factual basis, which our Bid Protest Regulations require. 4 C

				2	YJK	9/9/2022 10:22 AM
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Butt has not shown that JCP registration determines or affects the manner of contract performance; th

				3	YJK	9/9/2022 10:22 AM
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Neither has Butt shown that JCP registration would affect price, quantity, quality, or delivery.

I

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 2 Pond Constructors Decision

No 0.0218 5

1 YJK 9/9/2022 10:20 AM

As a preliminary matter, we dismiss Pond's challenge to the evaluation of its quotation under the small business participation factor. The

2 YJK 9/9/2022 10:20 AM

This challenge, however, results from a clear misreading of the evaluation criteria, and, as such, we dismiss this allegation as failing to state a valid basis of protest.

3 YJK 9/5/2022 12:38 PM

As Pond's argument finds no basis in the terms of the solicitation, we dismiss the allegation as factually and legally insufficient to form a valid basis of protest.

4 YJK 9/5/2022 4:44 PM

Having resolved Pond's challenges to the evaluation of its quotation, and finding no merits to its protest, we conclude that the firm's challenge to the agency's best-value tradeoff decision is also without merit.

5 YJK 9/5/2022 4:44 PM

In this regard, Pond bases its claim that the bestvalue tradeoff was improper on the assertion that the tradeoff was based on the flawed technical evaluation

Files\\Case 5 J&J Worldwide Services Decision

No 0.0051 1

1 YJK 9/5/2022 6:27 PM

Because the protester's argument is premised on the contention that at the time of award there was no contemporaneous record of the contracting officer's independent assessment, we deny this protest ground.

Files\\Case 7 Benaka Decision

No 0.0065 1

1 YJK 9/9/2022 10:22 AM

This argument does not provide a basis to sustain a protest because, as we discuss below, Benaka does not put forth a reasonable interpretation of the page limit requirement.

P

Files\\Case 8 Re-Engineered Business Solutions Decision

No 0.0076 1

1 YJK 9/9/2022 10:22 AM

Simply stated, the agency's IGE calculation was entirely reasonable inasmuch as it was based on actual historical data that Re-Engineered has not drawn into question. W

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 9 Artek Construction Company Decision

No 0.0052 2

1 YJK 9/5/2022 7:59 PM

While the protester wades through the minutiae of the various charts and evaluation findings, its arguments fail to establish that these proposals were substantively indistinguishable, or included nearly identical information.

2 YJK 9/5/2022 8:00 PM

Accordingly, we find that Artek has failed to establish the necessary basis for its claims of disparate treatment.

Codes\\A protester must maintain the ground of being the interested party throughout the decision-making process.\\Not an interested party PDF

Files\\Case 15 KMK Construction Decision

No 0.0133 3

1 YJK 9/6/2022 2:48 PM

We dismiss these remaining allegations because KMK, having been found unacceptable under the phase 2 technical and management approach factor, is not an interested party to raise them.

2 YJK 9/6/2022 2:48 PM

Under our Bid Protest Regulations, a protester must be an interested party, that is, an actual or prospective offeror whose direct economic interest would be affected by the award of a contract.

3 YJK 9/6/2022 2:48 PM

A protester is not an interested party if it would not be in line for award if its protest were sustained.

Files\\Case 3 Facility Services Management Decision

No 0.0074 1

1 YJK 9/5/2022 5:03 PM

Consequently, Facility is not an interested party to maintain any other challenges to the evaluation of J&J's proposal or the award decision because Facility's proposal is not eligible for award, and the protester has not otherwise challenged the acceptability of J&J's proposal.

Files\\Case 5 J&J Worldwide Services Decision

No 0.0174 3

1 YJK 9/5/2022 6:23 PM

Because any one deficiency would result in J&J's technical proposal being rated as unacceptable and thus unawardable, we need not address the reasonableness of the agency's assessment of the remaining four deficiencies and two significant weaknesses assigned to

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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2 YJK 9/5/2022 6:27 PM

To the extent the protester challenges the adequacy of the agency's best-value decision, we need not resolve the protester's arguments because J&J is not an interested party to raise these allegations.

3 YJK 9/5/2022 6:27 PM

Therefore, J&J cannot establish that it is an actual or prospective bidder or offeror whose direct economic interest would be affected by the agency's best-value decision because its proposal is ineligible for award.

Files\\Case 7 Benaka Decision

No 0.0230 4

1 YJK 9/5/2022 6:59 PM

We dismiss these remaining allegations because Benaka, having been found unacceptable under the technical and management approach factor, is not an interested party to raise them.

2 YJK 9/5/2022 7:00 PM

Under our Bid Protest Regulations, a protester must be an interested party, that is, an actual or prospective offeror whose direct economic interest would be affected by the award of a contract.

3 YJK 9/5/2022 7:00 PM

A protester is not an interested party if it would not be in line for award if its protest were sustained.

4 YJK 9/5/2022 7:00 PM

Benaka is not an interested party to maintain these remaining allegations because, as discussed above, its proposal was reasonably found unacceptable.

Codes\\A protester must not rely on different or previous contracts in developing arguments.

PDF

Files\\Case 10 Pacific Dredge and Construction Decision

No 0.0210 4

1 YJK 9/5/2022 8:27 PM

We find unavailing Pacific's arguments that a course of dealing, if one exists, alters the meaning of the express terms of the default and savings clauses of its submitted bid bond.

2 YJK 9/5/2022 8:26 PM

Accordingly, a past course of dealing between a bidder and the procuring agency cannot affect the responsiveness of a bid.

3 YJK 9/9/2022 12:54 PM

Moreover, the fact that the Corps may have previously accepted similarly defective bid bonds from Pacific, whether before or after issuance of our decision in G2G, LLC, does not prohibit the Corps from later invoking the legal requirements of competitive bidding, as it

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				4	YJK	9/5/2022 8:27 PM

An improper award under one or more IFBs does not justify a

Files\\Case 13 W-T Join Venture Decision

No 0.0053 2

1 YJK 9/6/2022 1:57 PM

Here, we agree with the agency when it points out that the protester's reference to design fees it used when competing for a different contract (and the task orders on that different contract) is not relevant to the issues raised in its protest.

2 YJK 9/6/2022 1:57 PM

As our Office has repeatedly observed, each procurement stands alone.

Files\\Case 17 Butt Construction Decision

No 0.0030 1

1 YJK 9/6/2022 2:59 PM

Our decisions do not appear to have addressed JCP registration directly.

Codes\\A protester must recognize that the meanings of solicitation language may not be taken at face value.

PDF

Files\\Case 1 Netizen Corporation Decision

No 0.0067 2

1 YJK 9/5/2022 12:25 PM

Implicit in the solicitation's warning that excessively low prices may be deemed unrealistic is a presumption that the agency would--as a condition precedent to determining if prices

2 YJK 9/5/2022 12:25 PM

were, in fact, unrealistic--first undertake an analysis to determine if an offeror's low price was excessively low. We consider this analysis to be a price realism analysis.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 10 Pacific Dredge and Construction Decision

No		0.0170	2			
				1	YJK	9/5/2022 8:07 PM

A bidder's use of a commercial bid bond form, as here, rather than an SF 24 bid bond form is not per se objectionable because the sufficiency of the bid bond does not depend on its form, but on whether it represents a significant departure from the rights and obligations of the parties as set forth in SF 24.

				2	YJK	9/5/2022 8:16 PM
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Our Office has consistently regarded language similar to the default clause in Pacific's bid bond as limiting the surety's liability to the difference between the bid amount and the replacement contract amount.

Files\\Case 13 W-T Join Venture Decision

No		0.0020	1			
				1	YJK	9/6/2022 2:01 PM

At the outset we note that adjectival ratings are merely guides for intelligent decisionmaking in the procurement process.

Files\\Case 17 Butt Construction Decision

No		0.0051	1			
				1	YJK	9/6/2022 2:56 PM

a contracting agency cannot convert a matter of responsibility into one of responsiveness by the terms of the solicitation.

Files\\Case 4 NIKA Technologies Decision

No		0.0139	3			
				1	YJK	9/5/2022 5:07 PM

Second, although NIKA is correct that the phrase "preventive maintenance" is not expressly used in the language of the corporate experience factor, operations and maintenance services, by their very nature, include preventive maintenance services which, as noted, comprise the majority of the services to be performed here.

				2	YJK	9/5/2022 5:09 PM
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As detailed above, the RFP, while calling generally for operations and maintenance

				3	YJK	9/5/2022 5:54 PM
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As discussed above, preventive maintenance services make up the majority of the operations and maintenance services being solicited, and the "full spectrum" of operations and maintenance services necessarily includes preventive maintenance services.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Codes\\A protester must submit a proposal that is well-written and consistent with enough information in compliance with solicitation requirements.

PDF

Files\\Case 10 Pacific Dredge and Construction Decision

No	0.0486	7
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1	YJK	9/9/2022 9:37 AM
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When required by a solicitation, a bid bond or other bid guarantee is a material part of the bid with which there must be compliance at the time of bid opening. Uni

2	YJK	9/9/2022 9:37 AM
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The determinative question is whether the bond establishes unequivocally at the time of bid opening that the bond is enforceable against the surety should the bidder fail to meet its obligations. Kem

3	YJK	9/9/2022 9:37 AM
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If the agency cannot determine definitively from the bid bond documents that the surety would be bound, the bond is defective and the bid must be rejected. See

4	YJK	9/9/2022 9:37 AM
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Further, we have consistently found that such limitation differs significantly from the requirements of FAR provision 52.228-1, which permits recovery of all excess repurchase costs, including, for example, the administrative costs of repurchase or the costs of in-house government P

5	YJK	9/9/2022 9:37 AM
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As discussed above, the responsiveness of a bid must be determined at the time of bid opening, and if the agency cannot determine definitively from the face of the bid documents that the surety would be bound, the bond is defective and must be rejected. Kem

6	YJK	9/9/2022 9:37 AM
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The test applied in determining the responsiveness of a bid is whether the bid as submitted is an unequivocal offer to perform the exact thing called for in the IFB; thus, if a bid is ambiguous with regard to a material IFB provision, such as a bonding requirement, it is

7	YJK	9/9/2022 9:07 AM
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In general, responsiveness must be determined solely from the face of the bid and materials submitted with the bid. Han

Files\\Case 13 W-T Join Venture Decision

No	0.0048	2
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1	YJK	9/9/2022 9:07 AM
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Offerors are responsible for submitting well-written proposals with adequately detailed information that allows for meaningful review by the procuring agency. See

2	YJK	9/9/2022 8:58 AM
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W-T's proposal neither included this worksheet, nor provided an explanation of how its proposed design fee was developed. MOL

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 14 Wolff & Mueller Government Services GmbH Decision

No		0.0063	2			
				1	YJK	9/9/2022 9:37 AM

We find no merit to the protester's argument that the solicitation stated that offerors were not required to propose personnel who met the requirements of the RFP specifications. As discussed above, the management approach factor stated the agency would evaluate "[t]he extent to which the proposal . . . proposes personnel that meet the specification requirements." RFP

2	YJK	9/9/2022 8:58 AM
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On this record, we think the agency reasonably found that the chart, as depicted, failed to clearly delineate the lines of authority in a precise and logical manner. We

Files\\Case 15 KMK Construction Decision

No		0.0055	1			
				1	YJK	9/9/2022 9:37 AM

Clearly stated solicitation technical requirements are considered material to the needs of the government, and a proposal that fails to conform to such material terms is technically unacceptable. See

Files\\Case 2 Pond Constructors Decision

No		0.0056	1			
				1	YJK	9/9/2022 8:58 AM

As discussed by the agency, it was Pond's failure to describe how it would perform the service order scope of work within the regime established by the solicitation that formed the basis of the significant weakness. See

Files\\Case 3 Facility Services Management Decision

No		0.0298	4			
				1	YJK	9/9/2022 9:26 AM

In fact, the protester's own proposal shows that, at least with regard to its proposed CM O&M supervisor, Facility, itself, interpreted the solicitation to require that the offeror demonstrate that this individual could personally perform maintenance operations. As

2	YJK	9/9/2022 9:26 AM
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The integrity of the protest process does not permit a protester to espouse one interpretation or position during the procurement, and then argue during a protest that the interpretation or position is unreasonable or otherwise improper. See

3	YJK	9/9/2022 9:07 AM
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It is an offeror's responsibility to submit a well-written proposal, with adequately detailed information that clearly demonstrates compliance with the solicitation requirements, and an offeror risks having its proposal evaluated unfavorably where it fails to submit an adequately written proposal. PEA

4	YJK	9/9/2022 8:58 AM
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As discussed previously, unlike the resume for the CM O&M supervisor, the resume submitted for the PM O&M supervisor did not state that this individual had experience performing maintenance operations or otherwise provide any examples of the person's experience performing various maintenance operations. A

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 4 NIKA Technologies Decision

No 0.0047 2

1 YJK 9/9/2022 9:26 AM

The agency's explanation is borne out by the contents of NIKA's proposal. For

2 YJK 9/9/2022 9:26 AM

From this proposal excerpt, it is clear, as explained by the agency, that NIKA has not actually perform any operations and maintenance services. Rat

Files\\Case 7 Benaka Decision

No 0.0184 3

1 YJK 9/9/2022 9:37 AM

As a general matter, offerors must prepare their proposals within the format limitations set out in an agency's solicitation, including any applicable page limits. Tec

2 YJK 9/9/2022 9:37 AM

Offerors that exceed a solicitation's established page limitations assume the risk that the agency will not consider the excess pages. Id.

3 YJK 9/9/2022 9:37 AM

Clearly stated solicitation technical requirements are considered material to the needs of the government, and a proposal that fails to conform to such material terms is technically unacceptable. See

Files\\Case 8 Re-Engineered Business Solutions Decision

No 0.0040 1

1 YJK 9/9/2022 9:26 AM

Moreover, R&D did not propose a vehicle risk mitigation strategy, as Re-Engineered did. T

Files\\Case 9 Artek Construction Company Decision

No 0.0114 4

1 YJK 9/9/2022 9:07 AM

An offeror is responsible for submitting a well-written proposal with adequately detailed information that allows for meaningful review by the procuring agency. Aba

2 YJK 9/9/2022 9:37 AM

The record shows that Artek's management plan did not comply with this requirement because its organizational chart did not identify any site superintendent position whatsoever, and did not identify the QCSM as being on-site. See

3 YJK 9/9/2022 9:07 AM

the record reflects that the narrative portion of Artek's proposal includes only a few references to the site superintendent position, which the agency described as "cryptic." S

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				4	YJK	9/9/2022 9:37 AM

Among these few references, Artek's proposal indicated that the position was subordinate to the QCSM which, as the agency explains, directly contracted the solicitation. A

Codes\\A protester must submit a proposal that is well-written and consistent with enough information in compliance with solicitation requirements.\\In (or not in) compliance PDF

Files\\Case 10 Pacific Dredge and Construction Decision

No 0.0439 6

1 YJK 9/5/2022 8:05 PM

When required by a solicitation, a bid bond or other bid guarantee is a material part of the bid with which there must be compliance at the time of bid opening.

2 YJK 9/5/2022 8:07 PM

The determinative question is whether the bond establishes unequivocally at the time of bid opening that the bond is enforceable against the surety should the bidder fail to meet its obligations.

3 YJK 9/5/2022 8:07 PM

If the agency cannot determine definitively from the bid bond documents that the surety would be bound, the bond is defective and the bid must be rejected.

4 YJK 9/5/2022 8:17 PM

Further, we have consistently found that such limitation differs significantly from the requirements of FAR provision 52.228-1, which permits recovery of all excess reprourement costs, including, for example, the administrative costs of reprourement or the costs of in-house government

5 YJK 9/5/2022 8:23 PM

As discussed above, the responsiveness of a bid must be determined at the time of bid opening, and if the agency cannot determine definitively from the face of the bid documents that the surety would be bound, the bond is defective and must be rejected.

6 YJK 9/5/2022 8:24 PM

The test applied in determining the responsiveness of a bid is whether the bid as submitted is an unequivocal offer to perform the exact thing called for in the IFB; thus, if a bid is ambiguous with regard to a material IFB provision, such as a bonding requirement, it is

Files\\Case 14 Wolff & Mueller Government Services GmbH Decision

No 0.0042 2

1 YJK 9/6/2022 2:32 PM

We find no merit to the protester's argument that the solicitation stated that offerors were not required to propose personnel who met the requirements of the RFP specifications.

2 YJK 9/6/2022 2:32 PM

As discussed above, the management approach factor stated the agency would evaluate "[t]he extent to which the proposal . . . proposes personnel that meet the specification requirements."

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 15 KMK Construction Decision

No		0.0053	1			
				1	YJK	9/6/2022 2:46 PM

Clearly stated solicitation technical requirements are considered material to the needs of the government, and a proposal that fails to conform to such material terms is technically unacceptable.

Files\\Case 7 Benaka Decision

No		0.0180	3			
				1	YJK	9/5/2022 6:55 PM

As a general matter, offerors must prepare their proposals within the format limitations set out in an agency's solicitation, including any applicable page limits.

				2	YJK	9/5/2022 6:55 PM
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Offerors that exceed a solicitation's established page limitations assume the risk that the agency will not consider the excess pages.

				3	YJK	9/5/2022 6:55 PM
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Clearly stated solicitation technical requirements are considered material to the needs of the government, and a proposal that fails to conform to such material terms is technically unacceptable.

Files\\Case 9 Artek Construction Company Decision

No		0.0060	2			
				1	YJK	9/5/2022 7:47 PM

The record shows that Artek's management plan did not comply with this requirement because its organizational chart did not identify any site superintendent position whatsoever, and did not identify the QCSM as being on-site.

				2	YJK	9/5/2022 7:47 PM
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Among these few references, Artek's proposal indicated that the position was subordinate to the QCSM which, as the agency explains, directly contracted the solicitation.

Codes\\A protester must submit a proposal that is well-written and consistent with enough information in compliance with solicitation requirements.\\Well-written PDF

Files\\Case 10 Pacific Dredge and Construction Decision

No		0.0037	1			
				1	YJK	9/5/2022 8:25 PM

In general, responsiveness must be determined solely from the face of the bid and materials submitted with the bid.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 13 W-T Join Venture Decision

No		0.0047	2			
				1	YJK	9/6/2022 1:56 PM

Offerors are responsible for submitting well-written proposals with adequately detailed information that allows for meaningful review by the procuring agency.

				2	YJK	9/9/2022 9:21 AM
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W-T's proposal neither included this worksheet, nor provided an explanation of how its proposed design fee was developed. MOL

Files\\Case 14 Wolff & Mueller Government Services GmbH Decision

No		0.0019	1			
				1	YJK	9/9/2022 9:21 AM

On this record, we think the agency reasonably found that the chart, as depicted, failed to clearly delineate the lines of authority in a precise and logical manner. We

Files\\Case 2 Pond Constructors Decision

No		0.0056	1			
				1	YJK	9/9/2022 9:21 AM

As discussed by the agency, it was Pond's failure to describe how it would perform the service order scope of work within the regime established by the solicitation that formed the basis of the significant weakness. See

Files\\Case 3 Facility Services Management Decision

No		0.0161	2			
				1	YJK	9/5/2022 4:57 PM

It is an offeror's responsibility to submit a well-written proposal, with adequately detailed information that clearly demonstrates compliance with the solicitation requirements, and an offeror risks having its proposal evaluated unfavorably where it fails to submit an adequately written proposal.

				2	YJK	9/9/2022 9:21 AM
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As discussed previously, unlike the resume for the CM O&M supervisor, the resume submitted for the PM O&M supervisor did not state that this individual had experience performing maintenance operations or otherwise provide any examples of the person's experience performing various maintenance operations. A

Files\\Case 9 Artek Construction Company Decision

No		0.0051	2			
				1	YJK	9/5/2022 7:46 PM

An offeror is responsible for submitting a well-written proposal with adequately detailed information that allows for meaningful review by the procuring agency.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				2	YJK	9/5/2022 7:47 PM

the record reflects that the narrative portion of Artek's proposal includes only a few references to the site superintendent position, which the agency described as "cryptic."

Codes\\A protester must submit a proposal that is well-written and consistent with enough information in compliance with solicitation requirements.\\Your word against your word PDF

Files\\Case 3 Facility Services Management Decision

No 0.0133 2

1 YJK 9/5/2022 4:51 PM

In fact, the protester's own proposal shows that, at least with regard to its proposed CM O&M supervisor, Facility, itself, interpreted the solicitation to require that the offeror demonstrate that this individual could personally perform maintenance operations.

2 YJK 9/5/2022 4:51 PM

The integrity of the protest process does not permit a protester to espouse one interpretation or position during the procurement, and then argue during a protest that the interpretation or position is unreasonable or otherwise improper.

Files\\Case 4 NIKA Technologies Decision

No 0.0046 2

1 YJK 9/5/2022 6:00 PM

The agency's explanation is borne out by the contents of NIKA's proposal.

2 YJK 9/5/2022 6:00 PM

From this proposal excerpt, it is clear, as explained by the agency, that NIKA has not actually perform any operations and maintenance services.

Files\\Case 8 Re-Engineered Business Solutions Decision

No 0.0039 1

1 YJK 9/5/2022 7:10 PM

Moreover, R&D did not propose a vehicle risk mitigation strategy, as Re-Engineered did.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Codes\\A protester must submit its allegations within the specified time window.

PDF

Files\\Case 1 Netizen Corporation Decision

No	0.0061	2
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1	YJK	9/9/2022 1:46 PM
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While a close question, it is not evident that the protester knew or should have known that BreakPoint's price--disclosed to Netizen through the agency's explanation of the award decision--included plug-numbers for travel expenses. The pro

2	YJK	9/9/2022 1:46 PM
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Accordingly, we are not prepared to dismiss this protest allegation as untimely. 7 N

Files\\Case 12 Severson Environmental Services Decision

No	0.0069	2
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1	YJK	9/9/2022 1:46 PM
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challenges to the terms of a solicitation must be raised prior to the closing date for receipt of proposals. 4 C

2	YJK	9/9/2022 1:46 PM
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Severson's protest assertions that the agency's evaluation and/or source selection decision was improper because the agency evaluated the individual members of the joint venture as the joint venture itself reflects an untimely challenge to the terms of the solicitation and is not for consideration. 4 C

Files\\Case 15 KMK Construction Decision

No	0.0153	3
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1	YJK	9/9/2022 1:46 PM
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While we agree that the specification for the driveway was unclear in several material respects, the protester did not timely protest the RFP's terms, either for lack of clarity or for ambiguity. 4 C

2	YJK	9/9/2022 1:46 PM
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Where a patent ambiguity in a solicitation is not challenged prior to the submission of proposals, we will dismiss as untimely any subsequent challenge to the meaning of the solicitation term. 4 C

3	YJK	9/9/2022 1:46 PM
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In this circumstance, the issue to be decided is whether the evaluation was consistent with the specifications, which were clearly flawed, but unchallenged.

P

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 2 Pond Constructors Decision

No		0.0043	1			
				1	YJK	9/9/2022 1:46 PM

To the extent that the protester now disagrees with the stated evaluation scheme, this challenge amounts to an untimely challenge to the terms of the solicitation. 4 C

Files\\Case 5 J&J Worldwide Services Decision

No		0.0104	2			
				1	YJK	9/9/2022 1:46 PM

First, the protester's argument that its deviation from the RFP requirements was justified by the fact that such limited reuse would lessen the disruption to the customer amounts to an untimely challenge to the terms of the solicitation. Tha

				2	YJK	9/9/2022 1:46 PM
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To be timely, such a protest based on alleged improprieties in a solicitation that are apparent prior to closing time for receipt of proposals must be filed by that time. 4 C

Files\\Case 6 Prestige Lawncare Decision

No		0.0065	1			
				1	YJK	9/9/2022 1:46 PM

Prestige never requested that the agency extend the due date for quotations. Memoranda

Files\\Case 9 Artek Construction Company Decision

No		0.0088	2			
				1	YJK	9/9/2022 1:46 PM

We dismiss these arguments as untimely because the agency's debriefing, and the April 8, response to the protester's debriefing follow-up questions, both expressly advised that the agency's concerns under the management approach factor were based on the protester's failure to comply with specification 01 45 05. See

				2	YJK	9/9/2022 1:46 PM
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Here, the protester did not challenge the agency's use of the specification in its evaluation until the protester filed its comments on the agency report, more than 10 days after the protester knew or should have known the basis for these protest issues. 4 C

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Codes\\A protester must submit its allegations within the specified time window.\\Untimely

PDF

Files\\Case 1 Netizen Corporation Decision

No	0.0059	2			
			1	YJK	9/9/2022 10:18 AM

While a close question, it is not evident that the protester knew or should have known that BreakPoint's price--disclosed to Netizen through the agency's explanation of the award decision--included plug-numbers for travel expenses. The

2 YJK 9/5/2022 12:23 PM

Accordingly, we are not prepared to dismiss this protest allegation as untimely.

Files\\Case 12 Severson Environmental Services Decision

No	0.0068	2			
			1	YJK	9/6/2022 1:43 PM

challenges to the terms of a solicitation must be raised prior to the closing date for receipt of proposals.

2 YJK 9/6/2022 1:44 PM

Severson's protest assertions that the agency's evaluation and/or source selection decision was improper because the agency evaluated the individual members of the joint venture as the joint venture itself reflects an untimely challenge to the terms of the solicitation and is not for consideration.

Files\\Case 15 KMK Construction Decision

No	0.0150	3			
			1	YJK	9/6/2022 2:42 PM

While we agree that the specification for the driveway was unclear in several material respects, the protester did not timely protest the RFP's terms, either for lack of clarity or for ambiguity.

2 YJK 9/6/2022 2:43 PM

Where a patent ambiguity in a solicitation is not challenged prior to the submission of proposals, we will dismiss as untimely any subsequent challenge to the meaning of the solicitation term.

3 YJK 9/6/2022 2:44 PM

In this circumstance, the issue to be decided is whether the evaluation was consistent with the specifications, which were clearly flawed, but unchallenged.

Files\\Case 2 Pond Constructors Decision

No	0.0042	1			
			1	YJK	9/5/2022 12:40 PM

To the extent that the protester now disagrees with the stated evaluation scheme, this challenge amounts to an untimely challenge to the terms of the solicitation.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 5 J&J Worldwide Services Decision

No 0.0102 2

1 YJK 9/5/2022 6:20 PM

First, the protester's argument that its deviation from the RFP requirements was justified by the fact that such limited reuse would lessen the disruption to the customer amounts to an untimely challenge to the terms of the solicitation.

2 YJK 9/5/2022 6:21 PM

To be timely, such a protest based on alleged improprieties in a solicitation that are apparent prior to closing time for receipt of proposals must be filed by that time.

Files\\Case 6 Prestige Lawncare Decision

No 0.0062 1

1 YJK 9/9/2022 10:18 AM

Prestige never requested that the agency extend the due date for quotations. Mem

Files\\Case 9 Artek Construction Company Decision

No 0.0087 2

1 YJK 9/5/2022 7:19 PM

We dismiss these arguments as untimely because the agency's debriefing, and the April 8, response to the protester's debriefing follow-up questions, both expressly advised that the agency's concerns under the management approach factor were based on the protester's failure to comply with specification 01 45 05.

2 YJK 9/9/2022 10:18 AM

Here, the protester did not challenge the agency's use of the specification in its evaluation until the protester filed its comments on the agency report, more than 10 days after the protester knew or should have known the basis for these protest issues. 4

Codes\\A protester must support its allegations with unambiguous requirements in solicitations in their entirety, expressed in plain language.

PDF

Files\\Case 1 Netizen Corporation Decision

No 0.0278 8

1 YJK 9/7/2022 2:16 PM

While the protester highlights that BreakPoint was a subcontractor to Netizen on the predecessor contract, the solicitation did not require prime contractor experience, nor did it establish additional credit for work performed as a prime. See

2 YJK 9/7/2022 2:16 PM

Netizen's argument that BreakPoint could not have received an outstanding rating under the corporate experience factor because it was a subcontractor is, therefore, not supported by the solicitation.

s

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				3	YJK	9/7/2022 2:16 PM
We find similarly unpersuasive Netizen's argument that BreakPoint's experience was not relevant, as defined by the solicitation. As						
				4	YJK	9/7/2022 2:16 PM
While the protester is correct that BreakPoint, as a subcontractor, only performed approximately 15 percent of the total value of the prior contract, under the terms of the solicitation, a finding of relevancy--concerning contract magnitude--was not limited strictly to the dollar amount of work an offeror performed. See						
				5	YJK	9/7/2022 2:16 PM
On this record, we cannot conclude that the agency's evaluation was unreasonable or inconsistent with the terms of the solicitation. P						
				6	YJK	9/7/2022 2:16 PM
Notwithstanding the agency's assertions to the contrary, we conclude the solicitation contemplated a price realism evaluation of the awardee's offered price. The						
				7	YJK	9/7/2022 1:40 PM
we concluded that offerors were not provided sufficient notice that a price realism evaluation would occur because the solicitation was ambiguous as to whether the agency would conduct a price or cost realism analysis. Id						
				8	YJK	9/7/2022 1:40 PM
Such ambiguity is not present in the solicitation here. 8 T						

Files\\Case 12 Severson Environmental Services Decision

No 0.0160 4

				1	YJK	9/7/2022 1:42 PM
Where a protester and agency disagree about the meaning of solicitation language, we will resolve the matter by reading the solicitation as a whole and in a manner that gives effect to all of its provisions; to be reasonable, and therefore valid, an interpretation must be consistent with the solicitation when read as a whole and in a reasonable manner. Cre						
				2	YJK	9/7/2022 1:40 PM
In our view, the solicitation's stated evaluation criteria clearly placed offerors on notice that prime contractor experience was preferred. The						
				3	YJK	9/7/2022 2:05 PM
Where a dispute exists as to the provisions of a solicitation, we will first examine the plain language of the solicitation, see						
				4	YJK	9/7/2022 2:16 PM
In this regard, Severson's protest fails to recognize that the solicitation provisions, quoted by Severson in its protest, see Protest at 3, specifically advised offerors that more complex dewatering techniques could be required due to the fact that the groundwater level "ranges from 6 to 19 feet below ground surface." AR,						

Files\\Case 15 KMK Construction Decision

No 0.0195 5

				1	YJK	9/7/2022 2:05 PM
Where a dispute exists as to a solicitation's actual requirements, we will first examine the plain language of the solicitation. Bau						

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				2	YJK	9/7/2022 1:42 PM
Where a protester and an agency disagree over the meaning of solicitation language, we will resolve the matter by assessing whether each posited interpretation is reasonable. And						
				3	YJK	9/7/2022 1:42 PM
To be reasonable, an interpretation must be consistent with the solicitation when read as a whole and in a reasonable manner. Pla						
				4	YJK	9/7/2022 1:40 PM
An ambiguity exists where two or more reasonable interpretations of the terms or specifications of the solutions are possible. FEI						
				5	YJK	9/7/2022 1:40 PM
A patent ambiguity exists where the solicitation contains an obvious, gross, or glaring error, while a latent ambiguity is more subtle. Id.						

Files\\Case 2 Pond Constructors Decision

No 0.0175 4

				1	YJK	9/7/2022 2:05 PM
However, the stated evaluation scheme is written in the conjunctive, and, as such, it was reasonable for the agency to require quotations to meet each criterion set forth in the evaluation factor for the assigned adjectival rating. RFQ						
				2	YJK	9/7/2022 2:05 PM
Where a dispute exists as to a solicitation's actual requirements, we begin by examining the plain language of the solicitation. Poi						
				3	YJK	9/7/2022 1:42 PM
We resolve questions of solicitation interpretation by reading the solicitation as a whole and in a manner that gives effect to all provisions; to be reasonable, and therefore valid, an interpretation must be consistent with such a reading. Des						
				4	YJK	9/7/2022 1:40 PM
If the solicitation language is unambiguous, our inquiry ceases. Id.						

Files\\Case 3 Facility Services Management Decision

No 0.0334 6

				1	YJK	9/7/2022 2:05 PM
Where, as here, a dispute exists as to a solicitation's actual requirements, we begin by examining the plain language of the solicitation. Poi						
				2	YJK	9/7/2022 1:42 PM
We resolve questions of solicitation interpretation by reading the solicitation as a whole and in a manner that gives effect to all provisions; to be reasonable, and therefore valid, an interpretation must be consistent with such a reading. Des						
				3	YJK	9/7/2022 1:40 PM
If the solicitation language is unambiguous, our inquiry ceases. Id.						
				4	YJK	9/7/2022 2:16 PM
Here, the protester's reading of the solicitation is not reasonable because it is inconsistent with the plain language of the solicitation. There is nothing in the express language of the solicitation supporting Facility's position that the O&M supervisor does not need to have the ability to actually perform the maintenance because the position is a management position, and not a "hands-on" position. Pro						

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				5	YJK	9/7/2022 2:05 PM

Moreover, the solicitation language plainly states that the supervisor “shall be able to perform maintenance operations necessary to execute” various tasks required by the PWS. Id.

				6	YJK	9/7/2022 2:05 PM
In sum, we find Facility’s interpretation of the solicitation to be an unreasonable one, and on this record, we find no merit to Facility’s argument that the agency applied unstated evaluation criterion.						
W						

Files\\Case 4 NIKA Technologies Decision

No	0.0227	3
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				1	YJK	9/7/2022 1:42 PM
Given that the work to be performed under any resulting contract consists principally of preventive maintenance services, there is no basis for our Office to conclude that the RFP, read in its entirety, failed to put all offerors on notice that preventive maintenance was a large component of the operations and maintenance services being solicited, and that any evaluation of a firm’s corporate experience necessarily would include consideration of whether their experience included preventive maintenance experience.						
S						

				2	YJK	9/7/2022 2:16 PM
Consistent with that basic underlying premise, the language of the evaluation factor makes express reference to providing medical operations and maintenance services in supporting facilities; and to providing equipment maintenance services at medical facilities.						
				3	YJK	9/7/2022 2:16 PM
Thus, regardless of how the term “offeror” may have appeared or been defined elsewhere in the RFP, for the express purpose of evaluating corporate experience, the RFP made clear that each key member of any proposal team was required to have the requisite						

Files\\Case 5 J&J Worldwide Services Decision

No	0.0173	3
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				1	YJK	9/7/2022 2:16 PM
We find that the agency reasonably determined that by proposing a limited reuse of some HVAC components, J&J’s proposal failed to meet the solicitation’s requirement that the contractor replace the existing HVAC system with a new HVAC system. Fir						
				2	YJK	9/7/2022 1:40 PM
That is, the protester’s contention that it could deviate from the requirements expressly stated in the amended SOW in order to satisfy the solicitation’s instruction to lesson disruption, at best, alleges a patent ambiguity in the RFP. To						
				3	YJK	9/7/2022 2:16 PM
Here, because J&J concedes that it proposed to reuse some HVAC components, contrary to a material solicitation requirement, we find no basis to conclude that this violation constitutes a minor deviation. Fur						

Files\\Case 6 Prestige Lawncare Decision

No	0.0588	2
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				1	YJK	9/7/2022 2:05 PM
While our Office has found that language in an RFQ requesting quotations by a certain date, without more, does not establish a firm closing date for receipt of quotations. M.Braun, Inc., B-298935.2, May 21, 2007, 2007 CPD ¶ 96 at 3-4, when the RFQ states that quotations must be received by a stated deadline to be considered, quotations cannot be considered if received after the deadline. See						

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				2	YJK	9/7/2022 2:16 PM

Here, as previously noted, the RFQ incorporated FAR provision 52.212-1, which expressly limited the agency's ability to accept late quotations to circumstances not present here.⁴ Because this provision was incorporated into the solicitation, the agency was unable to accept Prestige's quotation, regardless of the explanation as to why the quotation was late. The

Files\\Case 7 Benaka Decision

No	0.0564	5
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1	YJK	9/7/2022 1:42 PM
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Where a protester and agency disagree over the meaning of solicitation language, we will resolve the matter by reading the solicitation as a whole and in a manner that gives effect to all of its provisions; to be reasonable, and therefore valid, an interpretation must be consistent with the solicitation when read as a whole and in a reasonable manner. P

2	YJK	9/7/2022 2:05 PM
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Where a dispute exists as to a solicitation's actual requirements, we will first examine the plain language of the solicitation. Bau

3	YJK	9/7/2022 2:16 PM
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This solicitation language expressly identifies the types of pages that are exempt from the requirement to count "all pages," and cover pages are not excepted. The plain language of this provision, when read as a whole, is not susceptible to the reading advanced by the protester. Under the protester's interpretation--that only page types specifically enumerated after the word "including" could be counted--the agency would be precluded from counting any proposal pages other than cover letters, table of contents pages, tables, illustrations, or appendices. Such an interpretation is antithetical to the very concept of the page limits imposed by the solicitation, as offerors could hypothetically include infinite technical proposal information as long as they did so in specific page formats.

4	YJK	9/7/2022 2:05 PM
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As noted above, the agency clearly explained in amendment 0001 that even blank pages acting as section a

5	YJK	9/7/2022 2:05 PM
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Accordingly, we find Benaka's interpretation of the page limit requirement unreasonable and contrary to the plain language of the solicitation.

Files\\Case 9 Artek Construction Company Decision

No	0.0118	2
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1	YJK	9/7/2022 1:40 PM
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In any event, it is readily apparent that the specification, titled "Contractor Personnel Requirements (NAU)," identified the various contractor personnel required to successfully perform the solicited construction services, and was referenced as an attachment to the RFP. As a result, the specification provided a proper basis for the agency's evaluation under the management approach factor.

2	YJK	9/7/2022 2:16 PM
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Our Office has stated previously that the provisions of FAR part 15 regarding discussions or clarifications (limited exchanges that give offerors an opportunity to clarify certain aspects of proposals or to resolve minor or clerical errors see FAR 15.306(a)) do not apply to phase 1 of design/build competitions, absent specific solicitation provisions to the contrary. S

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Codes\\A protester must support its allegations with unambiguous requirements in solicitations in their entirety, expressed in plain language.\\Ambiguity or unambiguous
PDF

Files\\Case 1 Netizen Corporation Decision

No 0.0051 2

1 YJK 9/5/2022 12:30 PM

we concluded that offerors were not provided sufficient notice that a price realism evaluation would occur because the solicitation was ambiguous as to whether the agency would conduct a price or cost realism analysis

2 YJK 9/5/2022 12:30 PM

Such ambiguity is not present in the solicitation here.

Files\\Case 12 Severson Environmental Services Decision

No 0.0023 1

1 YJK 9/6/2022 1:42 PM

In our view, the solicitation's stated evaluation criteria clearly placed offerors on notice that prime contractor experience was preferred.

Files\\Case 15 KMK Construction Decision

No 0.0072 2

1 YJK 9/6/2022 2:43 PM

An ambiguity exists where two or more reasonable interpretations of the terms or specifications of the solutions are possible.

2 YJK 9/6/2022 2:43 PM

A patent ambiguity exists where the solicitation contains an obvious, gross, or glaring error, while a latent ambiguity is more subtle.

Files\\Case 2 Pond Constructors Decision

No 0.0016 1

1 YJK 9/5/2022 4:37 PM

If the solicitation language is unambiguous, our inquiry ceases.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 3 Facility Services Management Decision

No		0.0017	1			
				1	YJK	9/5/2022 4:48 PM

If the solicitation language is unambiguous, our inquiry ceases.

Files\\Case 5 J&J Worldwide Services Decision

No		0.0059	1			
				1	YJK	9/5/2022 6:20 PM

That is, the protester's contention that it could deviate from the requirements expressly stated in the amended SOW in order to satisfy the solicitation's instruction to lesson disruption, at best, alleges a patent ambiguity in the RFP.

Files\\Case 9 Artek Construction Company Decision

No		0.0060	2			
				1	YJK	9/5/2022 7:45 PM

In any event, it is readily apparent that the specification, titled "Contractor Personnel Requirements (NAU)," identified the various contractor personnel required to successfully perform the solicited construction services, and was referenced as an attachment to the RFP.

				2	YJK	9/5/2022 7:46 PM
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As a result, the specification provided a proper basis for the agency's evaluation under the management approach factor.

Codes\\A protester must support its allegations with unambiguous requirements in solicitations in their entirety, expressed in plain language.\\Entirety PDF

Files\\Case 12 Severson Environmental Services Decision

No		0.0059	1			
				1	YJK	9/6/2022 1:41 PM

Where a protester and agency disagree about the meaning of solicitation language, we will resolve the matter by reading the solicitation as a whole and in a manner that gives effect to all of its provisions; to be reasonable, and therefore valid, an interpretation must be consistent with the solicitation when read as a whole and in a reasonable manner.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 15 KMK Construction Decision

No		0.0082	2			
				1	YJK	9/6/2022 2:41 PM

Where a protester and an agency disagree over the meaning of solicitation language, we will resolve the matter by assessing whether each posited interpretation is reasonable.

2	YJK	9/6/2022 2:41 PM
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To be reasonable, an interpretation must be consistent with the solicitation when read as a whole and in a reasonable manner.

Files\\Case 2 Pond Constructors Decision

No		0.0062	1			
				1	YJK	9/5/2022 4:37 PM

We resolve questions of solicitation interpretation by reading the solicitation as a whole and in a manner that gives effect to all provisions; to be reasonable, and therefore valid, an interpretation must be consistent with such a reading.

Files\\Case 3 Facility Services Management Decision

No		0.0064	1			
				1	YJK	9/5/2022 4:48 PM

We resolve questions of solicitation interpretation by reading the solicitation as a whole and in a manner that gives effect to all provisions; to be reasonable, and therefore valid, an interpretation must be consistent with such a reading.

Files\\Case 4 NIKA Technologies Decision

No		0.0110	1			
				1	YJK	9/5/2022 5:06 PM

Given that the work to be performed under any resulting contract consists principally of preventive maintenance services, there is no basis for our Office to conclude that the RFP, read in its entirety, failed to put all offerors on notice that preventive maintenance was a large component of the operations and maintenance services being solicited, and that any evaluation of a firm's corporate experience necessarily would include consideration of whether their experience included preventive maintenance experience.

Files\\Case 6 Prestige Lawncare Decision

No		0.0139	1			
				1	YJK	9/5/2022 6:47 PM

Because this provision was incorporated into the solicitation, the agency was unable to accept Prestige's quotation, regardless of the explanation as to why the quotation was late.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 7 Benaka Decision

No		0.0129	1			
				1	YJK	9/5/2022 6:50 PM

Where a protester and agency disagree over the meaning of solicitation language, we will resolve the matter by reading the solicitation as a whole and in a manner that gives effect to all of its provisions; to be reasonable, and therefore valid, an interpretation must be consistent with the solicitation when read as a whole and in a reasonable manner.

Codes\\A protester must support its allegations with unambiguous requirements in solicitations in their entirety, expressed in plain language.\\Express requirements PDF

Files\\Case 1 Netizen Corporation Decision

No		0.0221	6			
				1	YJK	9/5/2022 12:12 PM

While the protester highlights that BreakPoint was a subcontractor to Netizen on the predecessor contract, the solicitation did not require prime contractor experience, nor did it establish additional credit for work performed as a prime.

2	YJK	9/5/2022 12:12 PM
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Netizen's argument that BreakPoint could not have received an outstanding rating under the corporate experience factor because it was a subcontractor is, therefore, not supported by the solicitation.

3	YJK	9/5/2022 12:13 PM
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We find similarly unpersuasive Netizen's argument that BreakPoint's experience was not relevant, as defined by the solicitation.

4	YJK	9/5/2022 12:13 PM
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While the protester is correct that BreakPoint, as a subcontractor, only performed approximately 15 percent of the total value of the prior contract, under the terms of the solicitation, a finding of relevancy--concerning contract magnitude--was not limited strictly to the dollar amount of work an offeror performed.

5	YJK	9/5/2022 12:19 PM
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On this record, we cannot conclude that the agency's evaluation was unreasonable or inconsistent with the terms of the solicitation.

6	YJK	9/5/2022 12:23 PM
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Notwithstanding the agency's assertions to the contrary, we conclude the solicitation contemplated a price realism evaluation of the awardee's offered price.

Files\\Case 12 Severson Environmental Services Decision

No		0.0053	1			
				1	YJK	9/6/2022 1:50 PM

In this regard, Severson's protest fails to recognize that the solicitation provisions, quoted by Severson in its protest, see Protest at 3, specifically advised offerors that more complex dewatering techniques could be required due to the fact that the groundwater level "ranges from 6 to 19 feet below ground surface."

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 3 Facility Services Management Decision

No		0.0070	1			
				1	YJK	9/5/2022 4:49 PM

There is nothing in the express language of the solicitation supporting Facility's position that the O&M supervisor does not need to have the ability to actually perform the maintenance because the position is a management position, and not a "hands-on" position.

Files\\Case 4 NIKA Technologies Decision

No		0.0114	2			
				1	YJK	9/7/2022 2:03 PM

Consistent with that basic underlying premise, the language of the evaluation factor makes express reference to providing medical operations and maintenance services in supporting facilities; and to providing equipment maintenance services at medical facilities. Pre

				2	YJK	9/7/2022 2:03 PM
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Thus, regardless of how the term "offeror" may have appeared or been defined elsewhere in the RFP, for the express purpose of evaluating corporate experience, the RFP made clear that each key member of any proposal team was required to have the requisite

Files\\Case 5 J&J Worldwide Services Decision

No		0.0111	2			
				1	YJK	9/5/2022 6:20 PM

We find that the agency reasonably determined that by proposing a limited reuse of some HVAC components, J&J's proposal failed to meet the solicitation's requirement that the contractor replace the existing HVAC system with a new HVAC system.

				2	YJK	9/5/2022 6:21 PM
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Here, because J&J concedes that it proposed to reuse some HVAC components, contrary to a material solicitation requirement, we find no basis to conclude that this violation constitutes a minor deviation.

Files\\Case 6 Prestige Lawncare Decision

No		0.0141	1			
				1	YJK	9/7/2022 2:03 PM

Here, as previously noted, the RFQ incorporated FAR provision 52.212-1, which expressly limited the agency's ability to accept late quotations to circumstances not present here.4 Bec

Files\\Case 7 Benaka Decision

No		0.0058	1			
				1	YJK	9/7/2022 2:03 PM

This solicitation language expressly identifies the types of pages that are exempt from the requirement to count "all pages," and cover pages are not excepted.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 9 Artek Construction Company Decision

No		0.0057	1			
				1	YJK	9/5/2022 7:51 PM

Our Office has stated previously that the provisions of FAR part 15 regarding discussions or clarifications (limited exchanges that give offerors an opportunity to clarify certain aspects of proposals or to resolve minor or clerical errors see FAR 15.306(a)) do not apply to phase 1 of design/build competitions, absent specific solicitation provisions to the contrary.

Codes\\A protester must support its allegations with unambiguous requirements in solicitations in their entirety, expressed in plain language.\\Plain language PDF

Files\\Case 12 Severson Environmental Services Decision

No		0.0020	1			
				1	YJK	9/6/2022 1:42 PM

Where a dispute exists as to the provisions of a solicitation, we will first examine the plain language of the solicitation,

Files\\Case 15 KMK Construction Decision

No		0.0035	1			
				1	YJK	9/6/2022 2:38 PM

Where a dispute exists as to a solicitation's actual requirements, we will first examine the plain language of the solicitation.

Files\\Case 2 Pond Constructors Decision

No		0.0092	2			
				1	YJK	9/5/2022 12:40 PM

However, the stated evaluation scheme is written in the conjunctive, and, as such, it was reasonable for the agency to require quotations to meet each criterion set forth in the evaluation factor for the assigned adjectival rating.

				2	YJK	9/5/2022 4:35 PM
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Where a dispute exists as to a solicitation's actual requirements, we begin by examining the plain language of the solicitation.

Files\\Case 3 Facility Services Management Decision

No		0.0175	4			
				1	YJK	9/5/2022 4:48 PM

Where, as here, a dispute exists as to a solicitation's actual requirements, we begin by examining the plain language of the solicitation.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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2 YJK 9/5/2022 4:48 PM

Here, the protester's reading of the solicitation is not reasonable because it is inconsistent with the plain language of the solicitation.

3 YJK 9/5/2022 4:49 PM

Moreover, the solicitation language plainly states that the supervisor "shall be able to perform maintenance operations necessary to execute" various tasks required by the PWS.

4 YJK 9/5/2022 4:56 PM

In sum, we find Facility's interpretation of the solicitation to be an unreasonable one, and on this record, we find no merit to Facility's argument that the agency applied unstated evaluation criterion.

Files\\Case 6 Prestige Lawncare Decision

No 0.0303 1

1 YJK 9/5/2022 6:46 PM

While our Office has found that language in an RFQ requesting quotations by a certain date, without more, does not establish a firm closing date for receipt of quotations. M.Braun, Inc., B-298935.2, May 21, 2007, 2007 CPD ¶ 96 at 3-4, when the RFQ states that quotations must be received by a stated deadline to be considered, quotations cannot be considered if received after the deadline.

Files\\Case 7 Benaka Decision

No 0.0369 6

1 YJK 9/5/2022 6:50 PM

Where a dispute exists as to a solicitation's actual requirements, we will first examine the plain language of the solicitation.

2 YJK 9/5/2022 6:51 PM

The plain language of this provision, when read as a whole, is not susceptible to the reading advanced by the protester.

3 YJK 9/5/2022 6:51 PM

Under the protester's interpretation--that only page types specifically enumerated after the word "including" could be counted--the agency would be precluded from counting any proposal pages other than cover letters, table of contents pages, tables, illustrations, or

4 YJK 9/5/2022 6:51 PM

Such an interpretation is antithetical to the very concept of the page limits imposed by the solicitation, as offerors could hypothetically include infinite technical proposal information as long as they did so in specific page formats.

5 YJK 9/5/2022 6:52 PM

As noted above, the agency clearly explained in amendment 0001 that even blank pages acting as section

6 YJK 9/5/2022 6:54 PM

Accordingly, we find Benaka's interpretation of the page limit requirement unreasonable and contrary to the plain language of the solicitation.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Codes\\A protester must understand that the GAO reviews not the relative merits of proposals but reasonable and consistent applications of terms, laws, and regulations.

PDF

Files\\Case 1 Netizen Corporation Decision

No		0.0172	4
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1	YJK	9/9/2022 8:34 AM
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In reviewing protests challenging an agency's evaluation of proposals, our Office does not reevaluate proposals or substitute our judgment for that of the agency, but rather, examines the record to determine whether the agency's judgment was reasonable and in accord with the stated evaluation criteria and applicable procurement laws and regulations. Tra

2	YJK	9/9/2022 8:42 AM
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Our review of a price realism analysis is limited to determining whether it was reasonable and consistent with the terms of the solicitation. Log

3	YJK	9/9/2022 8:42 AM
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Moreover, the details of the source selection authority's explanation of her analysis are consistent with the information in the technical evaluation, price evaluation, and the firms' proposals. Acc

4	YJK	9/9/2022 8:42 AM
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Since, as discussed above, we find the protester's arguments concerning the evaluation of BreakPoint's proposal without merit, we have no basis to conclude that the agency's best-value decision was unreasonable.

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Files\\Case 12 Severson Environmental Services Decision

No		0.0029	1
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1	YJK	9/9/2022 8:42 AM
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Where a protest challenges an agency's technical evaluation, this Office will review the evaluation record to determine whether the agency's judgments were reasonable and

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Files\\Case 13 W-T Join Venture Decision

No		0.0106	3
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1	YJK	9/9/2022 8:34 AM
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In reviewing protests challenging an agency's evaluation, our Office does not reevaluate proposals; rather, we review the record to determine whether the evaluation was reasonable, consistent with the terms of the solicitation, and compliant with procurement statutes and regulations. See

2	YJK	9/9/2022 8:42 AM
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In reviewing an agency's source selection decision, we examine the supporting record to determine if it was reasonable and consistent with the solicitation's evaluation criteria and applicable procurement statutes and regulations. The

3	YJK	9/9/2022 8:42 AM
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Here, the record shows that the selection decision had a reasonable basis and was properly documented. Acc

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 14 Wolff & Mueller Government Services GmbH Decision

No 0.0090 3

1 YJK 9/9/2022 8:34 AM

In reviewing protests challenging an agency's evaluation of proposals, our Office does not reevaluate proposals or substitute our judgment for that of the agency, but rather examines the record to determine whether the agency's judgment was reasonable and in accord with the stated evaluation criteria and applicable procurement laws and regulations. 22n

2 YJK 9/9/2022 8:42 AM

We therefore conclude that the agency reasonably identified a weakness in the protester's proposal based on the risk that the proposed individuals would not have valid training in time for the start of contract performance.
W

3 YJK 9/9/2022 8:42 AM

Our Office reviews an agency's evaluation of past performance to ensure that it was reasonable and consistent with the stated evaluation criteria and applicable statutes and regulations. Ric

Files\\Case 16 Bodell Construction Decision

No 0.0094 1

1 YJK 9/9/2022 8:34 AM

We note at the outset that, in reviewing protests concerning an agency's evaluation of proposals, our Office does not independently evaluate proposals; rather, we review the agency's evaluation to ensure that it is reasonable and consistent with the terms of the solicitation and applicable statutes and regulations. ARE

Files\\Case 17 Butt Construction Decision

No 0.0088 1

1 YJK 9/9/2022 8:42 AM

In our view, the Army correctly determined that the requirement in the IFB for JCP registration was a matter of responsibility, regardless of the IFB's phrasing of the issue as a matter of responsiveness. This

Files\\Case 2 Pond Constructors Decision

No 0.0227 4

1 YJK 9/9/2022 8:42 AM

Where, as here, an agency issues an RFQ to FSS contractors under FAR subpart 8.4 and conducts a competition, we will review the record to ensure that the agency's evaluation is reasonable and consistent with the terms of the solicitation. Dig

2 YJK 9/9/2022 8:42 AM

In reviewing a protest challenging an agency's technical evaluation, our Office will not reevaluate the quotations; rather, we will examine the record to determine whether the agency's evaluation conclusions were reasonable and consistent with the terms of the solicitation and applicable procurement laws and regulations. OPT

3 YJK 9/9/2022 8:42 AM

We conclude that the agency's concern, in this regard, was reasonable under the terms of the solicitation. As

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				4	YJK	9/9/2022 8:42 AM

In this regard, approach and experience were two separate considerations under the evaluation criteria, and the government's concern about how Pond would perform this aspect of the PWS was reasonable. RFQ

Files\\Case 3 Facility Services Management Decision

No	0.0156	2			
			1	YJK	9/9/2022 8:42 AM

In reviewing protests challenging an agency's evaluation of proposals in a task order competition, our Office does not reevaluate proposals, but examines the record to determine whether the agency's judgment was reasonable and in accord with the stated evaluation criteria and applicable procurement laws and regulations. Str

2	YJK	9/9/2022 8:42 AM
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While the protester touts this individual's other credentials, including professional certifications, we agree with the agency that those credentials are not a substitute for the required experience or demonstrated ability to perform the maintenance tasks. Com

Files\\Case 4 NIKA Technologies Decision

No	0.0102	3			
			1	YJK	9/9/2022 8:42 AM

record to determine whether the agency's evaluation was reasonable and consistent with the solicitation's evaluation criteria, and applicable statutes and regulations. CDO

2	YJK	9/9/2022 8:42 AM
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In contrast, the challenged offerors both had extensive actual operations and maintenance experience, which included preventive maintenance experience. The

3	YJK	9/9/2022 8:42 AM
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In light of these considerations, we have no basis to find that the agency engaged in disparate treatment in its evaluation of the proposals submitted. We

Files\\Case 5 J&J Worldwide Services Decision

No	0.0077	1			
			1	YJK	9/9/2022 8:34 AM

In reviewing protests of an award in a task order competition, we do not reevaluate proposals, but examine the record to determine whether the evaluation and source selection decision are reasonable and consistent with the solicitation's evaluation criteria and applicable procurement laws and regulations. Dyn

Files\\Case 6 Prestige Lawncare Decision

No	0.0101	1			
			1	YJK	9/9/2022 8:42 AM

The agency's rejection of Prestige's late quotation was thus reasonable and in accordance with the terms of the solicitation.5
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Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 9 Artek Construction Company Decision

No		0.0082	3
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1	YJK	9/9/2022 8:34 AM
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In a protest challenging an agency's evaluation of proposals, our Office will not reevaluate proposals but we will review the record to determine whether the agency's judgment was reasonable and consistent with the stated evaluation criteria and applicable procurement statutes and regulations. S

2	YJK	9/9/2022 8:42 AM
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In our view, the agency's evaluation of Artek's proposal was reasonable and consistent with the solicitation's requirements. As

3	YJK	9/9/2022 8:42 AM
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On this record, we find that the agency reasonably assigned a significant weakness to the protester's proposal. A

Codes\\A protester must understand that the GAO reviews not the relative merits of proposals but reasonable and consistent applications of terms, laws, and regulations.\\No re-evaluation PDF

Files\\Case 1 Netizen Corporation Decision

No		0.0066	1
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1	YJK	9/5/2022 12:09 PM
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In reviewing protests challenging an agency's evaluation of proposals, our Office does not reevaluate proposals or substitute our judgment for that of the agency, but rather, examines the record to determine whether the agency's judgment was reasonable and in accord with the stated evaluation criteria and applicable procurement laws and regulations.

Files\\Case 13 W-T Join Venture Decision

No		0.0048	1
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1	YJK	9/6/2022 1:53 PM
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In reviewing protests challenging an agency's evaluation, our Office does not reevaluate proposals; rather, we review the record to determine whether the evaluation was reasonable, consistent with the terms of the solicitation, and compliant with procurement statutes and regulations.

Files\\Case 14 Wolff & Mueller Government Services GmbH Decision

No		0.0040	1
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1	YJK	9/6/2022 2:18 PM
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In reviewing protests challenging an agency's evaluation of proposals, our Office does not reevaluate proposals or substitute our judgment for that of the agency, but rather examines the record to determine whether the agency's judgment was reasonable and in accord with the stated evaluation criteria and applicable procurement laws and regulations.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 16 Bodell Construction Decision

No		0.0092	1			
				1	YJK	9/6/2022 2:50 PM

We note at the outset that, in reviewing protests concerning an agency's evaluation of proposals, our Office does not independently evaluate proposals; rather, we review the agency's evaluation to ensure that it is reasonable and consistent with the terms of the solicitation and applicable statutes and regulations.

Files\\Case 2 Pond Constructors Decision

No		0.0029	1			
				1	YJK	9/5/2022 12:38 PM

In reviewing a protest challenging an agency's technical evaluation, our Office will not reevaluate the quotations

Files\\Case 5 J&J Worldwide Services Decision

No		0.0076	1			
				1	YJK	9/5/2022 6:17 PM

In reviewing protests of an award in a task order competition, we do not reevaluate proposals, but examine the record to determine whether the evaluation and source selection decision are reasonable and consistent with the solicitation's evaluation criteria and applicable procurement laws and regulations.

Files\\Case 9 Artek Construction Company Decision

No		0.0045	1			
				1	YJK	9/5/2022 7:46 PM

In a protest challenging an agency's evaluation of proposals, our Office will not reevaluate proposals but we will review the record to determine whether the agency's judgment was reasonable and consistent with the stated evaluation criteria and applicable procurement statutes and regulations.

Codes\\A protester must understand that the GAO reviews not the relative merits of proposals but reasonable and consistent applications of terms, laws, and regulations.\\Reasonable and consistent PDF

Files\\Case 1 Netizen Corporation Decision

No		0.0103	3			
				1	YJK	9/5/2022 12:26 PM

Our review of a price realism analysis is limited to determining whether it was reasonable and consistent with the terms of the solicitation.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				2	YJK	9/5/2022 12:34 PM

Moreover, the details of the source selection authority's explanation of her analysis are consistent with the information in the technical evaluation, price evaluation, and the firms' proposals.

				3	YJK	9/5/2022 12:36 PM
Since, as discussed above, we find the protester's arguments concerning the evaluation of BreakPoint's proposal without merit, we have no basis to conclude that the agency's best-value decision was unreasonable.						

Files\\Case 12 Severson Environmental Services Decision

No		0.0028	1
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	1	YJK	9/6/2022 1:45 PM
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Where a protest challenges an agency's technical evaluation, this Office will review the evaluation record to determine whether the agency's judgments were reasonable and

Files\\Case 13 W-T Join Venture Decision

No		0.0056	2
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	1	YJK	9/6/2022 2:13 PM
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In reviewing an agency's source selection decision, we examine the supporting record to determine if it was reasonable and consistent with the solicitation's evaluation criteria and applicable procurement statutes and regulations.

	2	YJK	9/6/2022 2:16 PM
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Here, the record shows that the selection decision had a reasonable basis and was properly documented.

Files\\Case 14 Wolff & Mueller Government Services GmbH Decision

No		0.0047	2
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	1	YJK	9/6/2022 2:33 PM
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We therefore conclude that the agency reasonably identified a weakness in the protester's proposal based on the risk that the proposed individuals would not have valid training in time for the start of contract performance.

	2	YJK	9/6/2022 2:33 PM
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Our Office reviews an agency's evaluation of past performance to ensure that it was reasonable and consistent with the stated evaluation criteria and applicable statutes and regulations.

Files\\Case 17 Butt Construction Decision

No		0.0086	1
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	1	YJK	9/6/2022 3:02 PM
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In our view, the Army correctly determined that the requirement in the IFB for JCP registration was a matter of responsibility, regardless of the IFB's phrasing of the issue as a matter of responsiveness.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 2 Pond Constructors Decision

No 0.0193 4

1 YJK 9/5/2022 12:38 PM

Where, as here, an agency issues an RFQ to FSS contractors under FAR subpart 8.4 and conducts a competition, we will review the record to ensure that the agency's evaluation is reasonable and consistent with the terms of the solicitation.

2 YJK 9/5/2022 12:39 PM

rather, we will examine the record to determine whether the agency's evaluation conclusions were reasonable and consistent with the terms of the solicitation and applicable procurement laws and regulations.

3 YJK 9/5/2022 4:41 PM

We conclude that the agency's concern, in this regard, was reasonable under the terms of the solicitation.

4 YJK 9/5/2022 4:43 PM

In this regard, approach and experience were two separate considerations under the evaluation criteria, and the government's concern about how Pond would perform this aspect of the PWS was reasonable.

Files\\Case 3 Facility Services Management Decision

No 0.0154 2

1 YJK 9/5/2022 4:47 PM

In reviewing protests challenging an agency's evaluation of proposals in a task order competition, our Office does not reevaluate proposals, but examines the record to determine whether the agency's judgment was reasonable and in accord with the stated evaluation criteria and applicable procurement laws and regulations.

2 YJK 9/5/2022 5:01 PM

While the protester touts this individual's other credentials, including professional certifications, we agree with the agency that those credentials are not a substitute for the required experience or demonstrated ability to perform the maintenance tasks.

Files\\Case 4 NIKA Technologies Decision

No 0.0099 3

1 YJK 9/5/2022 5:03 PM

record to determine whether the agency's evaluation was reasonable and consistent with the solicitation's evaluation criteria, and applicable statutes and regulations.

2 YJK 9/5/2022 6:08 PM

In contrast, the challenged offerors both had extensive actual operations and maintenance experience, which included preventive maintenance experience.

3 YJK 9/5/2022 6:09 PM

In light of these considerations, we have no basis to find that the agency engaged in disparate treatment in its evaluation of the proposals submitted.

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
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Files\\Case 6 Prestige Lawncare Decision

No		0.0097	1			
				1	YJK	9/5/2022 6:48 PM

The agency's rejection of Prestige's late quotation was thus reasonable and in accordance with the terms of the solicitation.5

Files\\Case 9 Artek Construction Company Decision

No		0.0036	2			
				1	YJK	9/5/2022 7:46 PM

In our view, the agency's evaluation of Artek's proposal was reasonable and consistent with the solicitation's requirements.

				2	YJK	9/5/2022 7:47 PM
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On this record, we find that the agency reasonably assigned a significant weakness to the protester's proposal.

Appendix F: Codebook

Name		Description	Files	References
A protester must build credible post-protest arguments that can be supported by contemporaneous records.			9	33
Contemporaneous		The GAO considers explanations that fill in previously unrecorded details as long as provided rationales are credible and consistent with the contemporaneous record.	3	8
Post-protest		The GAO hardly considers post-protest arguments or analyses made in response to protest allegations.	4	7
Review of the record		An agency's judgment must be documented with sufficient detail—not necessarily every detail—to show the agency's evaluation is not arbitrary.	8	20
A protester must counter-argue the agency's contentions one by one.			7	11
Fail to rebut		When a protester fails to rebut the contending agency's arguments one by one, the GAO regards such an unanswered protest ground as	7	12

Name	Description	Files	References
	abandoned and concludes that the protester effectively has conceded.		
A protester must demonstrate that it could have won the contract but failed explicitly due to the agency's defective evaluation.		9	21
Even if	Even if a defect is found in an agency's evaluation, the GAO sustains a bid protest only if a protester has demonstrated it had a substantial possibility of winning.	6	8
Prejudiced	Competitive prejudice is an essential element of a viable protest. A protester must demonstrate that, but for the procuring agency's improper actions, it would have had a substantial chance of receiving the award.	5	13
A protester must highlight substantive flaws in the agency's judgments, treatments, or actions, not mere disagreements.		10	27
Action or inaction	Unless an agency unduly delays taking corrective action, a bid protest may be denied.	2	4

Name	Description	Files	References
Substantive flaws	A bid protester must show substantive flaws in the contracting agency's analysis.	4	4
Unequal treatment	A fundamental principle of federal procurement law is that a contracting agency equally treats all bidders and evenhandedly evaluates their proposals. A bid protester needs to highlight that such a principle has been breached; the differences in the evaluation must not stem from differences between the proposals.	4	7
Without more	Before the GAO, a bid protester's disagreement with a procuring agency's judgment, without more, does not demonstrate that the agency acted unreasonably.	6	13
A protester must know that the GAO does not question the source selection authority's broad discretion in exercising their judgment over matters enclosed by high-level requirements		9	26
Broad discretion	The GAO acknowledges that determining proposals' relative strengths and weaknesses is primarily a matter of an agency's discretion.	9	18

Name	Description	Files	References
Logically encompassed	The GAO allows agencies not to state every aspect of each factor that might be considered when evaluating proposals in their solicitations, provided that such unidentified areas are reasonably and logically encompassed within stated evaluation criteria.	3	8
A protester must maintain the ground of being the interested party throughout the decision-making process.		11	28
Form the basis of the protest	If a protester fails to form a valid basis for a protest, the protest will result in dismissal or denial.	10	21
Not an interested party	A protester must remain an interested party during the entire bid protest decision process.	4	11
A protester must not rely on different or previous contracts in developing arguments.		3	7
A protester must recognize that the meanings of solicitation language may not be taken at face value.		5	9
A protester must submit a proposal that is well-written and consistent with enough information in compliance with solicitation requirements.		10	27

Name	Description	Files	References
In (or not in) compliance	Clearly stated solicitation requirements are considered material to the needs of the government, and a proposal that fails to conform to such material terms is unacceptable.	5	14
Well-written	A protester is responsible for submitting a well-written proposal with adequately detailed information to have it evaluated favorably.	6	9
Your word against your word	A protester is not allowed to espouse one interpretation or position and then argue later that the interpretation or position is unreasonable.	3	5
A protester must submit its allegations within the specified time window.		7	13
Untimely	A challenge to solicitation terms must be raised before the bid closing date; otherwise, the protest will be considered untimely.	7	13
A protester must support its allegations with unambiguous requirements in solicitations in their entirety, expressed in plain language.		10	42

Name		Description	Files	References
Ambiguity or unambiguous		An ambiguity exists where two or more reasonable interpretations of specifications are possible. If the solicitation language is unambiguous, the GAO's inquiry ends there.	7	10
Entirety		When parties disagree about the meaning of terms or specifications in a solicitation, the GAO reads the solicitation in its entirety and reasonably to give effect to all provisions.	7	8
Express requirements		Express solicitation requirements limit agencies; on the other hand, a bid protest may not be supported without express requirements in the solicitation.	8	15
Plain language		Where a dispute arises regarding the provisions of a solicitation, the GAO examines the plain language of the solicitation.	6	15
A protester must understand that the GAO reviews not the relative merits of proposals but reasonable and consistent applications of terms, laws, and regulations.			12	27

Name	Description	Files	References
No re-evaluation	When a protester challenges an agency's evaluation, the GAO does not independently re-evaluate proposals or substitute its judgment for that of the agency.	7	7
Reasonable and consistent	In its review, the GAO examines the record to determine whether an agency's evaluation is reasonable and consistent with the stated evaluation criteria and applicable statutes and regulations.	10	21

5 Bibliography

- Abotaleb, I. S., & El-adaway, I. H. (2017). Construction Bidding Markup Estimation Using a Multistage Decision Theory Approach. *Journal of Construction Engineering and Management*, 143(1), 04016079. doi:10.1061/(ASCE)CO.1943-7862.0001204
- Ahmed, M. O., El-adaway, I. H., Coatney, K. T., & Eid, M. S. (2016). Construction Bidding and the Winner's Curse: Game Theory Approach. *Journal of Construction Engineering and Management*, 142(2), 04015076. doi:10.1061/(ASCE)CO.1943-7862.0001058
- Ang, A. H.-S., & Tang, W. H. (2006). *Probability Concepts in Engineering: Emphasis on Applications to Civil and Environmental Engineering* (2nd Ed.). Wiley.
- Arena, M., Persons, B., Blickstein, I., Chenoweth, M., Lee, G., Luckey, D., & Schendt, A. (2018). *Assessing Bid Protests of U.S. Department of Defense Procurements: Identifying Issues, Trends, and Drivers*. Santa Monica, CA: RAND Corporation. doi:10.7249/RR2356
- Armstrong, T. H. (2018). *Bid Protests at GAO: A Descriptive Guide (Tenth Edition, 2018)*.
- Artan Ilter, D., & Bakioglu, G. (2018). Modeling the Relationship between Risk and Dispute in Subcontractor Contracts. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 10(1), 04517022. doi:10.1061/(ASCE)LA.1943-4170.0000246
- Asadi, R., Rotimi, J. O. B., & Wilkinson, S. (2022). Investigating the Relationship between Reworks and Contractual Claims: The Salience of Contract Conditions. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 14(1). doi:10.1061/(ASCE)LA.1943-4170.0000519
- Baek, M., & Ashuri, B. (2018). Statistical Modeling of Number of Bidders in Highway Resurfacing and Widening Construction Projects. In *Construction Research Congress 2018* (pp. 670–679). Reston, VA: American Society of Civil Engineers. doi:10.1061/9780784481295.067

- Baek, M., & Ashuri, B. (2019). Analysis of the Variability of Submitted Unit Price Bids for Asphalt Line Items in Highway Projects. *Journal of Construction Engineering and Management*, 145(4), 04019020. doi:10.1061/(ASCE)CO.1943-7862.0001638
- Barakat, M., Abdul-Malak, M.-A., & Khoury, H. (2018). Particularized Analysis of AIA's Expeditious Mechanisms for Administering Claims and Disputes. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 10(3), 04518015. doi:10.1061/(ASCE)LA.1943-4170.0000262
- Barakat, M., Abdul-Malak, M.-A., & Khoury, H. (2019). Sequencing and Operational Variations of Standard Claim and Dispute Resolution Mechanisms. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 11(3), 04519012. doi:10.1061/(ASCE)LA.1943-4170.0000304
- Bedeian, A. G., & Mossholder, K. W. (2000). On the Use of the Coefficient of Variation as a Measure of Diversity. *Organizational Research Methods*, 3(3), 285–297. doi:10.1177/109442810033005
- Berger-Walliser, G. (2012). The Past and Future of Proactive Law: An Overview of the Development of the Proactive Law Movement. Retrieved from <https://papers.ssrn.com/abstract=2576761>
- Brief, R. P., & Owen, J. (1969). A Note on Earnings Risk and the Coefficient of Variation. *The Journal of Finance*, 24(5), 901. doi:10.2307/2325684
- Brodbeck, C., Bhattasali, S., Cruz Heredia, A. A., Resnik, P., Simon, J. Z., & Lau, E. (2022). Parallel processing in speech perception with local and global representations of linguistic context. (V. van Wassenhove, B. G. Shinn-Cunningham, & J. Brennan, Eds.) *eLife*, 11, e72056. doi:10.7554/eLife.72056
- Brunet, A., & César, F. (2021). *Contract Management* (1st ed.). Springer Cham. Retrieved from <https://doi.org/10.1007/978-3-030-68076-3>
- Canayaz, M., Cornaggia, J., & Cornaggia, K. R. (2019). Choose Your Battles Wisely: The Consequences of Protesting Government Procurement Contracts. *SSRN Electronic Journal*. doi:10.2139/ssrn.3286711

- Carpenter, D. H., & Schwartz, M. (2018). *Government Contract Bid Protests In Brief: Analysis of Legal Processes and Recent Developments*. Congressional Research Service.
- Carpenter, N., & Bausman, D. C. (2016). Project Delivery Method Performance for Public School Construction: Design-Bid-Build versus CM at Risk. *Journal of Construction Engineering and Management*, 142(10), 05016009. doi:10.1061/(ASCE)CO.1943-7862.0001155
- Carr, P. G. (2005). Investigation of Bid Price Competition Measured through Prebid Project Estimates, Actual Bid Prices, and Number of Bidders. *Journal of Construction Engineering and Management*, 131(11), 1165–1172. doi:10.1061/(ASCE)0733-9364(2005)131:11(1165)
- Chang, W.-S., Chen, B., & Salmon, T. C. (2014). An Investigation of the Average Bid Mechanism for Procurement Auctions. *Management Science*, 61(6), 1237–1254. doi:10.1287/mnsc.2013.1893
- Chen, Z.-S., Zhang, X., Rodríguez, R. M., Pedrycz, W., & Martínez, L. (2021). Expertise-based bid evaluation for construction-contractor selection with generalized comparative linguistic ELECTRE III. *Automation in Construction*, 125, 103578. doi:10.1016/j.autcon.2021.103578
- Cheung, S. O., & Pang, K. H. Y. (2013). Anatomy of Construction Disputes. *Journal of Construction Engineering and Management*, 139(1), 15–23. doi:10.1061/(ASCE)CO.1943-7862.0000532
- Cover, T., & Hart, P. (1967). Nearest neighbor pattern classification. *IEEE Transactions on Information Theory*, 13(1), 21–27. doi:10.1109/TIT.1967.1053964
- Curto, J. D., & Pinto, J. C. (2009). The coefficient of variation asymptotic distribution in the case of non-iid random variables. *Journal of Applied Statistics*, 36(1), 21–32. doi:10.1080/02664760802382491
- Dawson, W. (2021). Data Scarcity in Bid Protests: Problems and Proposed Solutions. *Public Contract Law Journal*, 51(1). Retrieved from

https://www.americanbar.org/groups/public_contract_law/publications/public_contract_law_jrnl/51-1/data-scarcity-bid-protests-problemsand-proposed-solutions/

Delacre, M., Lakens, D., & Leys, C. (2017). Why Psychologists Should by Default Use Welch's t-test Instead of Student's t-test. *International Review of Social Psychology*, 30(1), 92. doi:10.5334/irsp.82

Eke, G., Elgy, J., & Wedawatta, G. (2019). Establishing a Link between Contractor Selection Strategy and Project Outcomes: Simulation Study. *Journal of Construction Engineering and Management*, 145(10), 04019062. doi:10.1061/(ASCE)CO.1943-7862.0001703

Elliott, R., Fischer, C. T., & Rennie, D. L. (1999). Evolving guidelines for publication of qualitative research studies in psychology and related fields. *British Journal of Clinical Psychology*, 38(3), 215–229. doi:10.1348/014466599162782

Engemann, K. M. (2019). The Fed's Inflation Target: Why 2 Percent? *Open Vault Blog*. Retrieved December 30, 2021, from <https://www.stlouisfed.org/open-vault/2019/january/fed-inflation-target-2-percent>

Fawzy, S. A., El-adaway, I. H., Perreau-Saussine, L., Abdel Wahab, M. S., & Hamed, T. H. (2018). Claims for Extension of Time and Additional Payment under Common Law FIDIC: Civil Law Analysis. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 10(4), 06518002. doi:10.1061/(ASCE)LA.1943-4170.0000276

Galton, F. (1907). Vox Populi (The Wisdom of Crowds). *Nature*, 75(1949), 450–451. doi:10.1038/075450a0

GAO. (n.d.-a). Bid Protests. Retrieved January 21, 2021, from <https://www.gao.gov/legal/bid-protests>

GAO. (n.d.-b). 100 Years of GAO. Retrieved January 6, 2021, from <https://www.gao.gov/about/what-gao-does/hundred-years-of-gao>

GAO. (2020a). *Netizen Corporation B-418281,B-418281.2,B-418281.3: Feb 21, 2020*. Washington, DC.

GAO. (2020b). *Sevenson Environmental Services, Inc. B-419071: Dec 2, 2020*. Washington, DC.

GAO. (2020c). *C.I. Lovell, Inc. B-418935.2: Aug 21, 2020*. Washington, DC.

GAO. (2020d). *Benaka Inc. B-418639: Jul 9, 2020*. Washington, DC.

GAO. (2020e). *Prestige Lawncare, Inc. B-418608: Jun 22, 2020*. Washington, DC.

GAO. (2020f). *J&J Worldwide Services B-418148.3: Jun 30, 2020*. Washington, DC.

GAO. (2020g). *W-T, Joint Venture B-417905.2: Dec 7, 2020*. Washington, DC.

GAO. (2020h). *Wolff & Mueller Government Services GmbH & Co. KG B-419181,B-419181.2: Dec 28, 2020*. Washington, DC.

GAO. (2020i). *NIKA Technologies, Inc. B-418563: Jun 5, 2020*. Washington, DC.

GAO. (2020j). *Pond Constructors, Inc. B-418403: Mar 23, 2020*. Washington, DC.

GAO. (2020k). *Pacific Dredge and Construction, LLC B-418900: Sep 18, 2020*. Washington, DC.

GAO. (2020l). *Facility Services Management, Inc. B-418526,B-418526.2,B-418526.3: May 20, 2020*. Washington, DC.

GAO. (2020m). *Re-Engineered Business Solutions, Inc. B-418640,B-418640.2: Jul 10, 2020*. Washington, DC.

GAO. (2020n). *Artek Construction Company B-418657,B-418657.2: Jul 17, 2020*. Washington, DC.

GAO. (2020o). *KMK Construction, Inc. B-418639.2: Dec 29, 2020*. Washington, DC.

GAO. (2020p). *Bodell Construction Company B-419213,B-419213.2: Dec 28, 2020*. Washington, DC.

GAO. (2021a). *GAO Bid Protest Annual Report to Congress for Fiscal Year 2021* (No. GAO-22-900379) (p. 4). GAO. Retrieved from <https://www.gao.gov/products/gao-22-900379>

GAO. (2021b). *Butt Construction Company, Inc. B-419156.2: Jan 26, 2021*. Washington, DC.

GAO. (2022a). *ACC Construction Company, Inc.* (No. B-420801). Washington, DC. Retrieved from <https://www.gao.gov/products/b-420801>

- GAO. (2022b). *Coastal Environmental Group, Inc.* (No. B-420390.2,B-420390.3). Washington, DC. Retrieved from <https://www.gao.gov/products/b-420390.2%2Cb-420390.3>
- GAO. (2022c). *Zafer Taahhut Insaat Ve Tiaret AS* (No. B-420280). Washington, DC. Retrieved from <https://www.gao.gov/products/b-420280>
- GeeksforGeeks. (2018, October 15). Python Numpy. *GeeksforGeeks*. Retrieved from <https://www.geeksforgeeks.org/python-numpy/>
- Glen, S. (2022). Excel Regression Analysis Output Explained. *Statistics How To*. Retrieved November 3, 2022, from <https://www.statisticshowto.com/probability-and-statistics/excel-statistics/excel-regression-analysis-output-explained/>
- Gordon, D. I. (2004). Annals of Accountability: The First Published Bid Protest Decision. *Procurement Lawyer*, 39(2), 11–13.
- Gordon, D. I. (2013). Bid protests: The costs are real, but the benefits outweigh them. *Public Contract Law Journal*, 42(3), 489–516.
- Gunther, J. W., & Robinson, K. J. (1999). Industry mix and lending environment variability: What does the average bank face? *Economic and Financial Review-Federal Reserve Bank of Dallas*, 24–31.
- Hashem M. Mehany, M. S., & Grigg, N. (2015). Causes of Road and Bridge Construction Claims: Analysis of Colorado Department of Transportation Projects. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 7(2), 04514006. doi:10.1061/(ASCE)LA.1943-4170.0000162
- Hawkins, T. G., Yoder, C., & Gravier, M. J. (2016). Federal bid protests: Is the tail wagging the dog? *Journal of Public Procurement*, 16(2), 152–190. doi:10.1108/JOPP-16-02-2016-B001
- Howard, M. (n.d.). Regression in Excel. Retrieved from <https://mattchoward.com/regression-in-excel/>
- IBM. (n.d.). What is the k-nearest neighbors algorithm? Retrieved September 28, 2022, from <https://www.ibm.com/topics/knn>

- Jalal, M. P., Noorzai, E., & Roushan, T. Y. (2019). Root Cause Analysis of the Most Frequent Claims in the Building Industry through the SCoP 3 E Ishikawa Diagram. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 11(2), 04519004. doi:10.1061/(ASCE)LA.1943-4170.0000289
- Karcher, S., & Weber, N. (2019). Annotation for transparent inquiry: Transparent data and analysis for qualitative research. *IASSIST Quarterly*, 43(2), 1–9. doi:10.29173/iq959
- Keeney, S. (2007). The foundations of government contracting. *Journal of Contract Management*, 5(1), 7–19.
- Khoury, P. F., Walsh, B., & Ward, G. S. (2017). A Data-Driven Look at the GAO Protest System. *PRATT'S GOVERNMENT CONTRACTING LAW REPORT*, 3(3), 83–91.
- Kim, E. Y. (2020). Reforming Bid Protests. *Army Lawyer*, (3), 66–73.
- Kim, Y. J., & Skibniewski, M. (Accepted). Optimism bias in bidding: Contractors' horizontally biased estimating behavior. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*.
- Kim, Y. J., & Skibniewski, M. J. (2020). Cash and Claim: Data-Based Inverse Relationships between Liquidity and Claims in the Construction Industry. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 12(3), 04520021. doi:10.1061/(ASCE)LA.1943-4170.0000402
- Knee, S. (2021, January 19). Log Transformations in Linear Regression. *medium.com*. Retrieved from <https://medium.com/swlh/log-transformations-in-linear-regression-the-basics-95bc79c1ad35>
- Kuprenas, J. A. (2005). Construction Project Cost Performance Prediction Based on Project Bid Characteristics. *Construction Research Congress 2005*, (213), 1–9. doi:10.1061/40754(183)94
- Laryea, S., & Hughes, W. (2011). Risk and Price in the Bidding Process of Contractors. *Journal of Construction Engineering and Management*, 137(4), 248–258. doi:10.1061/(ASCE)CO.1943-7862.0000293

- Li, S., Foulger, J. R., & Philips, P. W. (2008). Analysis of the Impacts of the Number of Bidders Upon Bid Values. *Public Works Management & Policy*, 12(3), 503–514. doi:10.1177/1087724X07312144
- Love, P. E. D., Edwards, D. J., Irani, Z., & Goh, Y. M. (2011). Dynamics of Rework in Complex Offshore Hydrocarbon Projects. *Journal of Construction Engineering and Management*, 137(12), 1060–1070. doi:10.1061/(ASCE)CO.1943-7862.0000377
- Luo, L., He, Q., Xie, J., Yang, D., & Wu, G. (2017). Investigating the Relationship between Project Complexity and Success in Complex Construction Projects. *Journal of Management in Engineering*, 33(2), 04016036. doi:10.1061/(ASCE)ME.1943-5479.0000471
- Mannes, A. E., Larrick, R. P., & Soll, J. B. (2012). The social psychology of the wisdom of crowds. In *Social judgment and decision making*. (pp. 227–242). New York, NY, US: Psychology Press.
- Martin, J. D., & Gray, L. N. (1971). Measurement of Relative Variation: Sociological Examples. *American Sociological Review*, 36(3), 496. doi:10.2307/2093089
- Mehany, M. S. H. M., Bashettiyavar, G., Esmaili, B., & Gad, G. (2018). Claims and Project Performance between Traditional and Alternative Project Delivery Methods. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 10(3), 04518017. doi:10.1061/(ASCE)LA.1943-4170.0000266
- Minchin, R. E., Thurn, S. B., Ellis, R. D., & Lewis, D. W. (2013). Using Contractor Bid Amounts to Estimate the Impact of Night Construction on Cost for Transportation Construction. *Journal of Construction Engineering and Management*, 139(8), 1055–1062. doi:10.1061/(asce)co.1943-7862.0000688
- Minitab. (2015). What Is the Significance Level (Alpha)? *The Minitab Blog*. Retrieved January 20, 2020, from <https://blog.minitab.com/blog/adventures-in-statistics-2/understanding-hypothesis-tests-significance-levels-alpha-and-p-values-in-statistics>

- Mitropoulos, P., & Howell, G. (2001). Model for Understanding, Preventing, and Resolving Project Disputes. *Journal of Construction Engineering and Management*, 127(3), 223–231. doi:10.1061/(ASCE)0733-9364(2001)127:3(223)
- Musarat, M. A., Alaloul, W. S., Liew, M. S., Maqsoom, A., & Qureshi, A. H. (2020). Investigating the impact of inflation on building materials prices in construction industry. *Journal of Building Engineering*, 32, 101485. doi:10.1016/j.jobbe.2020.101485
- Musarat, M. A., Alaloul, W. S., Qureshi, A. H., & Altaf, M. (2020). Inflation Rate and Construction Materials Prices: Relationship Investigation. In *2020 International Conference on Decision Aid Sciences and Application (DASA)* (pp. 387–390). IEEE. doi:10.1109/DASA51403.2020.9317162
- Myerson, R. B. (1997). *Game Theory: Analysis of Conflict: 8580001313177: Economics Books @ Amazon.com*. Harvard University Press. Retrieved from https://www.amazon.com/Game-Theory-Analysis-Roger-Myerson/dp/0674341163/ref=sr_1_1?crid=AC3MU1DBYXMU&keywords=book+game+theory+myerson&qid=1667864771&srefix=book+game+theory+myers%2Caps%2C549&sr=8-1
- Narbaev, T., Hazır, Ö., & Agi, M. (2022). A Review of the Use of Game Theory in Project Management. *Journal of Management in Engineering*, 38(6), 03122002. doi:10.1061/(ASCE)ME.1943-5479.0001092
- Odeh, A. M., & Battaineh, H. T. (2002). Causes of construction delay: traditional contracts. *International Journal of Project Management*, 20(1), 67–73. doi:10.1016/S0263-7863(00)00037-5
- Ohio Department of Transportation. (n.d.-a). Historical Cost Data. Retrieved July 31, 2019, from http://www.dot.state.oh.us/Divisions/ConstructionMgt/Estimating/Pages/Bid_Histories.aspx
- Ohio Department of Transportation. (n.d.-b). Construction Management Reporting System. Retrieved July 31, 2019, from <http://www.odotonline.org/cmsportal/default.asp>

- Ohio Department of Transportation. (2019). Construction and Material Specifications. Columbus, Ohio.
- pandas. (2022, September 19). pandas - Python Data Analysis Library. Retrieved September 28, 2022, from <https://pandas.pydata.org/>
- Parikh, D., Joshi, G. J., & Patel, D. A. (2019). Development of Prediction Models for Claim Cause Analyses in Highway Projects. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 11(4), 04519018. doi:10.1061/(ASCE)LA.1943-4170.0000303
- Pinto Nunez, M., López Del Puerto, C., & Gransberg, D. D. (2018). Analysis of Transportation Agencies' Claim History: Partnered versus Nonpartnered. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 10(4), 04518019. doi:10.1061/(ASCE)LA.1943-4170.0000273
- Python Software Foundation. (2022, August 5). scikit-learn. *PyPI*. Retrieved September 28, 2022, from <https://pypi.org/project/scikit-learn/>
- RAND Corporation. (n.d.). About the RAND Corporation. *RAND Corporation*. Retrieved September 19, 2022, from <https://www.rand.org/about.html>
- Raoufi, M., & Fayek, A. R. (2018). Key Moderators of the Relationship between Construction Crew Motivation and Performance. *Journal of Construction Engineering and Management*, 144(6), 04018047. doi:10.1061/(ASCE)CO.1943-7862.0001509
- Rumsey, D. J. (2011). *Statistics Essentials for Dummies* (2nd Ed.). John Wiley & Sons, Incorporated.
- Ruxton, G. D. (2006). The unequal variance t-test is an underused alternative to Student's t-test and the Mann–Whitney U test. *Behavioral Ecology*, 17(4), 688–690. doi:10.1093/beheco/ark016
- Salkind, N. (2010). *Encyclopedia of Research Design*. *Encyclopedia of Research Design*. 2455 Teller Road, Thousand Oaks California 91320 United States: SAGE Publications, Inc. doi:10.4135/9781412961288

- Sandelowski, M., & Barroso, J. (2003). Creating Metasummaries of Qualitative Findings. *Nursing Research*, 52(4), 226–233. doi:10.1097/00006199-200307000-00004
- Schaengold, M. J., Guiffre, T. M., & Gill, E. M. (2009). Gill, Choice of Forum for Federal Government Contract Bid Protests. *Federal Circuit Bar Journal*, 18(2), 243–330.
- scikit-learn developers. (n.d.-a). sklearn.model_selection.train_test_split. *scikit-learn*. Retrieved September 28, 2022, from https://scikit-learn/stable/modules/generated/sklearn.model_selection.train_test_split.html
- scikit-learn developers. (n.d.-b). sklearn.neighbors.KNeighborsClassifier. *scikit-learn*. Retrieved September 29, 2022, from <https://scikit-learn/stable/modules/generated/sklearn.neighbors.KNeighborsClassifier.html>
- Semple, C., Hartman, F. T., & Jergeas, G. (1994). Construction Claims and Disputes: Causes and Cost/Time Overruns. *Journal of Construction Engineering and Management*, 120(4), 785–795. doi:10.1061/(ASCE)0733-9364(1994)120:4(785)
- Shrestha, Pramen P., & Maharjan, R. (2018). Effects of Change Orders on Cost Growth, Schedule Growth, and Construction Intensity of Large Highway Projects. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 10(3), 04518012. doi:10.1061/(ASCE)LA.1943-4170.0000264
- Shrestha, Pramen P., Shrestha, K. K., & Kandje, T. K. (2017). Effects of Change Orders on the Cost and Schedule of Rural Road Maintenance Projects. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 9(3), 04517010. doi:10.1061/(ASCE)LA.1943-4170.0000227
- Shrestha, Pramen Prasad, & Pradhananga, N. (2010). Correlating Bid Price with the Number of Bidders and Final Construction Cost of Public Street Projects. *Transportation Research Record: Journal of the Transportation Research Board*, 2151(1), 3–10. doi:10.3141/2151-01
- Signor, R., Love, P. E. D., & Ika, L. A. (2020). White Collar Crime: Unearthing Collusion in the Procurement of Infrastructure Projects. *IEEE Transactions on Engineering Management*, 69(5), 1932 – 1943. doi:10.1109/TEM.2020.2994636

- Skitmore, M., Drew, D., & Ngai, S. (2001). Bid-Spread. *Journal of Construction Engineering and Management*, 127(2), 149–153. doi:10.1061/(ASCE)0733-9364(2001)127:2(149)
- Snyder, D. M. (2021). *GAO Bid Protests by Small Business: Analysis of Perceived and Reported Outcomes in Federal Contracting*. University of South Florida.
- Standaert, F.-X. (2019). How (Not) to Use Welch's T-Test in Side-Channel Security Evaluations (pp. 65–79). doi:10.1007/978-3-030-15462-2_5
- Sung, Y.-K., Lee, J., Yi, J.-S., & Son, J. (2017). Establishment of Growth Strategies for International Construction Firms by Exploring Diversification-Related Determinants and Their Effects. *Journal of Management in Engineering*, 33(5), 04017018. doi:10.1061/(ASCE)ME.1943-5479.0000529
- Sykes, A. O. (1993). An Introduction to Regression Analysis. *Coase-Sandor Institute for Law & Economics Working Paper No. 20*.
- Thiese, M. S., Ronna, B., & Ott, U. (2016). P value interpretations and considerations. *Journal of Thoracic Disease*, 8(9), E928–E931. doi:10.21037/jtd.2016.08.16
- Timulak, L. (2014). Qualitative Meta-Analysis. In U. Flick (Ed.), *The SAGE Handbook of Qualitative Data Analysis* (pp. 481–495). London: SAGE Publications Ltd. doi:10.4135/9781446282243.n33
- Tumer, K., & Wolpert, D. (2004). A Survey of Collectives. In *Collectives and the Design of Complex Systems* (pp. 1–42). New York, NY: Springer New York. doi:10.1007/978-1-4419-8909-3_1
- U.S. Army Corps of Engineers. (2019a). W912DY-16-R-0104. Huntsville , AL.
- U.S. Army Corps of Engineers. (2019b). W912WJ20R0002. CONCORD , MA. Retrieved February 21, 2021, from https://beta.sam.gov/opp/7bd03b27f41342178983257bb40b8353/view?keywords=W912WJ20R0002&sort=-relevance&index=&is_active=false&page=1
- U.S. Army Corps of Engineers. (2019c). W912HN19R5002. Hartwell , GA. Retrieved February 21, 2021, from

https://beta.sam.gov/opp/b7bbdcf7d0e35d02a6a3aa70901e15c1/view?keywords=W912HN-19-R-5002&sort=-relevance&index=&is_active=false&page=1

U.S. Army Corps of Engineers. (2019d). FY20 Turkey Design-Build (DB) / Design-Bid-Build (DBB) Construction MATOC. Berlin, Germany. Retrieved February 21, 2021, from https://beta.sam.gov/opp/dae48774817b46d9a513f3aef5ce65b0/view?keywords=W912GB20R0006&sort=-relevance&index=&is_active=false&page=1

U.S. Army Corps of Engineers. (2020a). W9127S20Q0028. LITTLE ROCK , AR. Retrieved from https://beta.sam.gov/opp/617f443b45384ae6a9d93f88cb2b2dca/view?keywords=W9127S-20-Q-0028&sort=-relevance&index=&is_active=false&page=1

U.S. Army Corps of Engineers. (2020b). Ellsworth AFB, SD - Hydrant Fuel System Replacement. Omaha, NE. Retrieved February 21, 2021, from https://beta.sam.gov/opp/f73e74972a68478f9a4d510022f42c75/view?keywords=W9128F-20-R-0056&sort=-relevance&index=&is_active=false&page=1

U.S. Department of the Treasury. (2020). Financial Report of the U.S. Government: Statement of Net Cost. *Fiscal Data*. Retrieved January 27, 2021, from <https://fiscaldata.treasury.gov/datasets/statement-of-net-cost/financial-report-of-the-u-s-government-statement-of-net-cost>

U.S. Government. (n.d.). 52.212-1 Instructions to Offerors-Commercial Items. Retrieved February 5, 2021, from <https://www.acquisition.gov/far/52.212-1>

U.S. Inflation Calculator. (n.d.). Current US Inflation Rates: 2000-2021. Retrieved December 30, 2021, from <https://www.usinflationcalculator.com/inflation/current-inflation-rates/>

United States. 4 CFR 21.0 (2018). Retrieved from <https://www.ecfr.gov/current/title-4/chapter-I/subchapter-B/part-21/section-21.0>

United States. FAR Part 15 (2022). Retrieved from https://www.acquisition.gov/far/part-15#FAR_15_506

- United States. 13 CFR 121.201 (2022). Retrieved from <https://www.ecfr.gov/current/title-13/chapter-I/part-121/subpart-A/subject-group-ECFRf12a11421b08a31/section-121.201>
- UWA School of Agriculture and Environment. (2021, March 11). Chapter 19 Regression with Transformations. *Introduction to R and Statistics*. Retrieved November 3, 2022, from <https://saestatsteaching.tech/regression-with-transformations.html>
- Wallace, E. P. (2008). *Construction Guide: Accounting and Knowledge-based Audits*. Chicago, IL: CCH.
- Weber, E. U., Shafir, S., & Blais, A. R. (2004). Predicting Risk Sensitivity in Humans and Lower Animals: Risk as Variance or Coefficient of Variation. *Psychological Review*, 111(2), 430–445. doi:10.1037/0033-295X.111.2.430
- Welch, B. L. (1947). The generalization of Student's problem when several different population variances are involved. *Biometrika*, 34(1-2), 28–35. doi:10.1093/biomet/34.1-2.28
- Williams, T. P. (2002). Predicting completed project cost using bidding data. *Construction Management and Economics*, 20(3), 225–235. doi:10.1080/01446190110112838
- Williams, T. P. (2005). Bidding ratios to predict highway project costs. *Engineering, Construction and Architectural Management*, 12(1), 38–51. doi:10.1108/09699980510576880
- Williams, T. P. (2007). Using Classification Rules to Develop a Predictive Indicator of Project Cost Overrun Potential from Bidding Data. In *Computing in Civil Engineering (2007)* (pp. 35–42). Reston, VA: American Society of Civil Engineers. doi:10.1061/40937(261)5
- Williams, T. P., Lakshminarayanan, S., & Sackrowitz, H. (2005). Analyzing Bidding Statistics to Predict Completed Project Cost, 1–10. doi:10.1061/40794(179)157
- Wolpert, D. H. (2004). Theory of Collective Intelligence. In *Collectives and the Design of Complex Systems* (pp. 43–106). New York, NY: Springer New York. doi:10.1007/978-1-4419-8909-3_2

- Wolpert, D. H., Tumer, K., & Frank, J. (1999). Using Collective Intelligence to Route Internet Traffic.
- Worthington, A. C., & Higgs, H. (2004). Art as an investment: risk, return and portfolio diversification in major painting markets. *Accounting and Finance*, 44(2), 257–271. doi:10.1111/j.1467-629X.2004.00108.x
- Wright, M. G., & Williams, T. P. (2001). Using bidding statistics to predict completed construction cost. *Engineering Economist*, 46(2), 114–128. doi:10.1080/00137910108967565
- Zach. (2021a, February 2). How to Use Dummy Variables in Regression Analysis. *Statology*. Retrieved from <https://www.statology.org/dummy-variables-regression/>
- Zach. (2021b, July 12). How to Interpret Regression Output in Excel. *Statology*. Retrieved November 3, 2022, from <https://www.statology.org/interpret-regression-output-in-excel/>
- Zack, J. G. (1993). "Claimsanship": Current Perspective. *Journal of Construction Engineering and Management*, 119(3), 480–497. doi:10.1061/(ASCE)0733-9364(1993)119:3(480)