



**CDAO**

**Follow the Money in Government Estimates**

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### Abstract

Struggle with finding the correct source for actuals? Contracts for RDTE items are bundles with no breakouts for data you need? This session we will assist estimators in how to use government contract, Military Interdepartmental Purchase Requests (MIPRs), and other sources to find the relevant data needs for a strong basis for estimating. The session will detail a proposed data structure to store relevant data from the separate data sources to help power your estimates.

### Introduction

The Department of Defense has made many changes to its financial and reporting systems that impact how the cost estimating community can perform its core duties in data collection. Previously existing barriers or road blocks are being removed in place of centralized and automated processes to share data. Pathfinding the newly opened routes to the data repositories is the goal should be the goal of any future cost estimator to help develop the required set techniques and practices to obtain data at a high quality for estimates that have limited historical detail, are combined so detail is lost, or when only given parts of the puzzle.

“Historical Data are the backbone of a good estimate, They provide credibility, accuracy, and defensibility” (ICEAA). In tradition building projects where an end product is produced by a set of materials, labor, and schedule the likelihood is high that there is a data set of previous efforts that can be used to estimate the current project. Research and development projects have become more software focused, and the previous efforts have been not documented in a central repository like traditional Acquisition Category I and II level projects. There is a lack of consistent reliable data for use as analogies as the scope, performance, and requirements might not be matched against the limited cost data sets available. Without a proper historical baseline to measure from the sizing of the projects has been driven to using Expert Judgement based and Broad Analogy (T-Shirt Sizing) basis.

To assist in the refinement of the estimate the proposed steps presented are to help cost estimators take large lot RDT&E Contract Line-Item Number (CLIN) items and break them down into smaller efforts so that they can be allocated to the smaller projects. The proposed process is to use the funding documents, and support agreements as supplementary sources of information. Additionally reviewing the Standard Line of Accounting (SLOA) and other Financial System tools to populate missing data to achieve a complete picture.

In Agile development processes software efforts are short development sprints with quick turn feedback from the customer base. There is limited planning related to Earned Value Management which options for data quality as per the CEBoK. With short term development the teams generally are setting up the processes and practices while performing the development effort with does not create a smooth environment for developing a cost estimating relationship to measure from our formulas and metrics tools. However, it does allow for early capture of performance and cost data as the sprints complete there will be a basis to improve or update the estimate with actual information.

### Background

Data collection is a priority for any cost estimate, and it is not always possible to get complete or accurate information from any one source.

During interviews with Acquisition professionals when asked to provide the Contract Number and Delivery Order Number from a DOD contract while using the standardized contracting form the answers received were not consistent. As an example in Figure 1 the acquisition professional would provide the answer “P0XXXX” instead of as in Figure 2 “XXXXXX-XX-X-XXXX”. It is expected that this occurs as there are at least two standard forms for contracts as you see in Figure 3. Box 2 is labeled the contract number and box 4 the order number. Another Example, one professional would provide the delivery order in place of the contract order for all the large Blanket Purchase Agreement vehicle contracts. They did not consider that the contract number was important because they were all GSA BPAs. The contract number is a critical piece of data for the cost estimator that is required to correctly find the contract in the Procurement Integrated Enterprise Environment (PIEE) 6.14.2 Electronic Data Access (EDA). Delivery Order and Contract Number are separate fields that are searched in the award search tool.

Additionally when you use the connected financial systems it's critical that the data you are looking for is correctly identified or no additional data can be leveraged.

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>				1. CONTRACT ID CODE J	PAGE OF PAGES 1   5
2. AMENDMENT/MODIFICATION NO. PO <input type="text"/>	3. EFFECTIVE DATE <input type="text"/>	4. REQUISITION/PURCHASE REQ. NO. SEE SCHEDULE	5. PROJECT NO.(If applicable)		

Figure 1 Example 1 Contract Amendment Boxes 1-5

X	10A. MOD. OF CONTRACT/ORDER NO. <input type="text"/>
---	---

Figure 2 Example 1 Contract Amendment Box 10

<b>SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS</b> OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, AND 30				1. REQUISITION NUMBER SEE SCHEDULE	PAGE 1 OF 13
2. CONTRACT NO. <input type="text"/>	3. AWARD/EFFECTIVE DATE <input type="text"/>	4. ORDER NUMBER <input type="text"/>	5. SOLICITATION NUMBER	6. SOLICITATION ISSUE DATE	
7. FOR SOLICITATION INFORMATION CALL:	a. NAME	b. TELEPHONE NUMBER (No Collect Calls)		8. OFFER DUE DATE/LOCAL TIME	

Figure 3 Example 2 Contract Award Boxes 1-8

The proposed method to remediate this issue is to use the centralized financial systems to look up additional data items in the appropriate funding system for the pieces of information provided in the previous example. The delivery order can be used to determine the contract number or Procurement Instrument Identifier (PIID) (e.g., contract number or purchase order number) which allows the cost estimator to find the source contract in EDA. In EDA you can search on the delivery order number or contract number and it is a good way to test if the data provided is accurate. If you can not find the data when searched as a contract number try it as a delivery order number and see if it has a PIID or contract number.

In some RDT&E development contracts multiple projects that are smaller and similar work are combined as a unit then awarded on a single CLIN. Data collection may be incomplete or missing critical pieces as the CLIN provides limited details to the subprojects, if applicable, required to provide high quality data. This increases the risk or error in cost estimating efforts and prevents a great amount of detailed tracking based on the contract CLIN structure.

The proposed method to solve the CLIN structure problem is to look at the lower-level sub projects that may be funded by individual MIPRs or other requisitions. Multiple subprojects may be separated from the CLIN and tracked. Financial systems track expenditures at the funding document level, so it is possible to see when specific projects are completed and when funding actions occurred.

### Proposed Method

The proposed method to populate the missing data for items and provide lower level break outs is to first collect all the known data into a data model then to proceed to explore the linked databases to find the missing data using the known data as keys. When missing data cannot be found the supplementary sources can be leveraged to fill the holes in understanding of programmatic, cost, or schedule to provide a contextual understanding of the data.

1. Fill in the cost data matrix with known primary data (Contracts, Cost Reports)
2. Search linked financial databases to fill missing data through one of new centralization tools.
  - a. Procurement Integrated Enterprise Environment (PIEE) Electronic Data Access (EDA)
  - b. Defense Agencies Initiative (DAI)
  - c. Defense Enterprise Accounting and Management System (DEAMS)

- d. General Accounting and Finance System (GAFS)
  - e. Global Combat Support Systems Army (GCSS-Army)
  - f. Navy Enterprise Resource Planning (Navy ERP)
  - g. General Fund Enterprise Business System (GFEBS)
  - h. Standard Accounting Budgeting and Reporting System (SABRS)
  - i. Standard Accounting and Reporting System (STARS)
3. Review the Support Agreements, MIPRs, and supporting financial documents
  4. Contact the Points of Contact from the organizations for task to obtain the additional technical and programmatic data items to have a cohesive understanding.
  5. If data is still missing move to secondary or subjective data sources

Proposed Structure for Capturing data from AI/ML and Government databases using notional data

Reference ID	Common Contract Vehicle Name	Contract Number	Task Order Number	Contract Mod	Requisition Number	Support Agreement	BEGFY	APPN	Budget Line	Object Class	Invoice Number	Obligation Amt
1	Group1	GS35F386DA	AB1234567	Base	HC1085XXXXX	A2211-097-017-XXXXXX					ABC123	\$XXX
2	Group1	GS35F386DA	BC1234567	Mod 1	HC1085XXXXX	A2211-097-017-XXXXXX					DEF456	\$XXX
3	GroupB	AB12-F-20-5678	DE1234567	P000XX								\$XXX
4	GroupC	DE1234567		A000XX		A211-097-XXX-XXXXXX						\$XXX
5	GroupD				TBD		2020	0100	4GTN	251		\$XXX
6	GroupD				HC0034XXXXX		2023	0400	0604123D8Z	251		\$XXX
7	GroupD				HC06423XXXXX		2023	0400	0604123D8Z	251		\$XXX
8	Group2						2018	0100	46TN	111		\$XXX

Figure 4 Proposed Data Matrix to Increase Data Quality

### Breaking down the Large Contract CLIN

When looking at a contract a Contract Line Item Number (CLIN) that provides a single rolled up line for all of the effort for a major task made up of subprojects, it is very difficult for the cost estimating team to use the data without supplementary sources except as a total check. Ideally the Contracting officer would have loaded into the relevant contract writing system the PWS/SOO/TDL or other requirements document. Providing some insight into the context of the data and programmatic of the cost. Most often this is not the case, a possible supplementary source of additional detail is the incremental funding documents or the MIPRs.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001	JAIC Smart Sensor Autonomous ISR	1	Lot		\$ <input type="text"/>

Figure 5 Example Large CLIN Little Detail

Reviewing the contract you are able to find out if this is a standalone contract or a delivery order off an existing contract to continue your search for more details. Additionally with the contract number or delivery order you are able to find out in which financial system the data is reported. By entering the contract number as the Procurement Instrument Identifier (PIID) as a searchable field, the estimator is able to find additional cost information on the project.

When following the proposed method the contract or delivery order has been reviewed and no additional technical or programmatic data has been loaded in the relevant contract systems. Additional data needs to be found, this can be the proposal that may have been incorporated into the contract or a Technical Direction Letter.

### Data Quality

“Data provide credibility and defensibility to all estimates, without which the estimate would be looked upon as merely a guess or at best the opinion of the analyst. In addition, data, when properly analyzed, allow you to provide assessments of the statistical accuracy and fidelity of an estimate. (ICEAA, pp. X, Unit II Mod 4)”

As estimators we must review various pieces of specific project or program data and rank it according to quality. Quality in this context refers to the credibility and defensibility to the cost estimate of the project or program. The

ICEAA CEBOK V1.2 Unit 2 Module 4 presentation “Data-Quality of Data Type” on page 13 provides the ranking of data quality as the following:

1. Actuals for completed programs/contracts (ICEAA, p. Unit II Mod 4)
2. Estimates at Complete (EACs) for contracts greater than 90% complete (ICEAA, p. Unit II Mod 4)
3. Contract line Item prices (ICEAA, p. Unit II Mod 4)
4. Historical budget data (ICEAA, p. Unit II Mod 4)

Data sources are limited when dealing with RDT&E efforts with short-term projects that do not use EVM data or reach a DOD or congressional mandated reporting threshold therefore do not require mandated cost data collection. Use of Agile, which started to take over from the waterfall method in 2005, has shifted the dynamic from planning out the software development process to iterative processes (Gellatly, Jones, Wekluk, Brown, & Braxton, 2022, p. 8). The Software Acquisition Pathway as implemented has two phases: the planning phase and execution phase, as there are shorter development cycles for the projects the need to be flexible to pull from the earlier development iterations is critical. Cost estimators need to update and refine the cost estimate as soon as possible to have a defensible estimate (Office of the Under Secretary of Defense for Acquisition and Sustainment, 2020, p. 8).

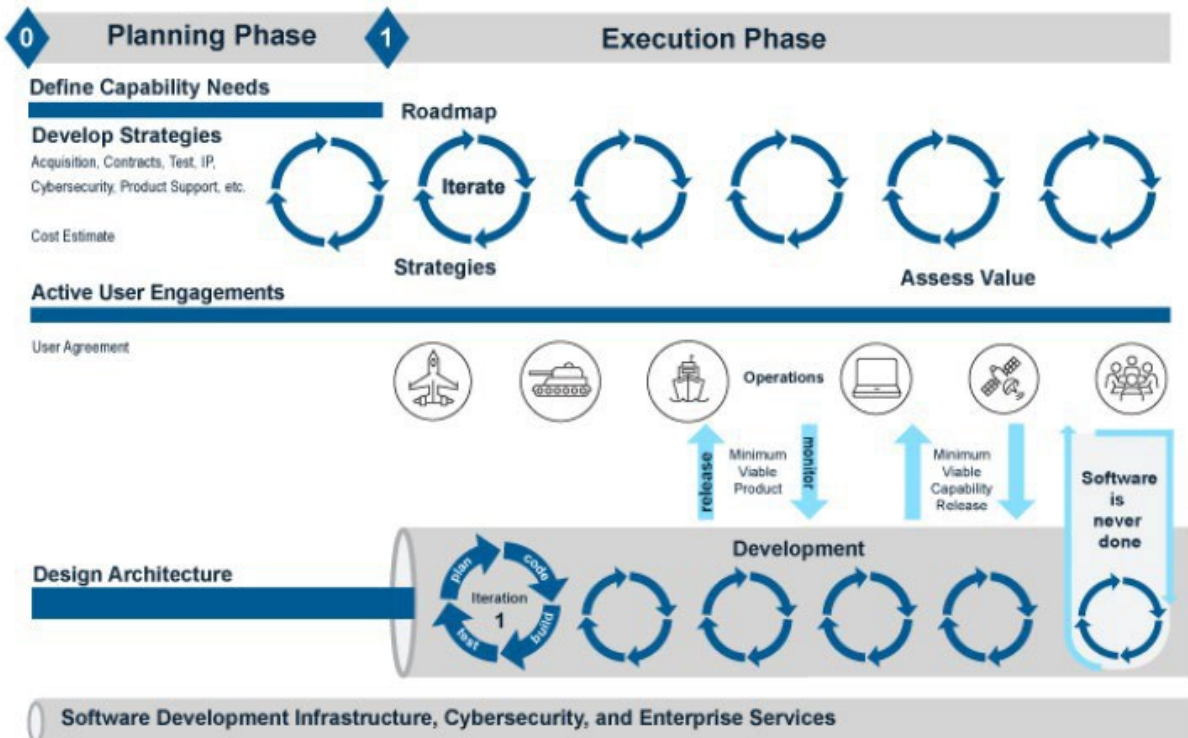


Figure 6 Software Acquisition Pathway DoD 5000.87

When the cost estimator does not have a previous iteration to use a basis of estimate then referring back to the ICEAA Data Quality Measures is ideal. RDT&E projects where software or other community Agile style development methodology is used can be especially difficult to estimate as those projects do not tend to have an Earned Value Management reporting incorporated into the contract. Using the Agile program management style means the projects instead to plan with Theme, Feature, Epics, and User Stories instead of a work break down based schedule. Agile projects remove the second data quality item by data type for cost estimators from the ICEAA



ranking as they do not include the work break down structure and schedule underpinnings that EVM relies on to operate.

The Final item Data quality item by type Historical data is removed as most of the data is not collected by the government or stored in a centralized location for estimators to access. Most of the RDT&E projects are below the threshold of Acquisition Category I or II, and Middle Tier Acquisition or Information Systems (IS) programs with a budget of excess of \$100 million (OSD, 2023). They start as prototypes and grow, and if the data capture mechanisms are not put on the contracts at the beginning it is very hard and expensive to add the requirement to existing contracts once a threshold is expected to be reached. The exception to the threshold is high-risk or high-technical-interest projects where the total effort exceeds \$20 million and it's determined that monitoring is needed (OSD, 2023). Therefore, is it likely that DOD programs lack historical data for sub projects, without additional cost from the vendors.

Cost Estimating data quality is challenged when RDT&E programs that are not ACAT I or II and that are not MTA or IS programs that have budgets in excess of \$100 million dollars. The most likely data quality by type ranking for programs in this category are as follows:

1. Actuals – for completed programs/contracts (ICEAA, p. Unit II Mod 4)
2. Contract line Item prices (ICEAA, p. Unit II Mod 4)

Expert Judgement does not appear on the list as a quality data type metric but can be the only source of information for some programs. Expert Judgment is not a primary data source, obtained from the original data source, and is subjective based on feeling or understanding rather than quantitative in nature. (ICEAA, pp. 12, Unit II Mod 4) Primary Data and Objective Data is considered quality data, while Secondary data and Subjective data is useful data.

The proposed method to remediate this issue is to use the centralized financial systems to query the appropriate funding system and find the missing pieces of information required. See the example in Figure 9 Budget Line Item Search and Figure 10 Budget Line Item Search Obligations to determine the contract number or Procurement Instrument Identifier (PIID) (e.g., contract number or purchase order number) which allows the cost estimator to find the source contract in PIII EDA.

Data to support cost estimating includes schedule, technical, performance, programmatic, and operational data to identify the cost drivers, normalize the data correctly, and build and update defensible cost model for programs over time. (ICEAA, p. Unit II Mod 4 pg 11) With contextual completeness attained through capturing the required data and ensuring the high fidelity of the data through context and multiple source cost estimators are able to support risk analysis which is has traditionally been the last area considered in a cost estimate.

The proposed method to solve this problem is looking at the lower-level sub projects that may be funded by individual MIPRs or Purchase Requests the multiple projects may be separated from the lot and tracked. The Financial systems track expenditures at the funding document level, so it is possible to see when specific projects are completed and need more funding or less as part of the lot.

#### [What is a Military Interdepartmental Purchase Request \(MIPR\)?](#)

The MIPR is the funding document or requisition document that is like a check and receipt for purchases. On this document there are many pieces of information that can be useful for cost estimation purposes for tracking against projects when the contract has a large CLIN.

The Government Services Agency (GSA) provides the following guide to a MIPR:

MILITARY INTERDEPARTMENTAL PURCHASE REQUEST					1. PAGE 1 OF PAGES		
2. FSC		3. CONTROL SYMBOL NO.		4. DATE PREPARED		5. MIPR NUMBER Unique Fund Document Number	6. AMEND NO. Basic/Amd#
7. TO: GSA Region of PM Street Address City/State/Zip				8. FROM: (Agency, name, telephone number of originator) Requesting Agency Organization Street Address City/State/Zip			
9. ITEMS <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT INCLUDED IN THE INTERSERVICE SUPPLY SUPPORT PROGRAM AND REQUIRED INTERSERVICE SCREENING <input type="checkbox"/> HAS <input type="checkbox"/> HAS NOT BEEN ACCOMPLISHED.							
ITEM NO. a	DESCRIPTION (Federal stock number, nomenclature, specification and/or drawing No., etc.) b	QTY c	UNIT d	ESTIMATED UNIT PRICE e	ESTIMATED TOTAL PRICE f		
<p><b>Required Information:</b></p> <ul style="list-style-type: none"> <li>-Purpose: Order ID and/or description of services that clearly ties to Part B and task description in ITSS</li> <li>-Time: Period of Performance of task (not fund) the funds will be applied to                             <ul style="list-style-type: none"> <li>-For new awards, can list "estimated" or "Date of award + "X" months"</li> <li>-If task has been awarded, list POP for task year funds are being provided for (ex: OY2, 09/30/17-09/29/18)</li> </ul> </li> <li>-POP for Non-Severable tasks not required IF provided on Part B</li> <li>-Client Financial POC name, 10 digit phone number, email address</li> <li>-DUNS Number or DODAAC for Requesting Agency</li> <li>-Statutory Authority 40 USC 321</li> <li>-Cannot accept Economy Act (USC 1535)</li> <li>-Category Type I (Reimbursable)/Category II (Direct Cite)</li> </ul> <p><b>Additional Information Conditionally Required:</b></p> <ul style="list-style-type: none"> <li>-CRA Statement for new task awards during CR with current year funds</li> <li>-SAF (Subject to Availability of Funds) statement</li> <li>-Removal of SAF statement</li> </ul>							
						Grand Total of Basic + Amds.	
10. SEE ATTACHED PAGES FOR DELIVERY SCHEDULES, PRESERVATION AND PACKAGING INSTRUCTIONS, SHIPPING INSTRUCTIONS AND INSTRUCTIONS FOR DISTRIBUTION OF CONTRACTS AND RELATED DOCUMENTS.						11. GRAND TOTAL	
12. TRANSPORTATION ALLOTMENT (Used if FOS Contractor's plant)				13. MAIL INVOICES TO (Payment will be made by)			
PAY OFFICE DODAAD							
14. FUNDS FOR PROCUREMENT ARE PROPERLY CHARGEABLE TO THE ALLOTMENTS SET FORTH BELOW, THE AVAILABLE BALANCES OF WHICH ARE SUFFICIENT TO COVER THE ESTIMATED TOTAL PRICE.							
ACRN	APPROPRIATION	LIMIT SUBHEAD	SUPPLEMENTAL ACCOUNTING CLASSIFICATION		ACCTG STA DODAAD	AMOUNT	
	Treasury Account Symbol		Full Line of Accounting		Used for IPAC Billing		
15. AUTHORIZING OFFICER (Type name and title)			16. SIGNATURE		17. DATE Date Block 16 signed		

DD Form 448, JUN 72 (EG)

PREVIOUS EDITION IS OBSOLETE.

Figure 7 GSA MIPR Example (U.S. Government, 2023)

**Box 5** is the MIPR or Requisition Number something in the financial systems called the obligation number. This is the number or unique identification code used to track the funding document.

**Box 6** provides insight if this is the first MIPR or one of many mods to the MIPR, during continuing resolutions or as a project is incrementally funded a single MIPR may be used to fully fund the project with many changes in a single year. Every change will be recorded similar to how the contracts modifications record changes.

**Box 7** indicates to who the MIPR is being sent, this does not indicate that this is the final party that will be receiving the funds but could be the contracting agency or middleman that receives the funds to contract the work. There are many organizations that offer contracting services, and you would see the “Government Agency Contracting”



information here , Army Contracting Command (ACC), Washington Headquarters Service Acquisition Directorate (WHS AD), and Defense Information Technology Contracting Organization (DITCO) are prime examples.

**Box 8** indicates who is sending the MIPR or who is sending the funding document.

**Box 9** is where the details of the requirement are provided as indicated in Figure 5 GSA MIPR Example (U.S. Government, 2023) an example of some notional data that can be found is:

Provides FY22 RDT&E Funding for the Project XYZ Contract Vehicle Technical Direction Letters (TDLs). The purpose of this requirement is to deliver industry standard, open architecture services and products (software and/or hardware) across the full spectrum of AI-enabled capabilities  
GT&C Number: A211-097-XXXX

The contract is severable and meets bona fide needs for the fiscal year.  
Contract PoP: 05/05/2022 - 05/04/2023  
Funding PoP: 05/05/2022 - 09/30/2022

Funded Amount: \$X,XXX,XXX.XX  
Other Fee Amount: \$XX,XXX.XX  
Total Funded Amount: \$X,XXX,XXX.XX  
Technical POC: Joan Smith / [Joan.smith.civ@mail.mil](mailto:Joan.smith.civ@mail.mil)  
John Smith / [john.smith@gsa.gov](mailto:john.smith@gsa.gov)  
Financial POC: John Smith / [john.smith.civ@mail.mil](mailto:john.smith.civ@mail.mil)

The MIPRs provides the Point of contacts both financial and technical, the total amount of funding, the service fee if any, the period of performance for the effort and funding if applicable. Some organizations include the G-Invoicing General Terms and Conditions (GT&C) or Support Agreement tracking number. This GT&C number allows the estimator to query the project team for the support agreement to see the language in the support agreement that includes scope and requirements (Bureau of the Fiscal Service, 2023).

The Support Agreement Scope and the Purpose statement provided on the MIPR provide the cost estimator with some context into the purpose of the funds and assist in allocating the funds against the appropriate cost estimating structure. Additionally, the Period of Performance and ceiling estimates assist in populating the schedule and values. The Technical POC and Financial POC provides the estimator a resource to reach out to in case there were any questions or if they need any additional details such as the PWS/SOO/SWO or other funding supplement or technical requirements document. Using the information provided allows for the allocation of the MIPR obligations to the sub projects based on the purpose and scope language. As a result the estimator can break out the large RDT&E CLINs found on the contract.

#### [What is a Standard Line of Accounting \(SLOA\)?](#)

When following the money in the government it is important to be able to understand the different accounting system codes that are used for tracking funds from Congressional language down to Invoices on a contract. The accounting system can be considered a primary source as it is government reports and unaltered. Note a risk of using reports from current year is that mistakes and accounting errors can and do occur, and updates to plans occur. Financial data is more stable when budget execution (obligation) has completed.

*The Standard Financial Information Structure (SFIS) is a comprehensive data structure that supports requirements for budgeting, financial accounting, cost/performance, and external reporting needs across the DoD enterprise. SFIS standardizes financial reporting across DoD and allows revenues and expenses to be reported by programs that align with major goals, rather than basing reporting primarily on appropriation categories. It also enables decision-makers to efficiently compare programs and their associated activities and costs across the department and provides a basis for common valuation of DoD programs, assets, and liabilities. (Office of the Deputy Chief Financial Officer (ODCFO), 2023)*

The Standard Line of Accounting (SLOA) as defined by the SFIS structure was mandated for incorporation into all business systems by October 1, 2022 (Harker, 2020). This mandate allows for the cost estimator community to

finally have a consistent structure for referencing data across the different accounting systems. Please see the cited reference for links to the SFIS Matrix , [BEA 11.2 Standard Financial Information Structure \(SFIS\)](#), which includes mapping of LOA data from the difference services to the SLOA in Excel.

Balancing the books and being able to track funds or electronic funds transfers (EFTs) is critical in verifying documents. Verification includes correct purpose and if the bill was part of the project and should be included towards your sunk cost in your estimate. Always update your data regularly to verify no changes to obligation status has occurred if you are using funding documents in years of budget execution. The SLOA allows you to track the funds from start to finish and provides details about the use of the funds. Key parts of the SLOA for the estimator to understand when looking reviewing documents:

- Department Code
  - For DOD this is 097 or 97
- Begin Period of Availability
  - Also known as BEGFY of Begin Fiscal Year is the first-year funds can be obligated
- End Period of Availability
  - The last year Funds can be Obligated, also a good check to see if the appropriation code is correct
- Main Account
  - Also the Appropriation code (0100, 0400, O&M, RDT&E, PROC, etc)
- Object class
  - Object classes are specified in OMB circular A-11 and are categories in a classification system that presents obligations by the items or services purchased by the Federal Government (OMB, 2022)
    - 10 Personnel compensation and benefits
    - 20 Contractual services and supplies
    - 30 Acquisition of assets
    - 40 Grants and fixed charges
    - 90 Other
- Agency Location Code
  - This is the unique identifier for a federal agency buying/selling goods and/or services. An ALC is an identifier for an accounting office within an agency that reports disbursements and collections to Treasury (Bureau of the Fiscal Service, 2023).
- Budget Organization
  - The Organization that sent the funds

Provided in Figure 6 Example SLOA from a MIPR is a SLOA from a MIPR to compare against the example in the key in Figure 7 Example SLOA for Reference. The format is very similar as both SLOA’s came from the same financial system DAI. The Example has red \* which indicate additional fields of information that the financial systems can use to store data.

^^^097^2023^2024^^0400^000^^251^D^0604123D8Z^^^1100^12345678^012345^CDAO^CDAO - Chief

Figure 8 Example Notional SLOA from a MIPR

^^^97	^2018	^2018	^^100	^000	^111	^D	^46TN	^^^^1120	^1234567	^123456	^DCMO	^WHS-Ops	^*	^*	^*	^*	^^^
Department Code	Begin Period of Avail	End Period of Avail	Main Account	Subaccount	Object Class	Direct Reimbursable	Budget Line Item	Limit Code	Agency Location Code	Fiscal Station No.	Budget Organization	Expenditure Organization	DAI Project No.	DAI Task No.	Expenditure Type		

Figure 9 Example Notional SLOA for Reference

### Increasing Connected Financial Systems

There are many different Government Financial Systems and Reporting systems that users with the appropriate access can leverage to perform analysis. Traditionally one of the bars for success for a cost estimator was the number of databases, websites, or other tools they could connect or gain access. As connected systems and data sharing agreements have come to exist previous information sharing barriers and walls have been falling like the old Berlin wall. Inertial is a powerful force, without a strong enough kinetic force to move the cost community to try to connect to the newly opened data paths the opportunity will be lost.

CDAO is responsible for the operation and development of “Advana” one of the “connection” tools. The United States Air Force has a tool called “Vault” (Secretary of the Air Force Public Affairs, 2019). The Army has “PMRT” (DAF PMRT Training, 2023). Advana will be used for illustration purposes but similar functionality on comparable U.S. Government tools exists and can be leveraged to access the data sets required. There are many tools available to bypass the stove pipe processes and permission barriers that prevent cost estimator community from accessing the total data needed for contextual completeness in estimates where we have in complete or missing data that can be updated to high data quality cost estimates.

In the DOD Comptroller and CDAO offices the Advana platform is developed to allow data connections and users access for analysis. There are a couple database sets or tools that cost estimators trying to increase the data quality or fill in missing data will find critical; they can be found in Advana or similar tools.

### Budget Analytics

This “stream” in Advana taxonomy is a collection of Financial Systems that are connected and provide data to the Advana System. This may be present in the other U.S. Government systems, but the author does not have the accounts and access permissions to verify. The benefit of these applications here is that if you have a piece of information such as the MIPR number, contract Number, or Invoice Number you can find the other pieces of data for the fund allocated to a project. The process of using DAI as an example is detailed for data searching but the other financial systems offer similar query capabilities.

### Financial System Search Based on Budget Line Item

Using the Data matrix that the cost estimator has developed and populated in Figure 12 Proposed Data Matrix to Increase Data Quality. The first item that the cost estimator attempts to find additional detail on is the Budget Line Item or Program Element. When the Budget Line Item is typed into the search of the financial system the Budget Line , Program Element, and Bali number (Budget Activity and Line Item), are found indicating that there are supporting documents for this line item.

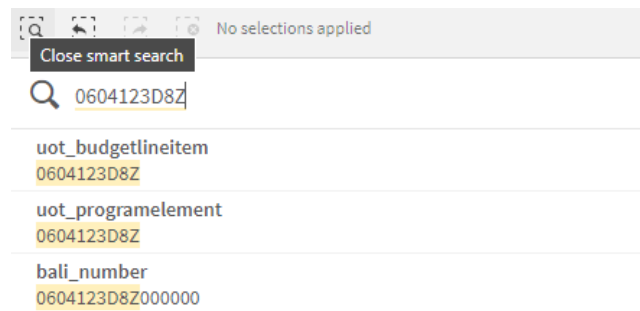


Figure 10 Budget Line Item Search

The cost estimator can then dive into the system to review the obligations, commitments, or expenditures and find additional documents and data for leads to assist in estimating the project by finding the missing data. In Figure 10 Budget Line Item Search Obligations the obligation data for the budget line item is displayed, it lists all the vendor/suppliers, the obligation numbers/MIPRs, if applicable the CLIN or SLIN, and obligation amount. This is a wealth of knowledge for a cost team to understand what is being funded under a project. Additionally most tools provide filtering and analysis capability and data export capability to assist the estimator.

Figure 11 Budget Line Item Search Obligations

### J-Book Gamechanger Search Tool

Tools that allow you to review the current and past Program Objective Memorandum (POM) submissions to find relevant topic areas and group the information to assist with total acquisition cost exist. As it is connected to the financial systems additional context is available. Gamechanger JBook search provides assistance in finding additional projects or government organizations that are working in similar or parallel efforts that may be used as analogies or primary data sources. With the Program Element information the cost estimator can find a point of contact from a MIPR or other supplemental data source to verify if the analogy is valid.

Cost estimators primarily are the only personnel besides the Program Manager that sees the total picture of a project, and generally view it from lowest level of detail. The Program Manger relies on the reports and briefs of the team while the cost estimator needs to rely on the data. This tool assists budget and cost estimators in seeing the strategic vision not just the project.

### What is Government Invoicing (G-Invoicing) and Support Agreements?

“G-Invoicing is the long-term solution for Federal Program Agencies (FPAs) to manage their intragovernmental (IGT) Buy/Sell transactions. G-Invoicing helps agencies and their trading partners” (U.S. General Services Administration, 2022). This is done by tracking the support agreements to the requests, the DoD Financial Management Regulations Volume 14: “Administration Control of Funds and Anti-Deficiency Act Violations” require (DoD 2000.14-R) G-Invoicing use.

In Figure 12 G-Invoicing GT&C a blank filter from the requestor agency view is shown that highlights the number of data fields available. The cost estimating community will want to pay close attention to the Total Estimated Amount and Total Remaining Amount fields. This will indicate if there needs to be a modification, or new support agreement created for the project. As the implementation of G-Invoicing moves forward the support agreements will

track the contract and requestions (MIPR/purchase requests) for projects or programs and help limit uncontrolled scope.

GT&C#	Title	Agreement Start Date	Agreement End Date	Trading Partner	Requesting ALCs	Requesting Group	Servicing ALCs	Servicing Group	Requesting Agency Tracking Number	Servicing Agency Tracking Number	Estimated Total Amount	Total Remaining Amount	Order Originator	BioApp	Status
		YYYY-MM-DD	YYYY-MM-DD										All		Select fil...

Figure 12 G-Invoicing GT&C

“Unclassified support agreements under which reimbursable orders may be placed, other than those containing controlled unclassified information, as defined in Section 2002.4 of Title 32, Code of Federal Regulations, must be administered using the computer-based G-Invoicing system provided by the U.S. Department of the Treasury’s Bureau of Fiscal Service in accordance with DoD 7000.14-R. Conversely, classified agreements are exempt from G-Invoicing requirements (Office of the Under Secretary of Defense for Acquisition and Sustainment , 2020, p. 3)”.

Support Agreements can be in three general categories Intragovernmental Agreements, Intergovernmental Agreements, and Governmental to Non-Governmental Agreements (Office of the Under Secretary of Defense for Acquisition and Sustainment , 2020, p. 8). GSA provides a detailed instruction form for population of the 7600A and 7600B support agreement forms on the G-Invoicing website (Bureau of the Fiscal Service, 2023). Cost estimators can find many contextual data items that may otherwise be missing from the support agreements, to include details on the fees/withholds that are paid between parties.

**Key Data items from a Support Agreement:**

**Agency Location Code (ALC)** - This is the unique identifier for a federal agency buying/selling goods and/or services. An ALC is an identifier for an accounting office within an agency that reports disbursements and collections to Treasury. Enter the 8 digit ALC (Bureau of the Fiscal Service, 2023, p. 1).

This data will be useful in tracking between years if the project changed names, as the performer generally does not change.

**Total Direct Cost Amount** - Enter the total agreed-upon direct cost amount for providing the products and/or services. Note: This amount must be greater than or equal to \$0.00 (Bureau of the Fiscal Service, 2023, p. 2).

Provides a cross check for the total ceiling value of the agreement. Note that unless a cost team supported the development of the agreement the numbers used here could be misleading.

**Total Overhead Fees and Charges Amount** - Enter the total agreed upon overhead fees and charges for providing the products and/or services above and beyond direct costs. (Bureau of the Fiscal Service, 2023, p. 2).

Provides a cross check for the total ceiling value for fees of the agreement. Note that unless a cost team supported the development of the agreement the numbers used here could be misleading.

**Explanation of Overhead Fees and Charges-** This is a general explanation of how the overhead fees and charges are calculated. This provides helpful information to the Requesting Agency on the cost of the overhead/fees which they are required to pay within their reimbursable agreement, especially if an agency cannot specifically break out the fees from the direct costs. (Bureau of the Fiscal Service, 2023, p. 3).

Provides the calculation that allows you to check the validity of the Total Direct and Total Overhead Fee Lines. This can provide detailed breakouts to show how many FTEs are supporting a project. A potential concern is if the organization is providing assisted acquisitions the numbers may be false as they would include the contract work as work performed by the contracting agency.

**Requesting Scope** - Enter the high level scope of the work to be performed under this GT&C for all related Orders. Specific details about what is being purchased and related funding is captured on each Order. (Bureau of the Fiscal Service, 2023, p. 3).

If this is a RDT&E contract and unable to find a PWS/SOO/SWO or other document to provide the context to the programs effort, the support agreement may be able to assist the cost estimator. The Scope section provides space input for the requester and servicer to provide information, and can be valuable to the cost estimator for context when no other data source is available.

**Restrictions** - Enter the unique requirements and/or mission specific restrictions related to the GT&C (Bureau of the Fiscal Service, 2023, p. 3).

This section will allow the cost estimating team to understand some of the assumptions or limitations for the work being performed that would not otherwise be available. Often this section relates to financial limitations.

Using the Key data points detailed from the support agreement, contextual data can assist the cost estimator in understanding the program when other options were unavailable. Currently Support Agreements data is designed to be flexible and broad to allow decisions so it can be used as a guide but should not be considered actuals.

## Conclusions

When traditional methods are not successful for data gathering, e.g data is combined into a massive CLIN or part of a TDL, new techniques are required. The proposed method of using connected financial systems, MIPR, and support agreement data to break the CLINs into subprojects where possible, is suggested. The method provides the best possible tradeoff of primary data and qualitative data without having to use secondary or subjective sources, increasing the defensibility of the cost estimates.

There is some minor risk imposed to the estimates when data from the current budget execution, years of obligation, are used due to projections versus final actuals, but that can be managed with appropriate updates and communication with the project team.



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## Appendix A Acronyms

ACC	Army Contracting Command
ACRN	Accounting Classification Routing No
APPN	Appropriation
BA	Budget Activity
BLI	Budget Line Item
CDAO	Chief Digital and Artificial Intelligence Officer
CIS	Comptroller Information System
CLIN	Contract Line Item Number
DAI	Defense Agencies Initiative
DITCO	Defense Information Technology Contracting Organization
EAC	Estimate at Complete
EDA	Electronic Data Access
G-Invoicing	Government Invoicing
GT&C	General Terms and Condition
LOA	Line of Accounting
MILDEP	Military Department
MIPR	Military Interdepartmental Purchase Request
OCC	Object Class Code
PE	Program Element
PIEE	Procurement Integrated Enterprise Environment 6.14.2 (PIEE)
PIID	Procurement Instrument Identifier
POET	Project, Org, Expenditure, and Task
POM	Program Objective Memorandum
PRCP	Program Resource Collection Process
PSC	Product Service Code
PWS	Performance Work Statement
SLIN	Sub Line Item No.
SLOA	Standard Line of Accounting
SOO	Statement of Objectives
SPC	Special Project Code
SPS	Standard Procurement System
WAFA	Wide Area Workflow
WHS AD	Washington Headquarters Service Acquisition Directorate

## Appendix Glossary

**Primary data** are obtained from the original source. They are data collected from contractor facility on-site collections, government reports, test centers, depots, etc. They are unaltered or unchanged and represent actual, historical values. Examples include Bills of Materials (BOM), documented test results, documented man-hours to accomplish a task, etc. Primary data is typically the most defensible, highest quality, and most useful data that an analyst can capture. (ICEAA, pp. 12, Unit II Mod 4)

**Secondary data** are based on primary data. They are derived, sanitized (for classification and proprietary purposes), or changed in some way from the original source data. Examples include documented cost estimates, factors and factor books, studies and white papers, contractor cost report summaries, subcontractor cost data, etc. Secondary data tends to be of a lesser overall quality and usefulness to the cost analyst for a variety of reasons. Possible reasons are because the normalization process used is unknown; there is a lack of definition associated with the data; or the basis for a factor is old, incomplete, or questionable in some way. Secondary data are, however, very valuable when used in combination with other data for cross-checking purposes. (ICEAA, pp. 12, Unit II Mod 4)

**Objective data** are usually quantitative in nature and, like primary data, are preferred. They are actual counts collected through a formal data collection process or derived from other quantitative data. Objective data would include items like: staff hours, Source Lines of Code (SLOC), Function Points, test items, documented errors, end items, etc. One example of *qualitative* objective data is the country of origin of a fighter jet. (ICEAA, pp. 15, Unit II Mod 4)

**Subjective data**, on the other hand, are based on an individual's (or group's) feelings or understanding about a particular condition or characteristic pertinent to a system. It tends to be non-quantitative and typically provides information needed to interpret or validate objective data. Subjective data tends to be valuable in helping analysts extrapolate information (data) from one generation of equipment to the next, and is often covered by the phrase "engineering judgment." (See caveats on engineering judgment in Module 6 Basic Data Analysis Principles.) Items like complexity, requirements stability, level of difficulty, and degree of new technology involved would be examples of subjective data. While Rules of Thumb should be based on objective data, a general Rule of Thumb that is applied without documentation as a cross-check (like "Overhead = Direct") may be considered subjective. (ICEAA, pp. 15, Unit II Mod 4)