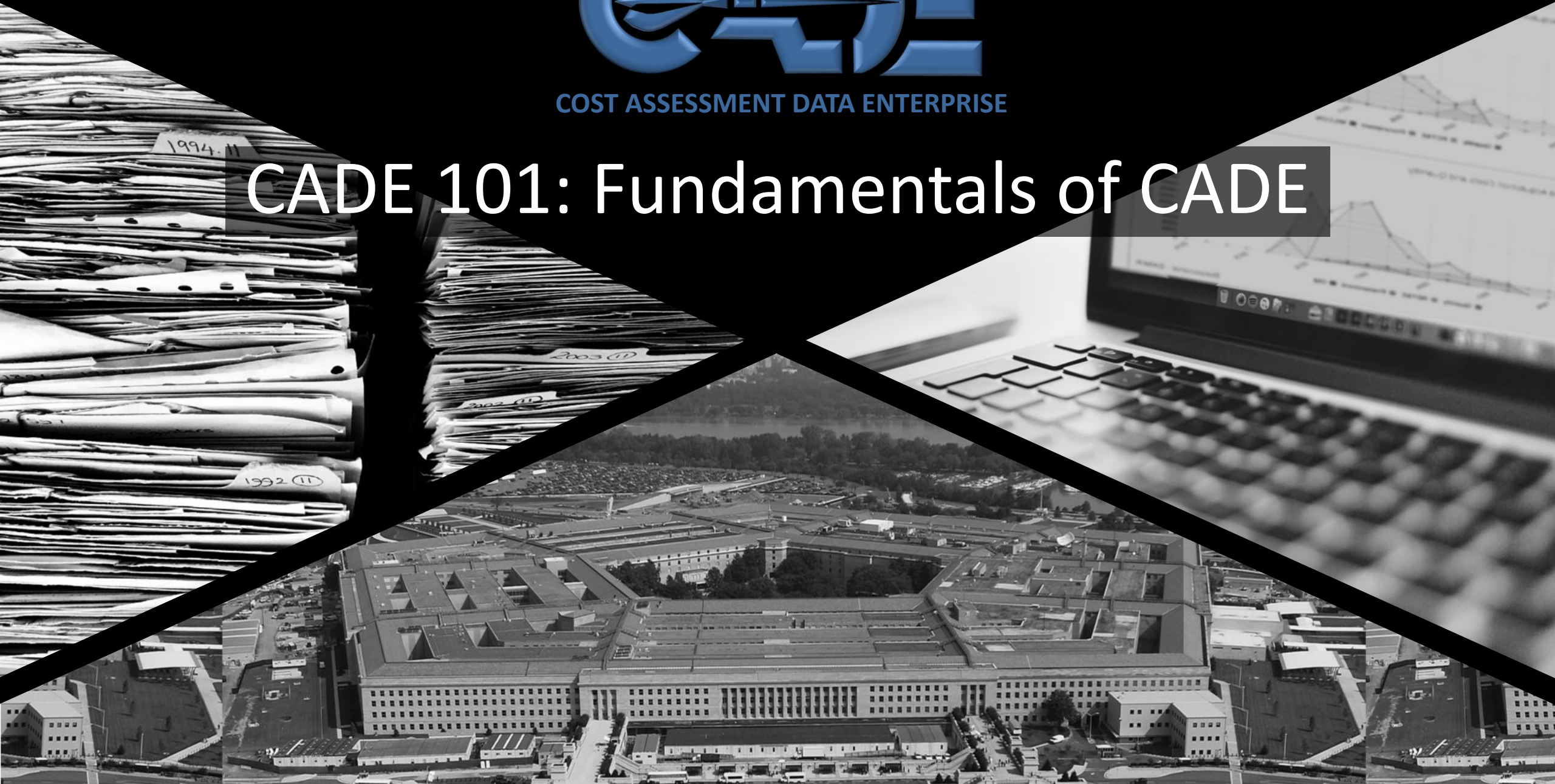




COST ASSESSMENT DATA ENTERPRISE

# CADE 101: Fundamentals of CADE





**By the conclusion of this training, you will be able to:**

- Describe the importance of CADE in providing trustworthy data to the DoD cost and acquisition communities
- Enumerate the different types of data useful to a DoD cost analyst and which can be found in CADE
- Describe how CADE supports systematizing, centralizing, and collaborating around data collection
- Enumerate the policies governing Cost and Software Data Reporting (CSDR) under the Adaptive Acquisition Framework (AAF)
- Describe the utility of CSDR data in cost estimating and contract pricing
- Describe the central role of the CWIPT in orchestrating the CSDR Planning process
- Enumerate the different CSDR deliverables and explain the content of each
- Navigate CADE to access and download/export CSDR data, tools, and cost-related acquisition documents

# Welcome to CADE 101:



## › Cost Assessment Data Enterprise (CADE) home page

- › Point of entry for CADE Portal
- › Policy and Training information
- › <https://cade.osd.mil/>

## › Bridge Learning Management System (LMS)

- › Online courses and (future) live training registration
- › <https://cade.bridgeapp.com/>
- › Account registration (if you are a new user):
  - › [https://survey.az1.qualtrics.com/jfe/form/SV\\_6igQqlkXPp9xuaF](https://survey.az1.qualtrics.com/jfe/form/SV_6igQqlkXPp9xuaF)

## › Webinar Registration Survey

- › Course offering/registration schedule
  - › [https://survey.az1.qualtrics.com/jfe/form/SV\\_3ghQYffvz9jNmFE](https://survey.az1.qualtrics.com/jfe/form/SV_3ghQYffvz9jNmFE)





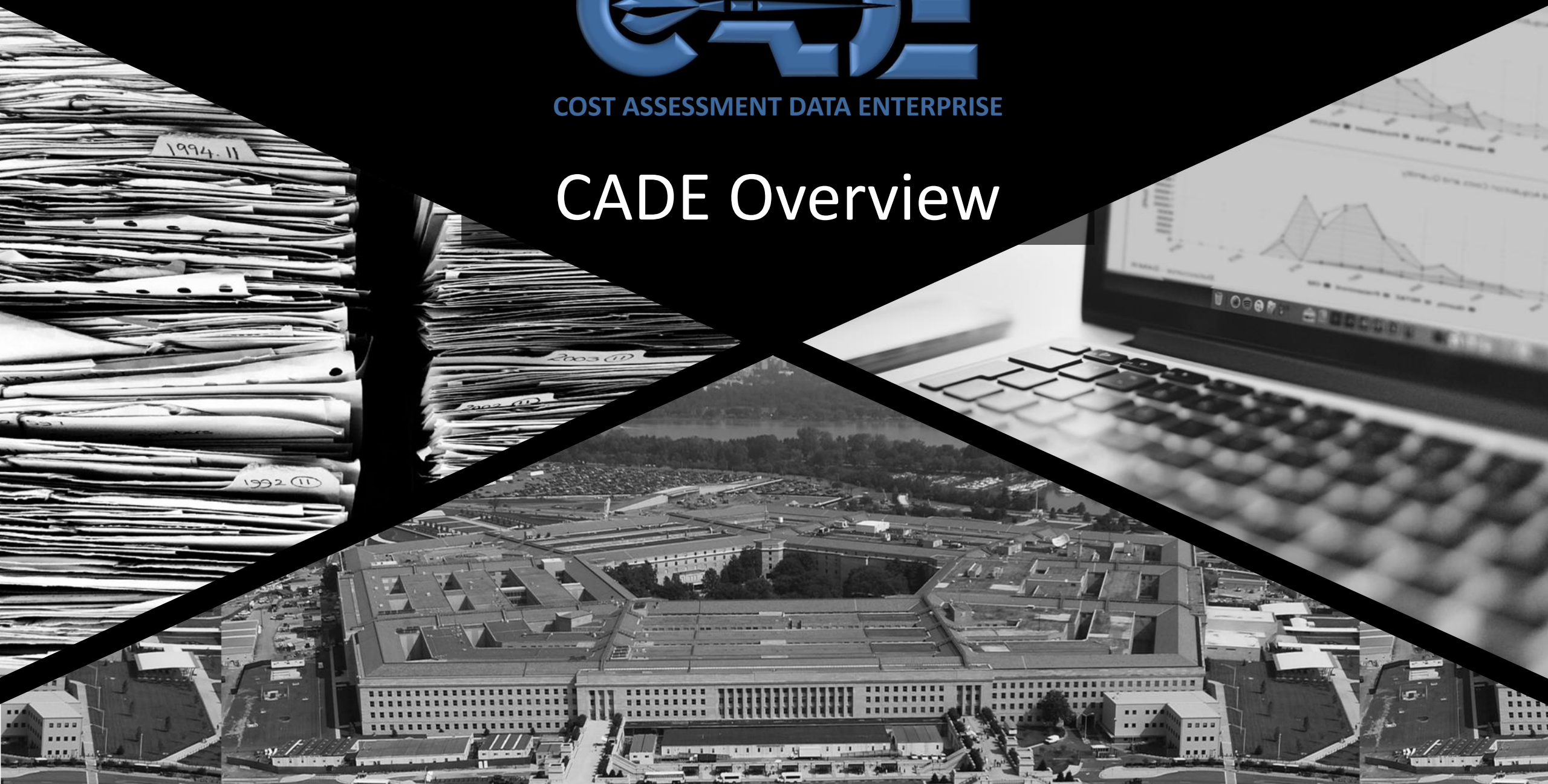
- ❖ CADE / CSDR Overview
- ❖ CSDR Background & Policy
- ❖ CSDR Planning Process
- ❖ CSDR Plan and Deliverables





COST ASSESSMENT DATA ENTERPRISE

# CADE Overview



# What is CADE?



The Cost Assessment Data Enterprise (CADE) team collects the *proprietary* data required to enable the cost estimating community to perform quality estimates while also attempting to maximize the cost-effectiveness of data collection.

Navigation: <https://cade.osd.mil>

Cost	Software/Technical	Library	Acquisition
<ul style="list-style-type: none"> <li>› Cost/hours by WBS &amp; functional category</li> <li>› Insight into Prime &amp; Subs</li> <li>› Realized profit f/FFP contracts</li> </ul>	<ul style="list-style-type: none"> <li>› Software effort &amp; context data at the CSCI level</li> <li>› Tailored contract-specific technical data report</li> </ul>	<ul style="list-style-type: none"> <li>› Searchable data for historical reference                             <ul style="list-style-type: none"> <li>- Cost Estimates</li> <li>- Funding Memos</li> <li>- Program Briefings</li> <li>- ICEs, SCPs</li> <li>- Research Studies</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>› Historical SAR Data                             <ul style="list-style-type: none"> <li>- Program Information</li> <li>- Annual Funding</li> <li>- Schedule</li> </ul> </li> </ul>

**CADE is the DoD cost community's authoritative data source for contractor cost data**

**~600 Active & ~250 Legacy Weapon System Programs**

**~5K Prime Contracts**

**~2K Subcontracts**

**~42K Cost & Software Data Report Submissions**

**~3K Government & Industry Users**

**7+ TB Database**

## Trustworthy Data



### Secure Data Warehousing

- › Only accessible to DoD gov't employees
- › Reporting contractors require a digital certificate
- › SETA contractors require an NDA for access
- › Demo website (FACADE) used for Training
- › Reporting Compliance Improvement

### Data Based on Actuals

- › Data reviewed by PMOs, Service Cost Agency (SCA), and DCARC
- › Unbiased data: Holds no favor towards government or industry
- › Data are not based on estimates or guesses
- › Actuals include the full scope of program complexity



## What are CSDRs?

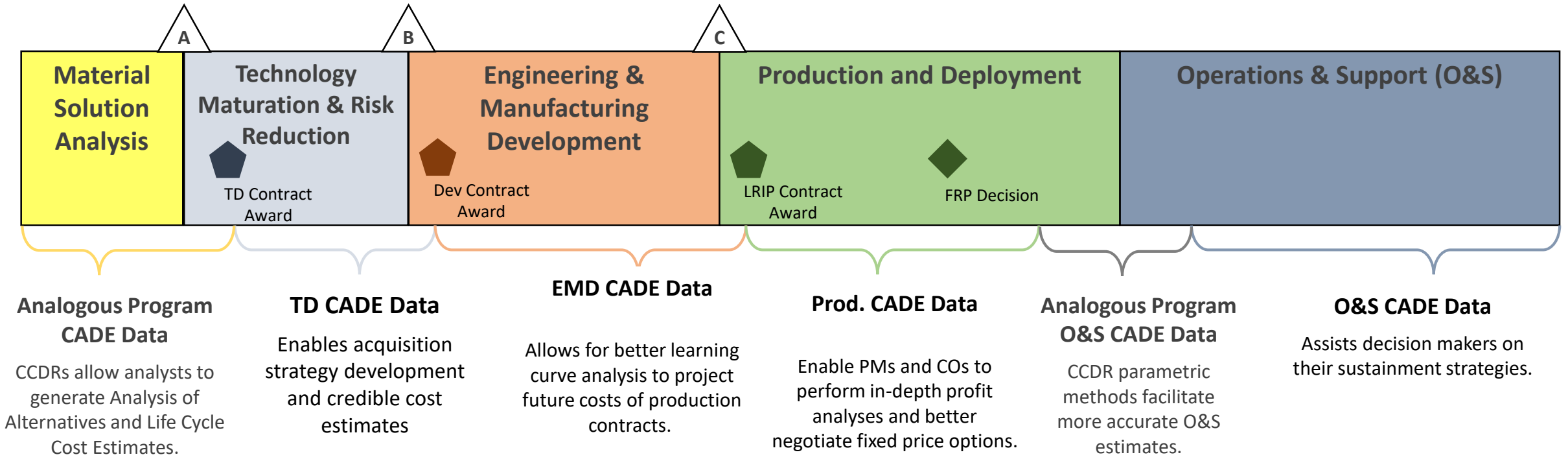
- The Cost and Software Data Reporting (CSDR) system has collected historical actual costs from industry to support the DoD cost estimating community for over 50 years

Data Type	Formats	Initiation Date	Description
<b>Cost</b>	DD1921 Series & Dictionary	~1960's	Actual & estimated costs by work breakdown structure, functional category, & other categories useful to cost estimators
	"Flexfile" & Quantity Data Report	~2019	Modern version of DD1921 series that includes time phasing & detailed contractor-native data
<b>Software</b>	Software Resource Data Reports	~2005	Effort & scope/context data for software efforts
<b>Technical</b>	Technical Data Report	~2019	Actual & estimated technical parameters (e.g., size, weight, power) at system & subsystem level
<b>Sustainment</b>	Maintenance & Repair Parts Data Report	~2019	Maintenance event & parts repair details, cost, & effort information



# Why is CADE Important?

Analogous program data in CADE is critical early in a program’s lifecycle. As the program progresses, its own actual data becomes invaluable in budget formulations, contract negotiations, and source selections.



# CADE Planning Process Overview

## CSDR Planning

- Contract-specific cost reporting plan collaboratively developed across stakeholders
- Plan documenting level of detail, reporting formats, & frequency approved by CAPE or Service
- Plan included in Request for Proposal to set expectations before contract award
- **CSDR plan placed on contract & revised as needed over life of effort**

## Reporting

- Reports compiled by industry using actuals/EACs from authoritative data systems
- CAPE provides resources to answer questions & tools to aid in validating data format prior to submission
- **Data uploaded to CADE website directly by data provider**

## Report Validation

- Automated checks review submission for errors
- Manual review performed by CAPE & other stakeholders to confirm data is accurate
- **Work directly with industry to correct any issues in format or content to ensure data is useful for future analysis**

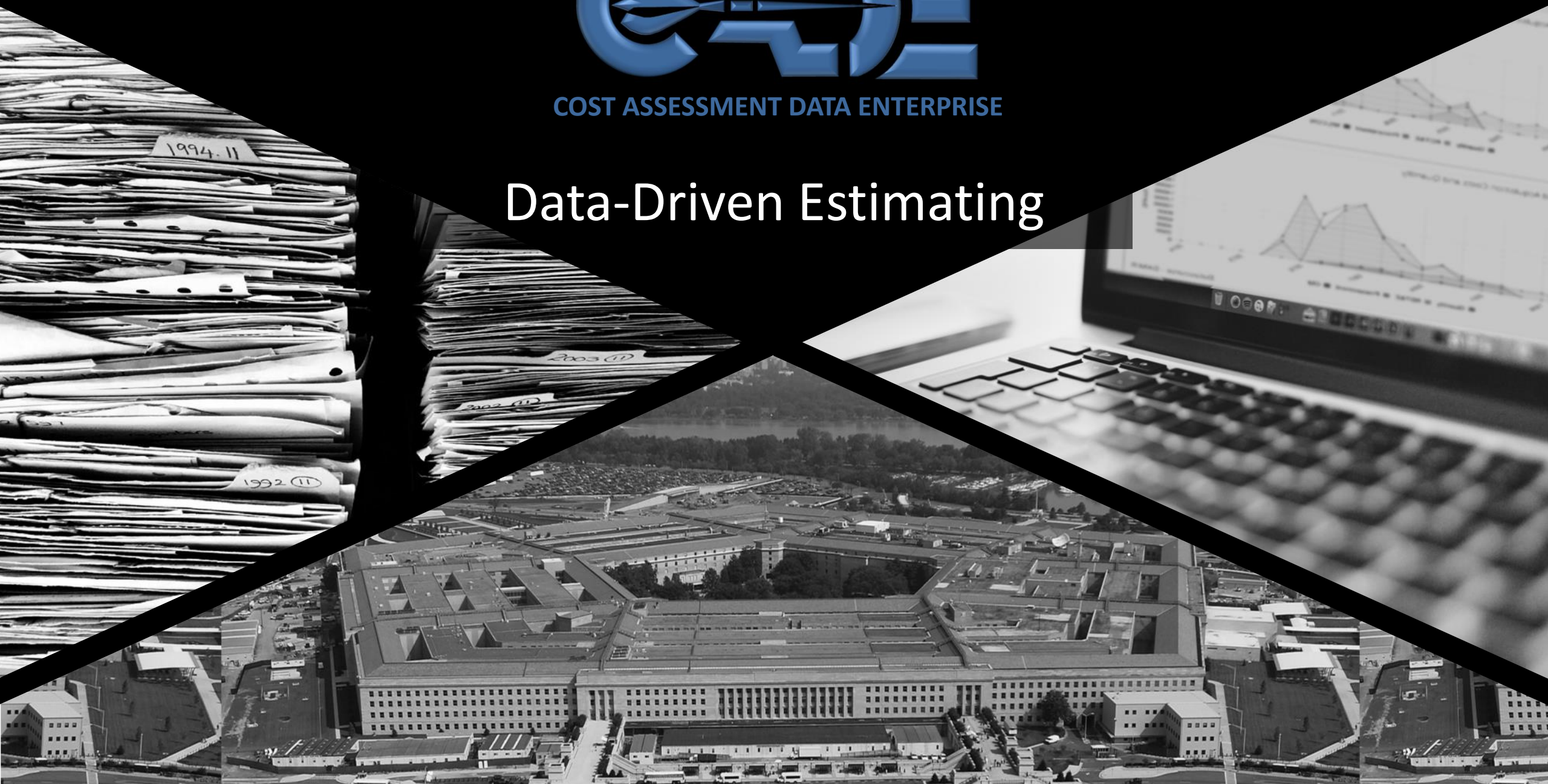
## Publishing to CADE

- **Accepted reports made available to Government analysts on CADE website**
- Website enables data downloads both as-submitted or combined in larger datasets
- CADE website also includes library to house key reference documents & program specific artifacts/data



COST ASSESSMENT DATA ENTERPRISE

# Data-Driven Estimating





**The Office of Cost Assessment and Program Evaluation (CAPE)** provides independent analytic advice on all aspects of the defense program, including alternative weapon systems and force structures, the development and evaluation of defense program alternatives and the cost-effectiveness of defense systems.

- Cost Data Support Group (CDSG) is the organization that sponsors the CADE initiative and leads the DCARC.

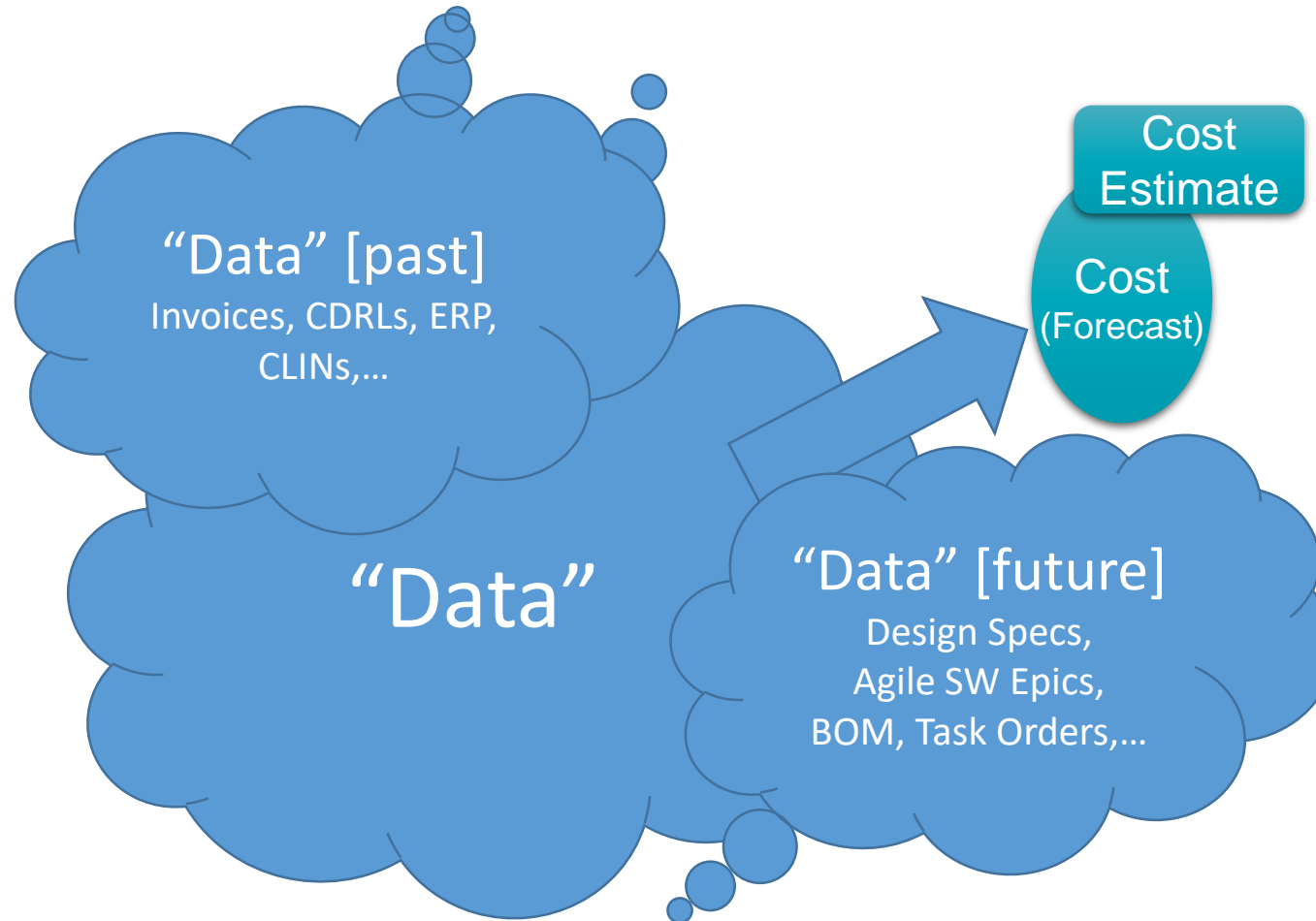
### Service Cost Centers

The Service Cost Centers are integral to the collaborative vision of all CADE initiatives and are the Service leaders of the cost community. They partner with CAPE on data collection initiatives.





- What is your estimate based on?...



*The Allusion of Data is the Illusion of Data!*



- **Definition**

- [Cost and Schedule] Estimates predicated on authoritative, primary source, objective data
- Replace “Expert Opinion” with “Expert Judgment”

Expert Opinion

“I Reckon”

Expert Testimony

“I Recall”

Expert Judgment

“I Recommend”

- **Importance**

- Cost analysis “-ilities”: Actionable, defensible, reasonable, traceable, timely...
- Decision Support Processes: Acquisition, Budget (PPBE), Requirements (JCIDS)
- Shift the conversation from data (“Who got the right/better data?”) to analysis...and normalization
- What we were supposed to be doing all along!

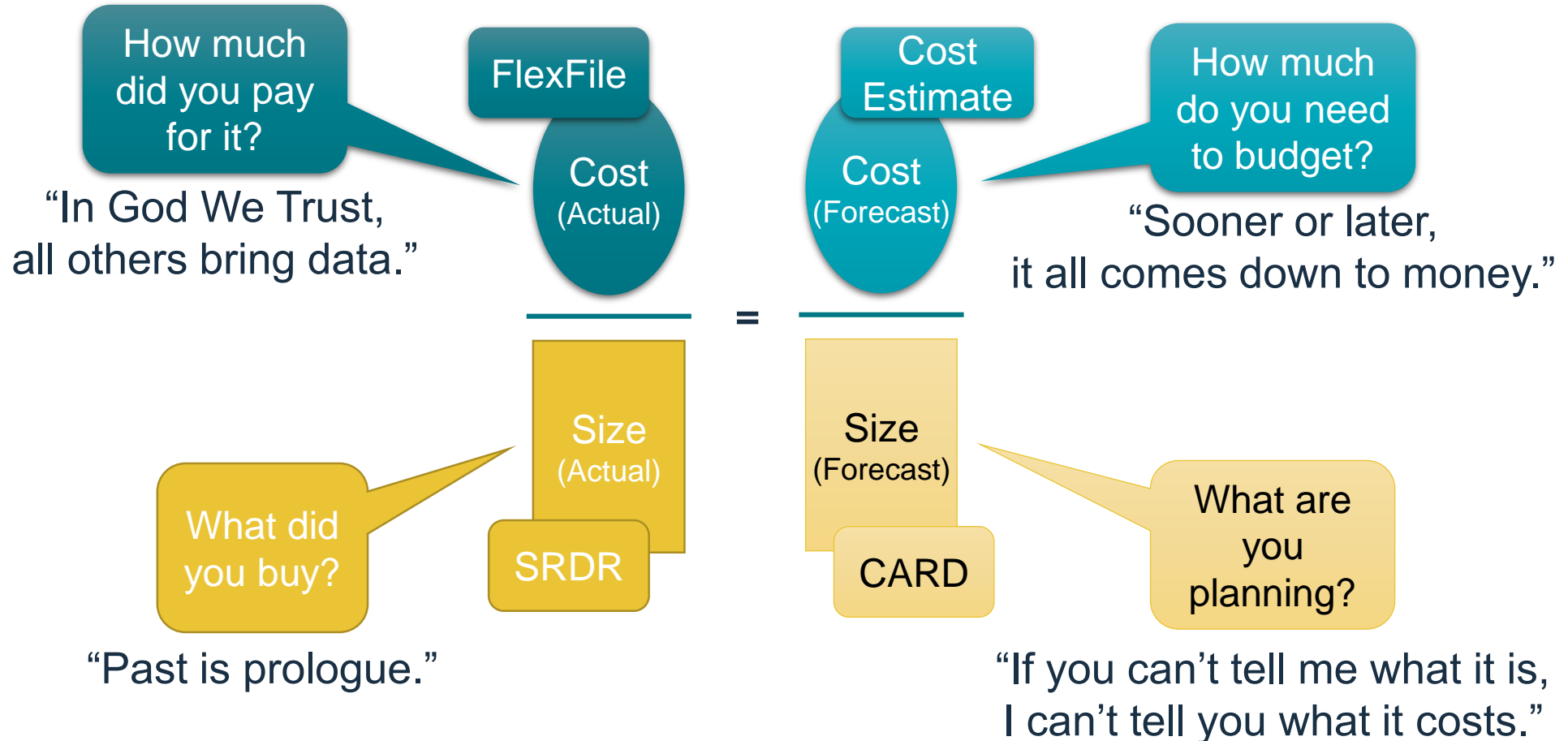
- **What happens when we don’t get (or use) the data?**

- No good basis of estimate (BOE) for multi-billion-dollar program
- Unable to validate Multi-Year Procurement (MYP)
- Excessive (sub)contractor profit

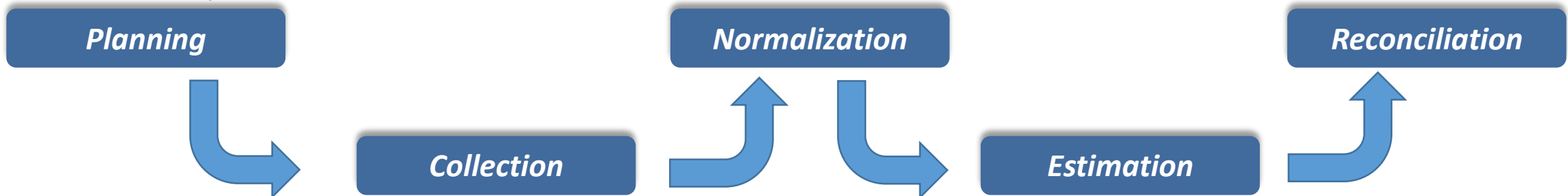
*Preaching to the choir, we know...*



- There are three key ingredients to Cost Analysis



- **Systematizing data collection becomes more important**
  - *Ad hoc* is less reliable and less efficient
  - Look for opportunities to “bottle” the good stuff
  - Pay It Forward – be part of the Solution, not the Problem!
- **Centralizing data collection becomes more important**
  - Force multiplier in space (CAPE, SCA, SYSCOM, PEO,...) and time (MS A, B, C,...)
  - Expanding to non-ACAT I programs, Middle Tier of Acquisition (MTA), [AAF](#)
- **Collaborating around data becomes more important**
  - Identifying anomalies, providing context (cf. Cost IPT)
  - The proverbial “Wiki”

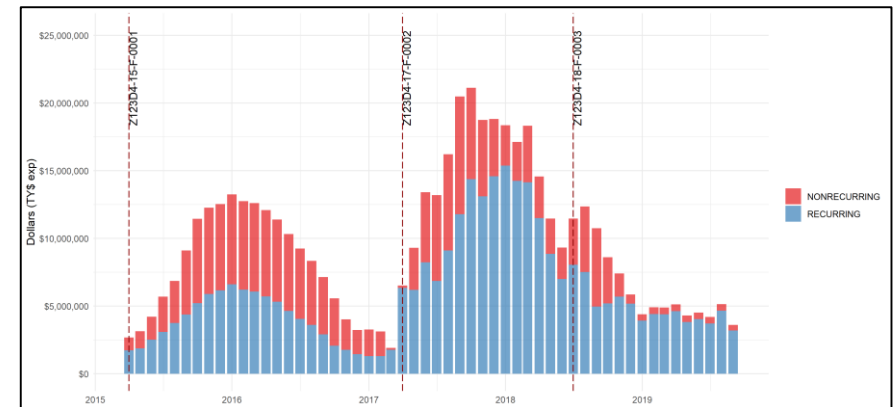
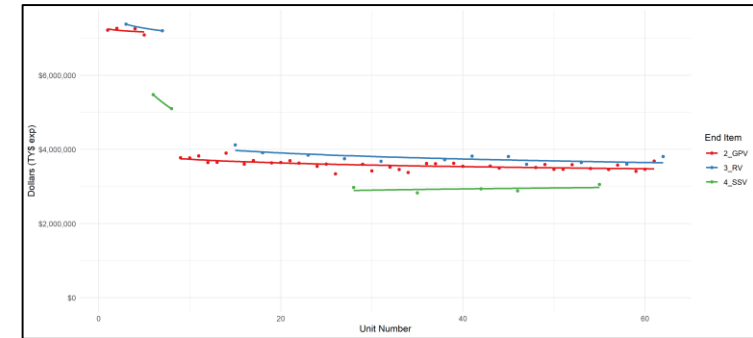




# Cost Analysis In Five Pictures



- While beyond the scope of this course, Cost Analysis comprises several hallmark techniques, *all of which are supported by the data from CADE*
  - Cost Estimating Relationships (CERs) forecast needed resources based on cost driver variables
  - Learning Curves forecast recurring Production based on quantity and rate produced
  - Labor hours and Materials are forward-priced based on time-phasing and projected escalation
  - Risk and uncertainty are applied to point estimates to provide a range of possible outcomes based on historical variances
  - Estimates At Completion (EAC) are generated for in-process efforts based on performance to date



# Data Types and Sources



Data Type	Source	Key Data
<b>Acquisition</b>	Defense Acquisition Visibility Environment ( <b>DAVE</b> )	<b>Selected Acquisition Report (SAR)</b> Database in CADE
<b>Cost</b>	Contractor Cost Data Reporting ( <b>CCDR</b> ) Visibility and Management of Operating and Support Costs ( <b>VAMOSOC</b> )	<b>FlexFiles</b> <b>Enterprise VAMOSOC</b>
<b>EVM</b>	Integrated Program Management Data Analysis Reports ( <b>IPMDAR</b> )	<b>EVM-CR</b>
<b>Technical</b>	Software Resources Data Reporting ( <b>SRDR</b> ) / <i>Technical Data Report (TDR)</i> / <i>Quantity Data Report (QDR)</i>	<b>QDR</b> <b>SRDR Bulk Export</b>
<b>Budget</b>	Defense Resource Data Warehouse ( <b>DRDW</b> ) / Defense Repository for Common Enterprise Data ( <b>DRCED</b> ) aka <b>ADVANA</b>	<b>Budget Analytics</b>



- **Contracts**
  - Contracts Database (KDB), price and schedule by CLIN and Mod
  - Available in CADE Data & Analytics – **DTM Hub**
- **Rates**
  - Contractor Business Data Report (CBDR), DD Form **1921-3** – updated DID
  - DCMA Contract Business Analysis Repository (CBAR)
- **Sustainment / Operating and Support (O&S)**
  - Functional Cost-Hour Report, DD Form 1921-5 → **FlexFile**
  - Maintenance and Repair Parts (**M/R**) Report
- **Schedule**
  - SAR Schedule Events (limited Normalization), Key Events, IMS (IPMDAR)
- **Risk**
  - SAR Variance Tables – bulk export from **SAR Database**
  - SRDR paired data, Initial vs. Final for SLOC and Effort – **SRDR Database**



- **Inflation**

- Indexes and Guidance on **DTMHub**
- Inflation and Escalation videos on **YouTube** (!), CADE Training channel
- *CADE eschews automated inflation adjustments (cf. VAMOSOC)*

- **Estimates**

- ICEs, SCPs, POEs in CADE **Library**
- Facilitate documentation and reconciliation
- *Never base an estimate on an estimate!*

- **Program Definition**

- Cost Analysis Requirements Description (CARD) in CADE **Library**
- Shift to “tabular” CARD

*But is it data?!*





COST ASSESSMENT DATA ENTERPRISE

# CSDR Background & Policy



# Types of CSDRs – FlexFiles

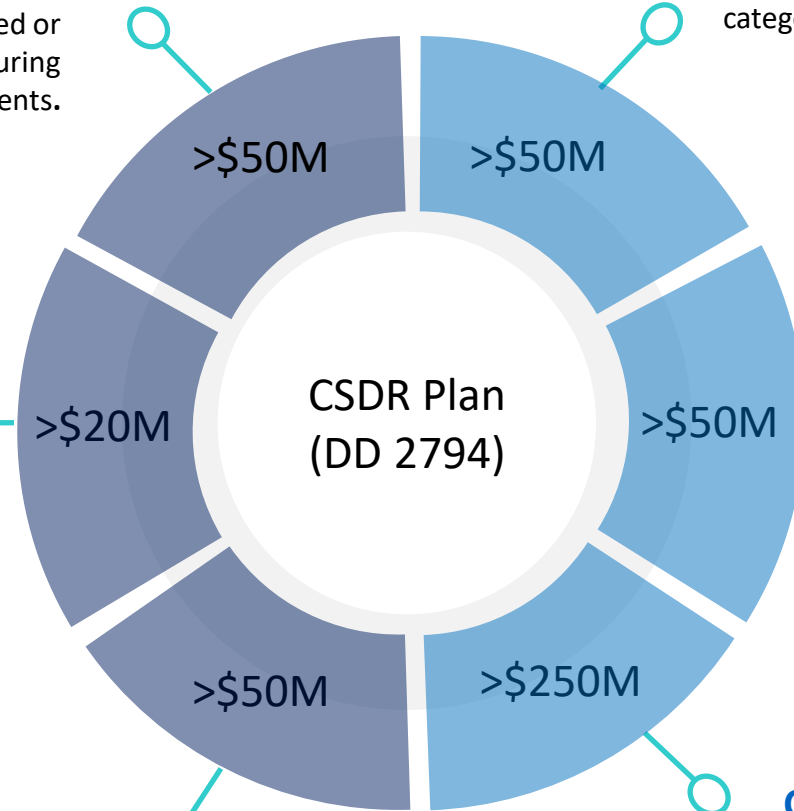
## Maintenance and Repair (M/R)

List of touch maintenance events, with dates, durations, maintenance cause codes, planned or unplanned, etc. and a list of parts consumed during those maintenance events.

## Cost and Hour Report (FlexFile)

Actual cost and hours according to government standard categories and contractor native structures.

# FlexFile 101



## Quantity Data Report

Ties the necessary quantity information to the FlexFile

## Contractor Business Data Report (DD 1921-3)

Direct & Indirect cost, hour & employee data by functional category for a Contractor Business Unit

## Technical Data Report

Provides context to the cost data by systematically capturing technical data parameters on contracts

## Software Resource Data Reports (SRDRs)

Size, schedule & effort on data on software development

>\$50M = contract reporting threshold  
>\$20M = scope reporting threshold  
>\$250M = business entity contracts reporting threshold

# Types of CSDRs – Legacy

## Cost Data Summary Report (DD 1921)

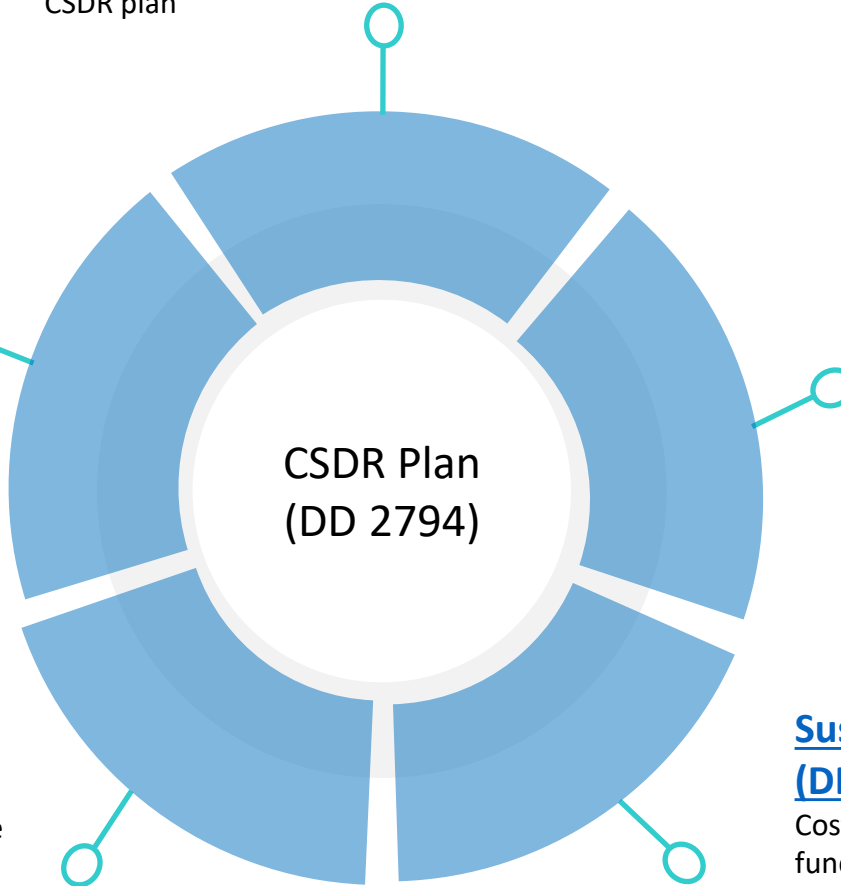
Summary cost data for all elements on approved contract CSDR plan

## Contract Work Breakdown Structure Dictionary (CWBS)

Lists all contract data reporting elements with definitions of technical, work, and cost content (recurring vs. nonrecurring by functional category)

## Functional Cost-Hour Report (DD 1921-1)

Cost and hour data for specific elements broken down by functional category



## Progress Curve Report (DD 1921-2)

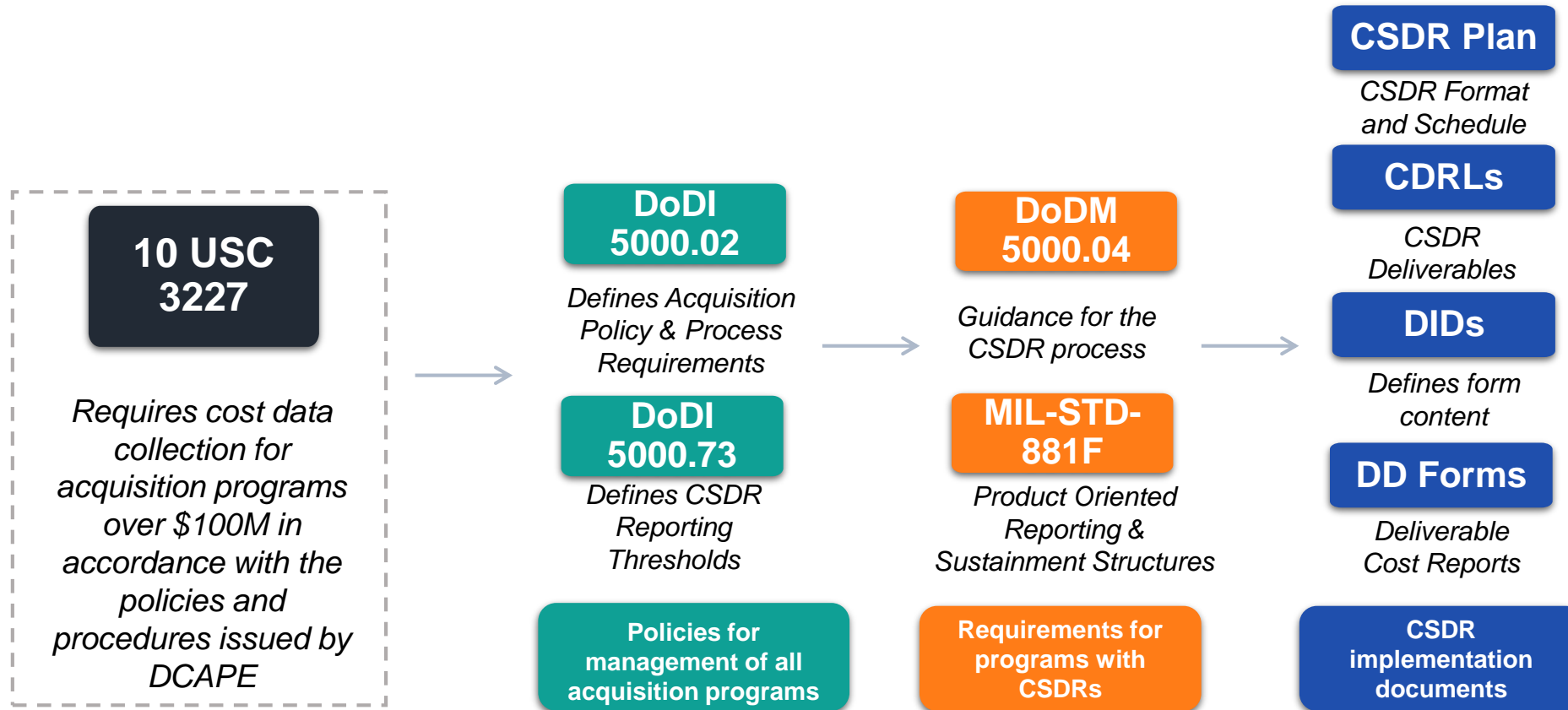
Lot or Unit reporting of direct recurring costs to date for specific hardware elements

## Sustainment Functional Cost Hour Report (DD 1921-5)

Cost and hour data for specific elements broken down by functional category

**If utilizing legacy reports, these CDRs take the place of FlexFile and Quantity Data Report**

# Cost and Software Data Reporting (CSDR) Policy



CAPE maintains CSDR policy & implementation guidance for 13 different data deliverables including instructions & formats

# CSDR Data Collection Scope – Defined in DoDI 5000.73



**Programs with CSDR Requirements**

Program Type	Criteria*
Major Capability Acquisition	ACAT I & II programs
“Information Systems” (e.g., Software Pathway, Defense Business Systems)	Programs anticipated to exceed \$100 million, TY \$, in acquisition expenditures
Middle Tier Acquisition	Programs anticipated to exceed \$100 million, TY \$, in acquisition expenditures
Other programs in an amount greater than \$100 million	Required at discretion of CSDR plan approval authority

\* Waivers can only be approved within D, CAPE

**Requirements for each contract/effort within programs above**

Data Type	Format	Contract/Effort Size*
Contract-Specific Costs	“FlexFile” or DD1921 series	>\$50M for all, \$20M for “high-interest”
Software	SRDR Development, ERP, Mx	>\$20M
Technical	Technical Data Report	>\$50M
Maintenance	Maintenance & Repair Report	>\$50M
Business Base Costs	Contractor Business Data Report	>\$250M

\* Includes all contract types, prime contractors and subcontractors





- Approved by DCAPE, dtd 13 Mar 2020
  - 1<sup>st</sup> update since 2015 – followed by DoDM 5000.04 CSDR Manual (dtd 07 May 2021)
- Alignment with Acquisition Pathways
  - **Major Capability Acquisitions** – traditional MDAPs
  - **Middle Tier of Acquisition (MTA) Programs** – aka Section 804
  - **Defense Business Systems (DBS)** – formerly MAIS
  - **Contracted Services**
  - **Software**
- Importance of uploading documentation to CADE Library
- Clear CSDR reqts by Acquisition Pathway
  - In a nutshell, ACAT I *and* II level programs
- Access via <https://cade.osd.mil/policy/csd timeline>

REPORT REQUIRED	WHEN REQUIRED
Contractor Cost Data Report	<p><b>ACAT I-II Programs</b></p> <ul style="list-style-type: none"> <li>• All contracts, subcontracts, government-performed efforts, and major components (i.e., government furnished equipment), including FMS and programs in sustainment, regardless of acquisition phase and contract type, including non-FAR agreements, valued at more than \$50 million, then-year dollars, for current and former ACAT I – II programs.</li> <li>• High-risk or high-technical-interest, as determined by the CSDR plan approval authority, or software contracts priced between \$20 million and \$50 million, then-year dollars.</li> </ul>

*CSDR applies to more programs than ever!*



COST ASSESSMENT DATA ENTERPRISE

# CSDR Planning Process



# Major Terminology Overview



CSDR Term	Definition
<b>Cost</b>	The expense incurred for creating a product or service being sold by a company. The amount it takes the contractor to produce the item in terms of labor, material, overhead, etc.
<b>Price</b>	The amount a customer is willing to pay for a product or service. The difference between the price paid and the costs incurred is the profit/fee.
<b>DDCA</b>	The Deputy Director of Cost Assessment (DDCA) establishes CSDR policies, procedures, and processing requirements, is the CSDR plan approval authority for all programs that exceed the acquisition category (ACAT) I dollar threshold, and adjudicates requests for data collection waivers from the DoD Components.
<b>Contract</b>	Any prime contract with the U.S. Government that requires joint participation with other prime contractors to accomplish the government requirement. Joint participation involves the potential sharing of information, data, technical knowledge, expertise, and resources. Such participation is intended to ensure the greatest degree of cooperation to meet the terms of the contract in satisfying the common requirement.
<b>Subcontract</b>	Any agreement, purchase order, or instrument other than a prime contract calling for work for the material required for the performance of one or more prime contracts. It usually covers procurement of major components of subsystems that require the subcontractor to do extensive design, development, engineering, and testing to meet a prime contractor's procurement specifications.
<b>Recurring</b>	CSDRs require reporting separated by recurring costs.
<b>Nonrecurring</b>	CSDRs require reporting separated by nonrecurring costs.
<b>Work Breakdown Structure</b>	CSDRs require bucketing of costs in defined reporting elements.
<b>Functional Category</b>	CSDRs require the costs broken out into functional categories.

# Roles & Responsibilities



## **DOD PROGRAM MANAGEMENT OFFICES (PMO) / CONTRACTING AGENCY**

- ❖ Notifies CAPE and the CWIPT of upcoming contracts or actions requiring CSDRs
- ❖ Incorporate an approved CSDR plan into a solicitation (e.g., RFP) or agreement
- ❖ Works with other members of the CWIPT to prepare CSDR plans and plan revisions
- ❖ Ensures that CSDRs are submitted in a timely manner pursuant to approved CSDR plans



## **COST WORKING-GROUP INTEGRATED PRODUCT TEAM (CWIPT)**

- ❖ Made up of OSD CAPE, Applicable Component Cost Centers, and System Commands
- ❖ Implement the processes and procedures CSDR Manual and, as appropriate, develop DoD Component guidance
- ❖ Identify and advise the DoD PM of cost analysis requirements for programs and contracts to facilitate the preparation of timely, high-quality cost estimates
- ❖ Review all DoD Component CSDR plans and plan changes to ensure usability



## **DEFENSE COST AND RESOURCE CENTER (DCARC)**

- ❖ Responsible for facilitating the development of CSDR plans
- ❖ The primary office for final receipt, validation, acceptance, and distribution of CSDRs
- ❖ Administers the CSDR system (CADE) for all ACAT I level programs, MTAs and other pathways serves as the repository for all CSDR data





## The engine that facilitates data collection

### Defense Cost and Resource Center (DCARC)

- › Manages the operations including CSDR policy development, planning, validations, training, customer outreach and compliance monitoring



**Cost Data**

**Software Data**

- Comprehensiveness through collaboration
- Enforcers of structure for consistency
- Keepers of CSDR policies and database
- Facilitates all CSDR discussions





## ➤ Prepare CSDR Plan Package for Approval 60 – 180 days prior to RFP release

### ▪ Plan package should include the following documents for **NEW** contracts:

- Contract Plan (DD Form 2794)
- CSDR CDRLs
- Program Schedule
- Statement of Work (SOW)
- Subcontractor Plan (DD Form 2794)
- Plan Package Template
- Contract Resource Distribution Table (RDT)

### ▪ Plan package should include the following documents for **REVISED** contracts:

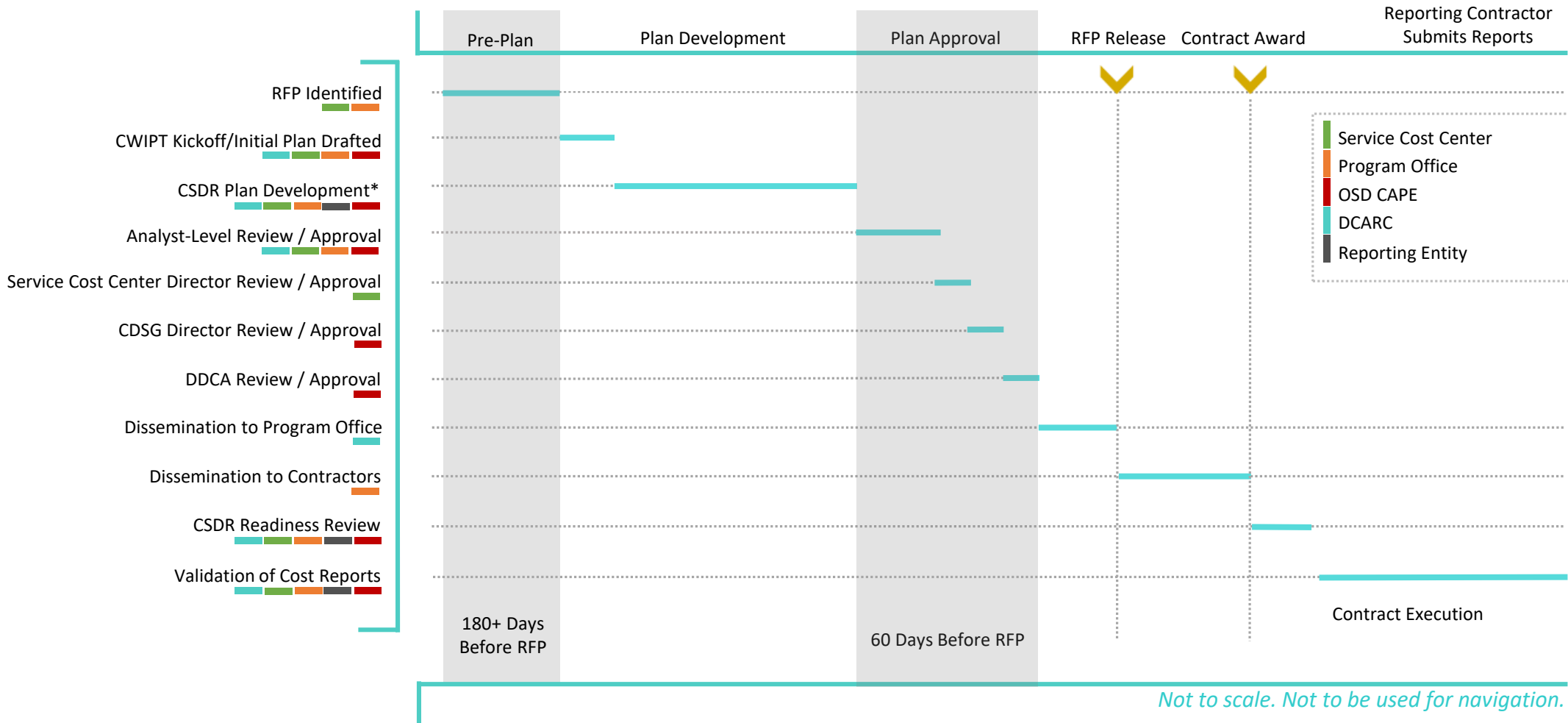
- Updated Contract Plan (DD Form 2794)
- Latest Program Schedule
- Plan Package Template
- Updated Contract Resource Distribution Table (RDT)

Prepare and submit to DCARC for upload into CADE And to begin the review/approval process

# Planning Process Flowchart (ACAT I)



## CADE 201



\* The reporting entity is involved in the plan development process before contract award if the reporting entity is known (i.e., a sole source environment). Otherwise, the reporting entity is involved in development after contract award.

## ✓ The CSDR-RR...

- Can be pre- or post-contract award for potential or actual offeror has questions about CSDR plan
- Is often the first chance Contractor and CWIPT members have to review a CSDR plan together
- Gives Contractor and CWIPT members an opportunity to ensure a common understanding of CSDR plan requirements
- Gives Contractors an opportunity to propose changes to the CSDR plan so that it will better reflect their technical approach and/or tailor reporting to their accounting system
- Is organized by the program office but DCARC and CAPE can lead the meeting (we have a meeting guide online!)

***Productive CSDR-RRs make CSDR collection easier for reporting entities and result in better data for the Government.***

# CSDR Subcontractor Flow-Down



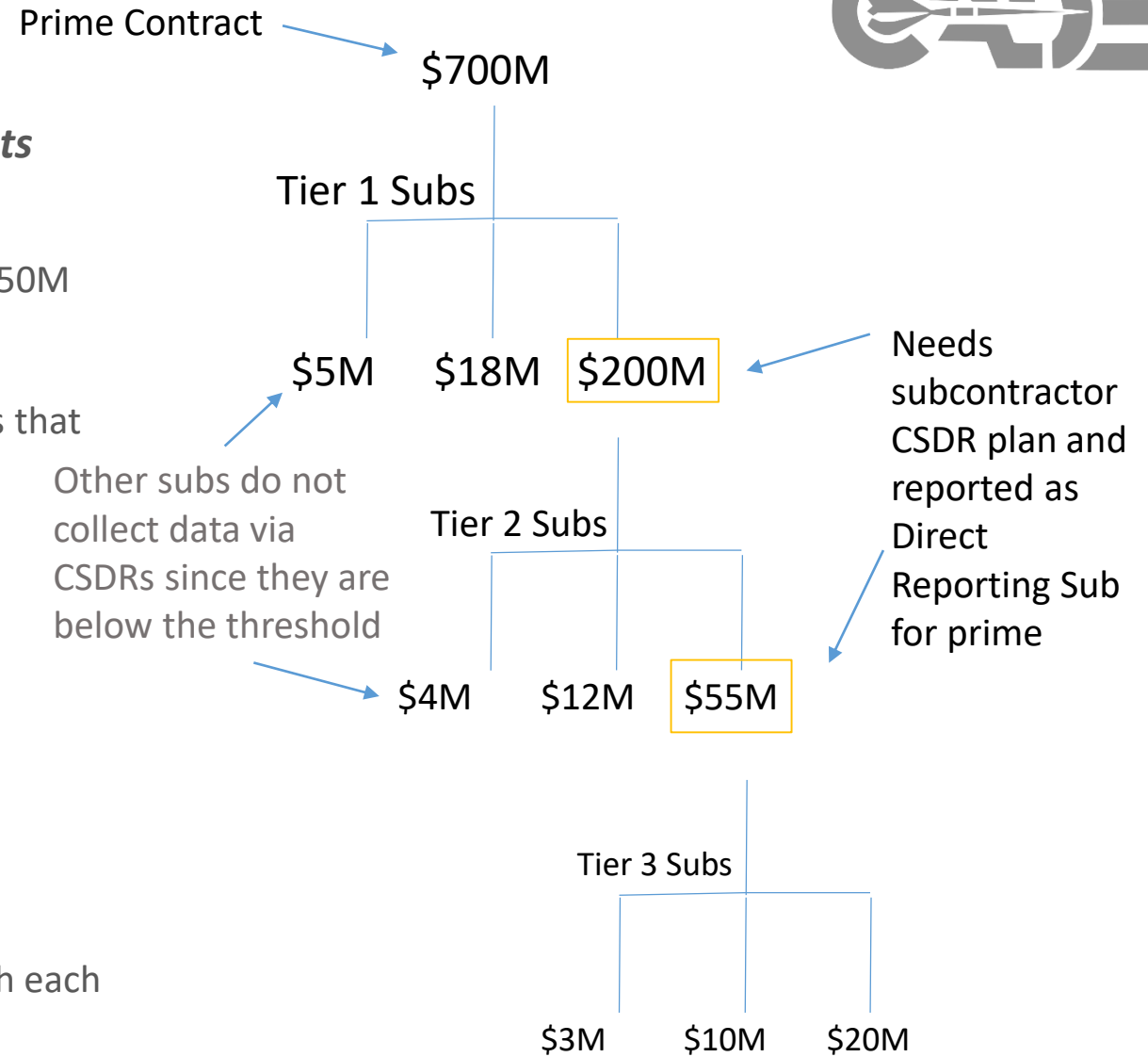
## Prime contractor is required to flow-down CSDR requirements

- Subcontractors to the Prime contractor may also be required to provide CSDR data if their portion of the prime contract exceeds \$50M
- The Resource Distribution Table (RDT) is provided by the Prime contractor at its CSDR-RR, and the CWIPT identifies subcontractors that will be required to be direct reporting subcontractors

## CSDR subcontractor flow-down is a persistent contractual requirement:

The RDT identifies...

- The total anticipated contract value between the prime and any subcontractors;
- Identifies which subcontractors are performing work to accomplish each CSDR WBS element.
- The RDT does not have a prescribed DD Form format/DID. cPet (which is a CSDR support software) can generate a template





COST ASSESSMENT DATA ENTERPRISE

# CSDR Plan & Deliverables Overview







## Pg. 1, Metadata

- Program Information
- Contract Information
- Reporting Information

## Pg. 2, Reporting

- Define reporting WBS
- Indicate where actual and forecast cost data is required
- Indicate which elements require certain report types

## Pg. 3, Events

- Indicate when and which reports are required
- Indicate the frequency and submission of reports

## Pg. 4, Remarks

- Enter any pertinent remarks about the CSDR Plan that help explain or clarify any of the reports

## Pg. 5, Scope Def

- Indicate the Order/Lots and End Items that the contractor will be tagging the reported dollars and hours to
- Require Unit Reporting in box 18c if the CWIPT required unit cost reporting

## Pg. 6, SRDR Dev

- Define software releases and CSCIs
- Link software product size reporting elements to Reporting tab
- Link software product size submissions to Events tab

## Pg. 7, SRDR Mx

- Define software releases
- Link software product size reporting elements to Reporting tab
- Link software product size submissions to Events tab

## Pg. 8, SRDR ERP

- Similar to Mx but for ERP
- Only used for Defense Business Systems (DBS)

## Pg. 9, Tech Rqts

- Refined Contract-Specific Technical Parameters
- Commodity and Phase Specific Technical Parameters

**DD2794 is an attachment to the RFP and the contract. Each CSDR deliverable required by the DD2794 also requires its own CDRL. CDRLs must also be in RFP and contract. For ACAT I-equivalent programs, PM must get approval from OSD CAPE (or delegated authority if below ACAT I threshold).**

# Requirements on Contract



Each CSDR deliverable requires own CDRL and cites their own DID

- **Cost and Hour Report (FlexFile)**
- **Quantity Data Report**
- **CWBS Dictionary**
- **DD 1921: Cost Data Summary Report**
- **DD 1921-1: Functional Cost-Hour Report**
- **DD 1921-5: Sustainment Functional Cost-Hour Report**
- **DD 1921-2: Progress Curve Report**
- **DD 1921-3: Contractor Business Data Report**
- **Software Development Report**
- **Software Maintenance Report**
- **ERP Software Development Report**
- **Maintenance and Repair Report**
- **Technical Data Report**



**DATA ITEM DESCRIPTION**  
Title: Cost and Hour Report (FlexFile)

**DATA ITEM DESCRIPTION**  
Title: Quantity Data Report

**DATA ITEM DESCRIPTION**  
Title: Software Resources Data Reporting: Development, Maintenance and Enterprise Resource Planning Development Reports, and Data Dictionary

**DATA ITEM DESCRIPTION**  
Title: MAINTENANCE AND REPAIR PARTS DATA REPORT

**DATA ITEM DESCRIPTION**  
Title: Technical Data Report

Number: DI-MGMT-82165  
AMSC Number: 9871  
DTIC Applicable: No  
Preparing Activity: CAPE

Approval Date: 20171116  
Limitation:  
GIDEP Applicable: No  
Project Number: MGMT-2017-032

**USE/RELATIONSHIP:** The Technical Data Report is the Department of Defense (DoD) system for collecting technical parameter data as part of the Cost, Software, and Data Reporting (CSDR) requirement. The resulting data repository serves as the primary source for contract cost, software, and technical data for many DoD resource analysis efforts, including cost database development, applied cost estimating, cost research, program reviews, Analysis of Alternatives (AoA), and life cycle cost estimates. The Technical Data Report allows the Government to produce independent assessments of technical and programmatic solutions, and the data provides context to the cost data that assists in developing cost estimating relationships.

The Technical Data Report is structured around a format that contains the content and relationships required for the electronic submissions. This Data Item Description (DID) summarizes the Technical Data Report and provides instructions to complement the data requirements specified in the contract for CSDR reporting.

Technical Data Report data will be used by DoD Component staff, including program managers, systems engineers, cost estimators, logistics and financial management personnel to: (1) review and evaluate the program technical baseline; (2) describe the technical parameters required to develop a program life cycle cost estimate; and (3) collect technical and programmatic information in support of system trade off analysis and cost analysis activities. It is important that the data be as accurate as possible so that they may be used for their intended purposes.

The Technical Data Report is related to other program acquisition requirements, including the including the Cost Data Summary Report (DI-FNCL-81565C), Functional Cost-Hour Report (DI-FNCL-81566C), Sustainment Functional Cost-Hour Report (DI-FNCL-81992), Cost and Hour Report (FlexFile) (DI-FNCL-82162), Quantity Data Report (DI-MGMT-82164), Maintenance and Repair Parts Report (DI-MGMT-82163) and SRDR Development/Maintenance (DI-MGMT-82035A).

Reporting is required throughout the complete life cycle to include the Operating and Support (O&S) phase of the program. Contract reporting is required throughout the life of the contract. Software sustainment activities are captured using the separate SRDR, Software Maintenance and Data Dictionary DID (DI-MGMT-82035).

For background and detailed requirements related to Cost, Software, and Data Reporting (CSDR), refer to DoD 5000.04-M-1 (or latest version), "Cost and Software Data Reporting (CSDR) Manual" (or latest version).

The Technical Data Report Data Item Description (DID) is structured around the four data groups below:

Technical Data Group Name	Data Group
Report Metadata	A
DD FORM 2794 Data Elements	B
Technical Data Parameters	C
Technical Data WBS Mapping ID	D

A. Data Group A - Report Metadata: Provides metadata on the contract that allows the submitted data to be associated with other Data Groups and program data.

Source: <https://assiat.dia.mil> -- Downloaded: 2017-11-29T17:04Z  
Check the source to verify that this is the current version before use.

# Cost and Hour Report (FlexFile)

# FlexFile 101



**Data Group A**

**Report Metadata**

- Approved Plan Number
- Submission Event
- Period of Performance
- Reporting Organization
- As of Date
- Date Prepared
- more in the DID...

**Data Group B**

**DD Form 2794 Data Elements**

- WBS Element
- Order/Lot
- End Item

**Data Group C**

**Definitions and Remarks**

- WBS Element Definitions
- Remarks by WBS Element
- Summary Remarks

**Data Group D**

**Summary Elements**

- Order/Lot
- Subtotal
- General and Administrative
- Undistributed Budget
- Management Reserve
- Facilities Capital Cost of Money
- Contract Fee
- Contract Price

**Data Group E**

**Actuals To Date (ATD)**

- Account
- Reporting Period
- CLIN
- Nonrecurring or Recurring
- Functional Category / Overhead
- Standard Functional Category
- Unit/Sublot
- WBS Element
- Order/Lot and End Item
- ATD (Dollars and Labor Hours)

**Data Group F**

**Allocation Methodology**

- Allocation Method

**Data Group G**

**Forecasts At Completion (FAC)**

- FAC (Dollars)
- FAC (Labor Hours)

*Greatest value to cost estimator, in many cases, will be the additional insight requested in Group E*

**Legacy Element**

The core of the FlexFile is providing dollars and hours at the **account** level in **contractor native categories, time phased.**

- Insight into contractor’s native Functional Categories
- Account level reporting at or below the WBS
- Data time-phased monthly or to align with contractor’s financial calendars
- Continuity with prior reports by requiring the **legacy government tags**

# Quantity Data Report



**Data Group A**

**Report Metadata**

- Approved Plan Number
- Submission Event
- Period of Performance
- Reporting Organization
- As of Date
- Date Prepared
- more in the DID...

**Data Group B**

**Government Furnished Equipment**

- WBS Code/Level/Name
- Order/Lot
- End Item

**Data Group C**

**Quantity at Completion**

- Delivered Quantity At Completion
- Internal Quantity At Completion
- Co-production or Concurrent Quantity At Completion
- Government Furnished Equipment At Completion
- Remarks

**Data Group D**

**Assessed Quantity to Date**

- Quantity Completed To Date
- Quantity In Process
- Remarks

**Data Group E**

**Sequencing (as required by Plan)**

- First Unit Number
- Last Unit Number
- Is Internal

**Legacy Element**

The Quantity Report ties the necessary quantity information to the FlexFile:

- Units to date should reflect an actual count of physically completed units
- Allow sequencing quantities to be optional through Planning process for each End-Item as not all End Items may require sequencing (e.g., Kits)
- Sequencing was allowed for lower level WBS elements in legacy 1921-2, but FlexFile does not sequence WBS elements (only End Items)
- To Date and In Process to be defined by contractor in the Remarks section

# Software Development Report



## Major Takeaways

- Part 2: Reports the to-date SW maintenance efforts for each in progress and completed release(s), and total maintenance activities

### Common Heading tab

### Release

UNCLASSIFIED Security Classification

**SOFTWARE RESOURCE DATA REPORTING FORMAT 1 - SOFTWARE DEVELOPMENT REPORT**

The public reporting burden for this collection of information, OIRA-0355, is estimated to average 18 hours per response, including reviewing, collecting the data, reviewing the burden estimate or burden reduction and completing and reviewing the collection of information. Send comments regarding this burden estimate or burden reduction and any other aspect of this collection of information, including suggestions for reducing the burden, to Washington Headquarters Office, Directorate for Information Operations and Reports (01418-1), Washington, DC 20543-0141. Respondents should be aware that notwithstanding any other provision of law, no person shall be penalized for providing false or misleading information. Send comments regarding this burden estimate or burden reduction and any other aspect of this collection of information, including suggestions for reducing the burden, to Washington Headquarters Office, Directorate for Information Operations and Reports (01418-1), Washington, DC 20543-0141. Respondents should be aware that notwithstanding any other provision of law, no person shall be penalized for providing false or misleading information. PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE ABOVE ORGANIZATION.

**METADATA:**

Program Name: \_\_\_\_\_ Prime Mission Purpose: \_\_\_\_\_

Phase/Milestone (check one only):  Pre-A  A  B  C - L RIP  C - FRP  O & S

Approval (check all that apply):  RDT & E  Procurement  O & M

Performing Organization Name / Address: \_\_\_\_\_ Division Name / Address: \_\_\_\_\_

TYPE ACTION

Contract No. \_\_\_\_\_ Late of Mod. No. \_\_\_\_\_ Solicitation No. \_\_\_\_\_ Name \_\_\_\_\_

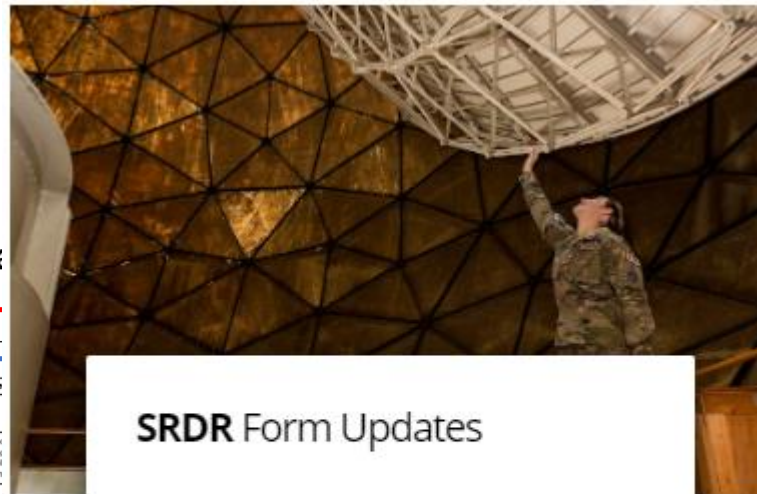
Approved Plan Number \_\_\_\_\_ Report Type (check one only):  Initial  Interim  Final

POINT OF CONTACT

Name \_\_\_\_\_ Department \_\_\_\_\_

Remarks \_\_\_\_\_

Software Development Report, MMM YYYY



**SRDR Form Updates**

A walk-through of the most recent SRDR Form updates to facilitate a seamless transition of submitting SRDRs

March 16, 2022

### Part 2 tab

UNCLASSIFIED Security Classification

**SOFTWARE RESOURCE DATA REPORTING FORMAT 1 - SOFTWARE DEVELOPMENT REPORT**

The public reporting burden for this collection of information, OIRA-0355, is estimated to average 18 hours per response, including reviewing, collecting the data, reviewing the burden estimate or burden reduction and completing and reviewing the collection of information. Send comments regarding this burden estimate or burden reduction and any other aspect of this collection of information, including suggestions for reducing the burden, to Washington Headquarters Office, Directorate for Information Operations and Reports (01418-1), Washington, DC 20543-0141. Respondents should be aware that notwithstanding any other provision of law, no person shall be penalized for providing false or misleading information. Send comments regarding this burden estimate or burden reduction and any other aspect of this collection of information, including suggestions for reducing the burden, to Washington Headquarters Office, Directorate for Information Operations and Reports (01418-1), Washington, DC 20543-0141. Respondents should be aware that notwithstanding any other provision of law, no person shall be penalized for providing false or misleading information. PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE ABOVE ORGANIZATION.

**PART 2 - SOFTWARE DEVELOPMENT EFFORT DATA**

Reporting Period End Date (YYYYMMDD): \_\_\_\_\_

WB Element Name	Activity ID	Activity Name	M1		M2		ATD	EAC	Outsourced Development Organization Name
			Hours	Hours	Hours	Hours			

Software Development Report, MMM YYYY

UNCLASSIFIED Security Classification



# Software Maintenance Report



■ Common Heading tab

■ Top Level tab

■ Release tab

■ Part 2 tab

**Part 1:** Technical Data SW size, context, technical parameters, descriptions, and schedule Top level and release level sections

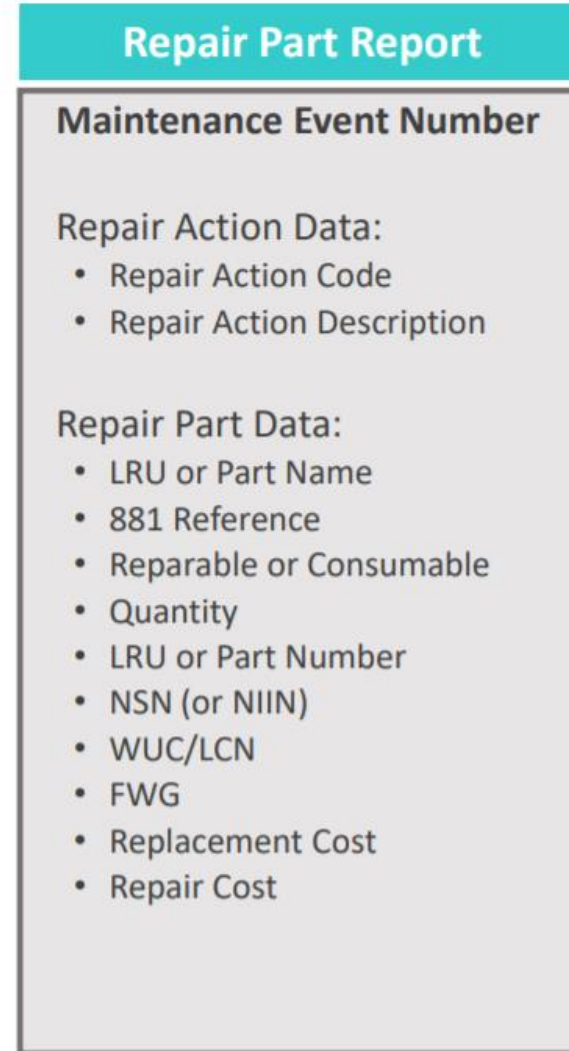
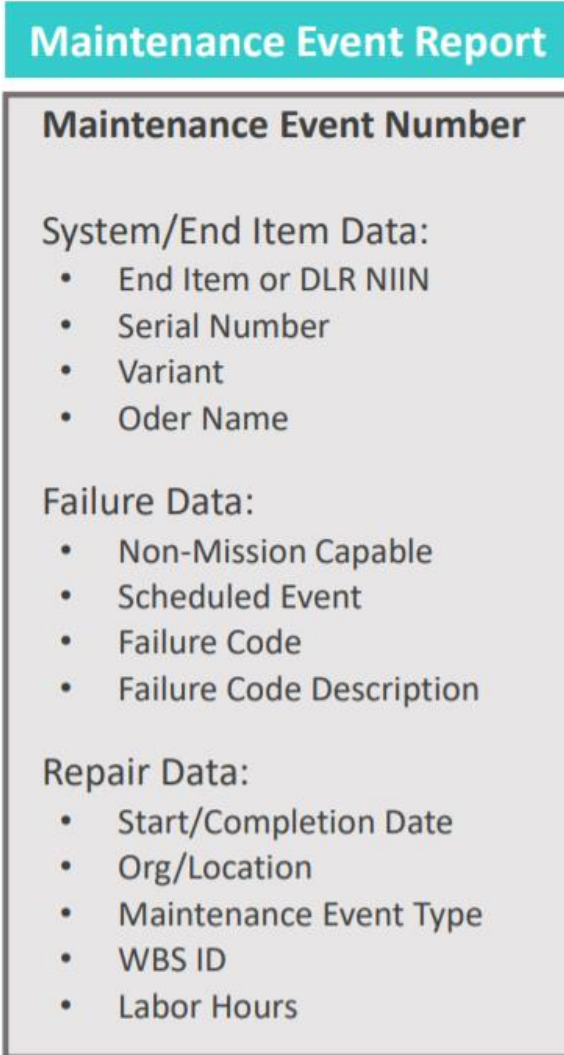
Part 1

➤ **Part 2:** Reports the to-date SW maintenance efforts for each in progress and completed release(s), and total maintenance activities



# Maintenance and Repair Report

The –M Collects information related to each maintenance event such as the specific system being repaired, location where the repair activity occurred, reason for failure, day failure was identified and day repair activity was completed



The –R Identifies the LRUs and/or repair parts associated with each maintenance event

During the post award conference the CWIPT will identify the maintenance and repair elements that will be reported. A minimum set of data elements is required to use the data. Elements chosen are dependent on the scope of the CLS contract.

The –M/R is the Department of Defense (DoD) reporting requirement for collecting actual maintenance event and repair part data as part of the Cost, Software, and Data Report (CSDR) system



## Technical Data is an Enduring Cost Analysis Need

- › Provides context to the cost data and improves application of data in estimates
- › Identification and quantification of cost drivers
- › Highlights areas of potential risk

## However, Technical Data is also a Knowledge Gap

- › Technical Data has always been collected via engineering CDRLs, PDR/CDR documents, and similar documents *but Technical Data has not been centrally housed for the DoD cost estimating community, nor tied back to the WBS*
- › Data collections have been ad-hoc, inefficient, and inconsistent within DoD
- › Program documents contain lots of narrative and not enough quantitative data
- › Result: We re-construct Technical analogies for nearly every estimate

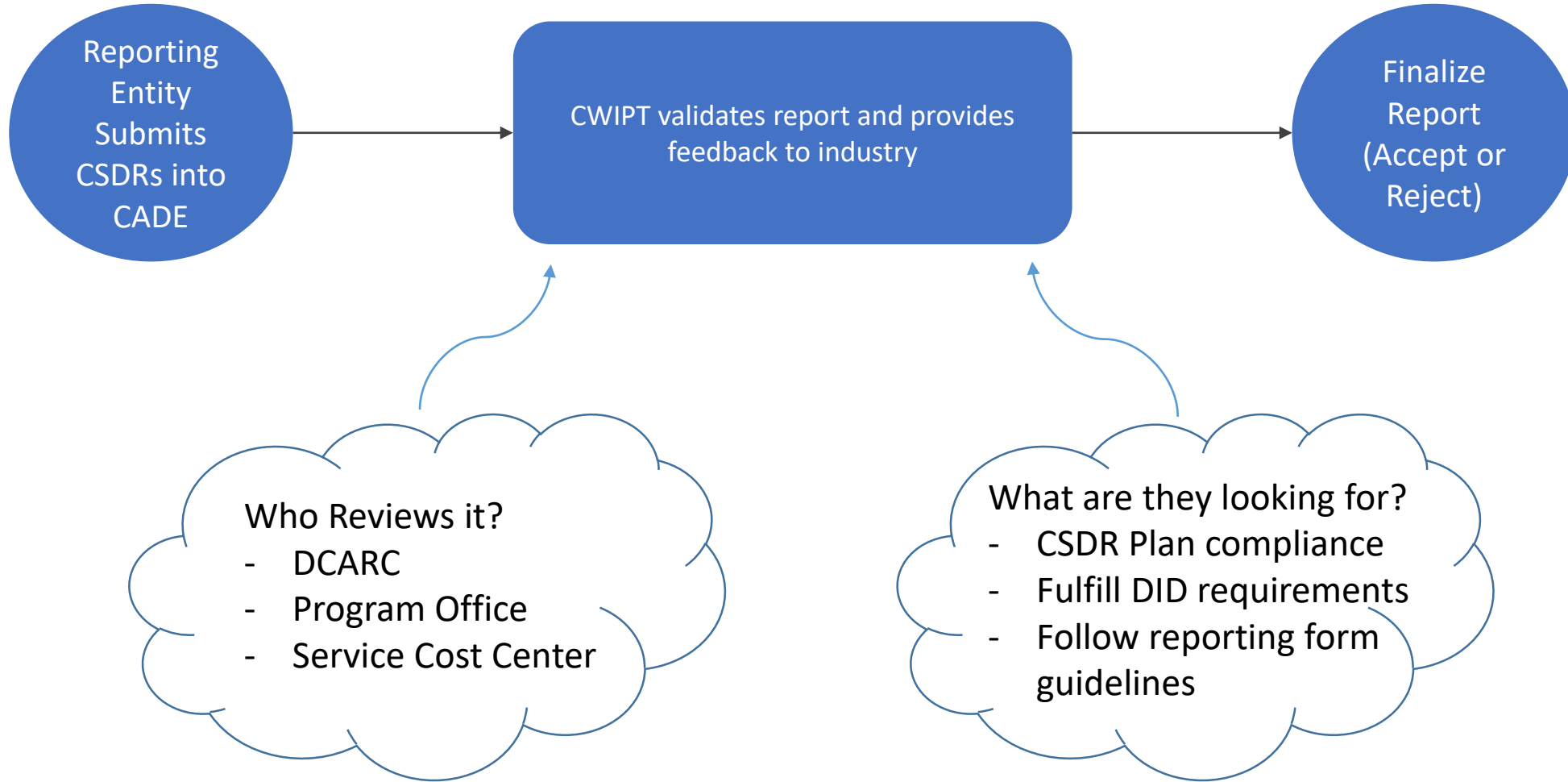
While cost data has been systematically delivered on DoD contracts for 60 years, software data has only been provided for 10 years.

### CSDR Tech Data Report:

- › Provides mechanism to systematically capture Tech Data on contracts
- › Defines core set of needed parameters
- › Leverages other Tech Data already on contract

DoD now has contractual mechanisms & processes to collect technical data to support cost estimating

# CSDR Validation Process

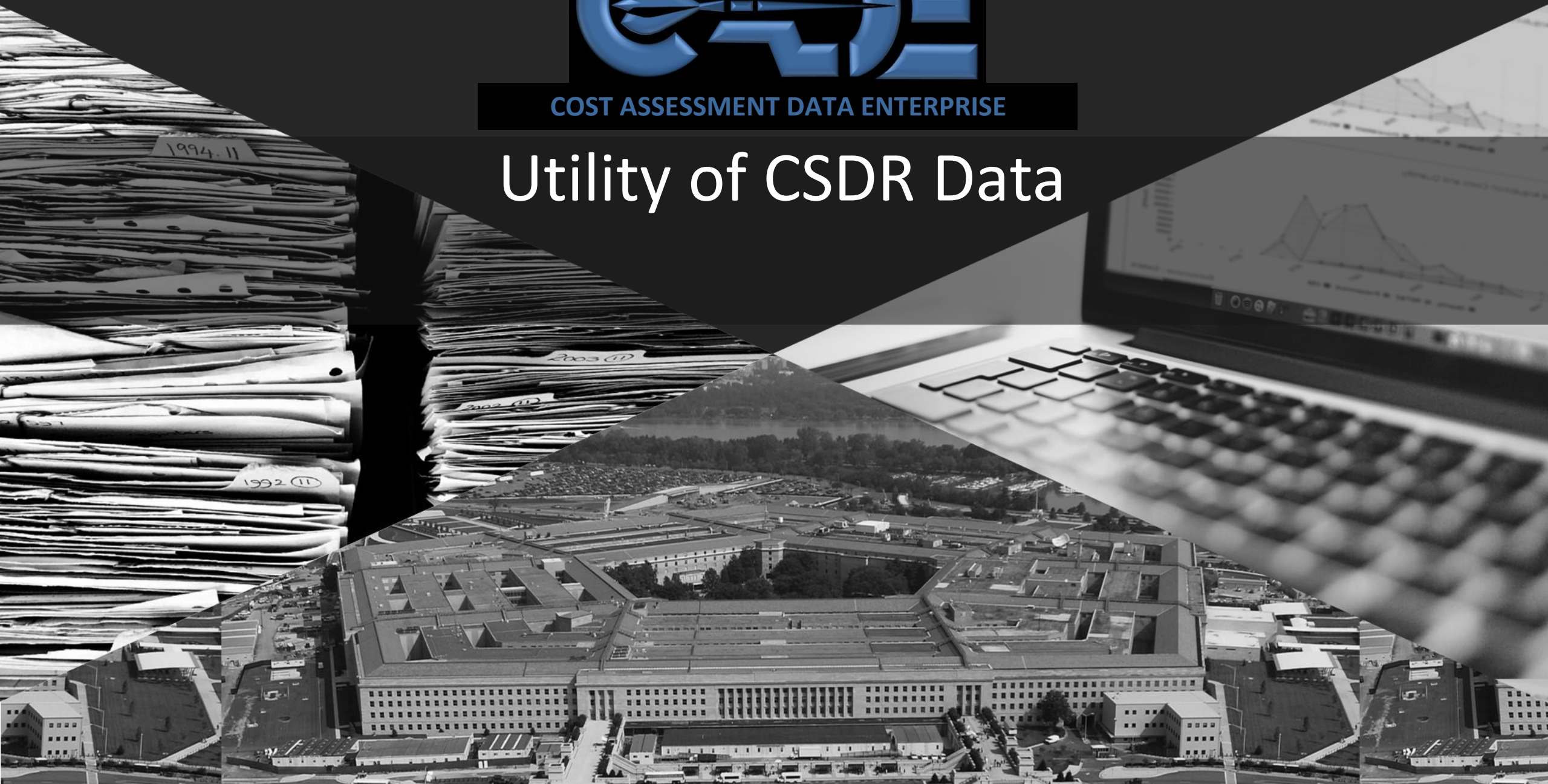






COST ASSESSMENT DATA ENTERPRISE

# Utility of CSDR Data





# Example CSDR

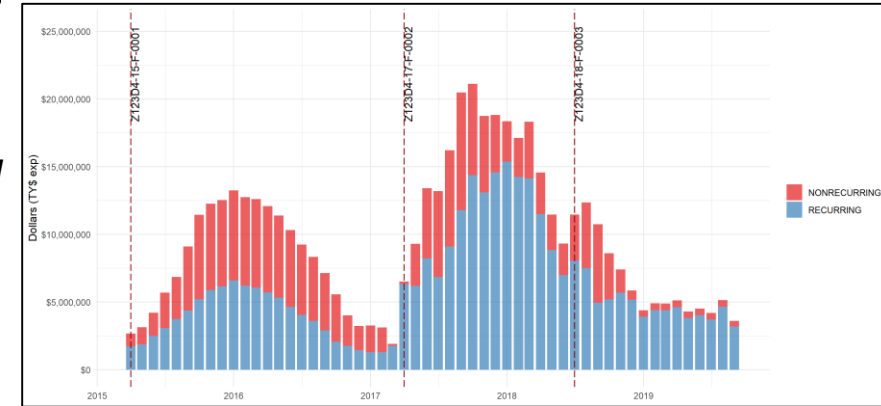


CSDR are delivered in “flat files” which may be pivoted to provide insights

Cost & Hour Report (FlexFile) Deliverable

Order or Lot ID	CLIN ID	End Item ID	WBS Element	Account ID	Nonrecurring or Recurring ID	Functional Category ID	Functional Overhead Category ID	Detailed Standard Category ID	Unit or Sublot ID	Reporting Period ID	Value (Dollars)	Value (Hours)
Z123D4-15-F-0001	9000	1_common	1.4.4	HJRX00000371	RECURRING	ENG_1_SR	OVERHEAD_ENG	DIRECT_ENGINEERING_LABOR		1	860	9
Z123D4-15-F-0001	9000	1_common	1.4.4	HJRX00000371	RECURRING	ENG_2_MID	OVERHEAD_ENG	DIRECT_ENGINEERING_LABOR		1	1,054	21
Z123D4-15-F-0001	9000	1_common	1.4.4	HJRX00000371	RECURRING	ENG_3_JR	OVERHEAD_ENG	DIRECT_ENGINEERING_LABOR		1	1,045	36
Z123D4-15-F-0001	9000	1_common	1.4.4	HJRX00000371	RECURRING	OTHER_1	OVERHEAD_OTHER_1	DIRECT_OTHER_LABOR		1	360	2
Z123D4-15-F-0001	9000	1_common	1.4.4	HJRX00000371	RECURRING	OVERHEAD_ENG	NA	ENGINEERING_LABOR_OVERHEAD		1	4,644	0
Z123D4-15-F-0001	9000	1_common	1.4.4	HJRX00000371	RECURRING	OVERHEAD_OTHER_1	NA	OTHER_OVERHEAD		1	69	0
Z123D4-15-F-0001	9000	1_common	1.7.1	MKBF00000158	NONRECURRING	ENG_1_SR	OVERHEAD_ENG	DIRECT_ENGINEERING_LABOR		1	1,189	12
Z123D4-15-F-0001	9000	1_common	1.7.1	MKBF00000158	NONRECURRING	ENG_2_MID	OVERHEAD_ENG	DIRECT_ENGINEERING_LABOR		1	1,473	29
Z123D4-15-F-0001	9000	1_common	1.7.1	MKBF00000158	NONRECURRING	ENG_3_JR	OVERHEAD_ENG	DIRECT_ENGINEERING_LABOR		1	1,491	52
Z123D4-15-F-0001	9000	1_common	1.7.1	MKBF00000158	NONRECURRING	OTHER_1	OVERHEAD_OTHER_1	DIRECT_OTHER_LABOR		1	495	3
Z123D4-15-F-0001	9000	1_common	1.7.1	MKBF00000158	NONRECURRING	OVERHEAD_ENG	NA	ENGINEERING_LABOR_OVERHEAD		1	6,478	0
Z123D4-15-F-0001	9000	1_common	1.7.1	MKBF00000158	NONRECURRING	OVERHEAD_OTHER_1	NA	OTHER_OVERHEAD		1	88	0
Z123D4-15-F-0001	9000	1_common	1.7.1	EVXE0000018	NONRECURRING	DIR_SERVICES	NA	DIRECT_SERVICES		1	573	0
Z123D4-15-F-0001	9000	1_common	1.7.1	EVXE0000018	NONRECURRING	OVERHEAD_MATERIAL	NA	MATERIAL_OVERHEAD		1	15	0

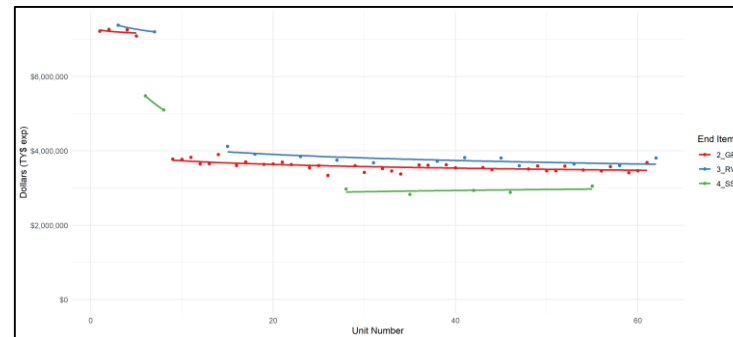
Contract Level Incurred Costs



Wrap and Overhead Rates by Contractor & Standard Government Category



Learning Curves By End Item



By Work Breakdown Structure Element



CSDR Deliverables Provide Detailed Insights Into Costs Incurred As Well As Overall Contract Price

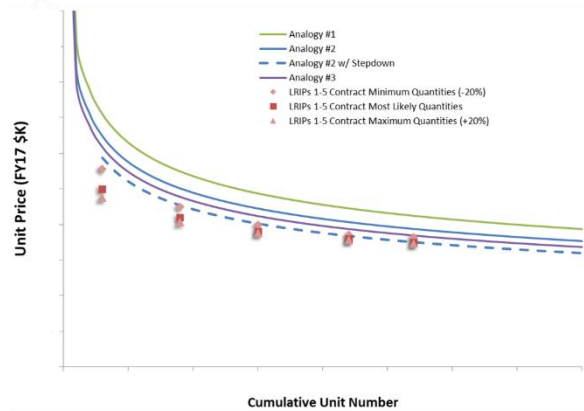
# Using CADE Data



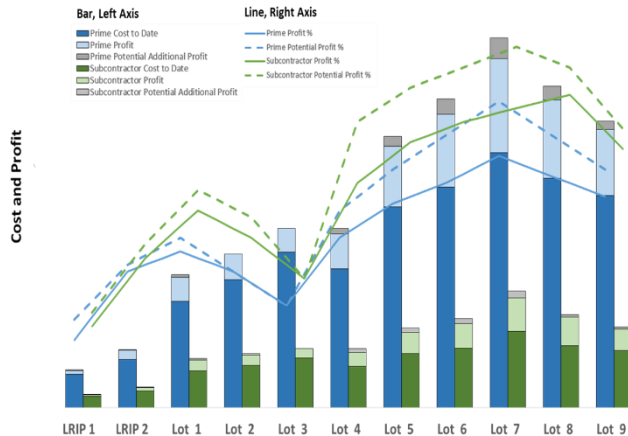
## Analysis with CCDRs

- Learning Curve by lot and unit
- Labor factors on material
- Future overhead projections
- Overhead factors
- Profit analysis
- Labor rate analysis
- Unit costs analysis

## Learning Curve Analysis



## Profit Analysis



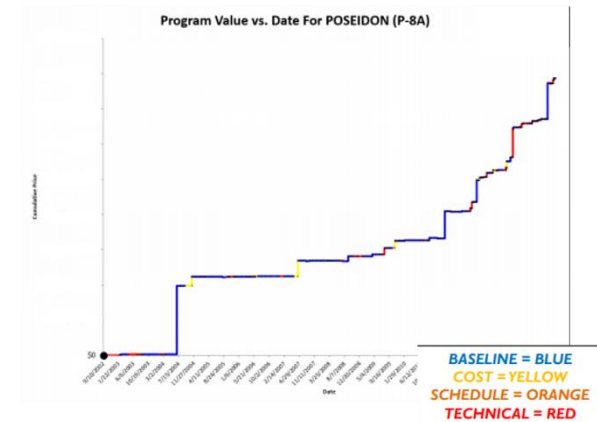
## Analysis with Technical Data

- Cost Informed Technical Assessments
- Parametric Analysis for contract cost estimates
- Technical Scope Evaluations of Proposals
- Programmatic Evaluation of Proposals

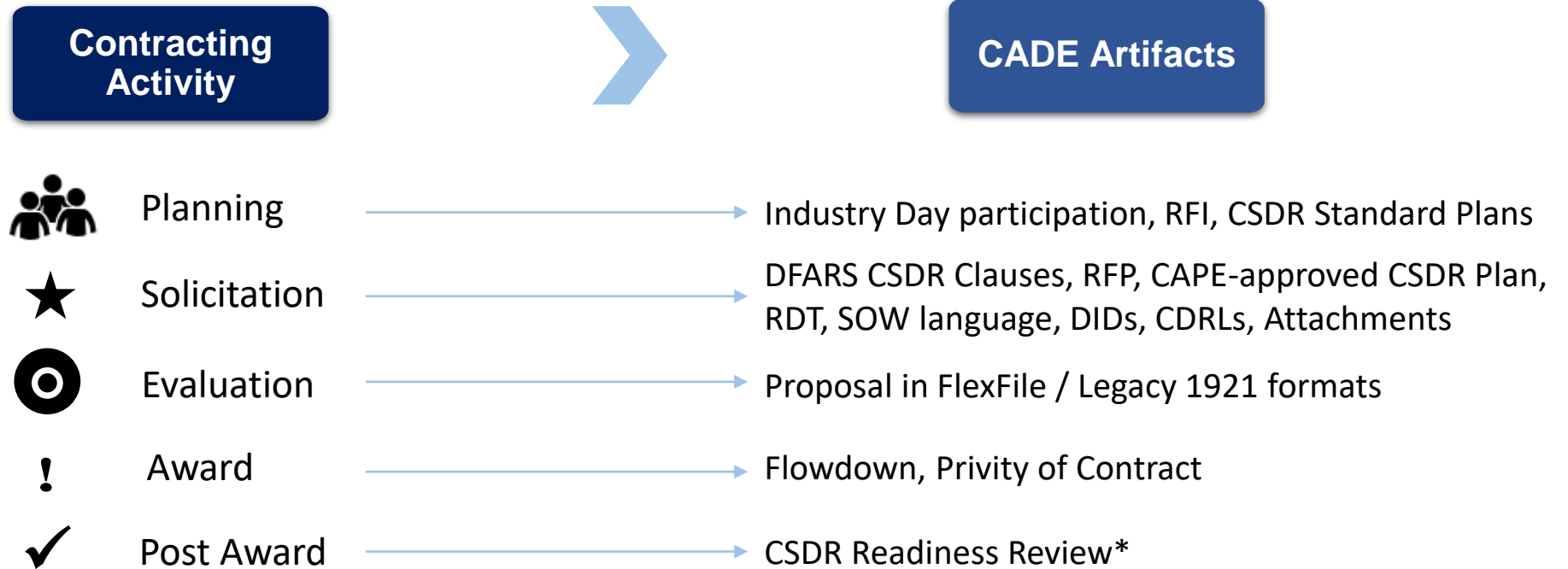
## Analysis with Contracts Database

- Fee metrics for award fee (AF) and incentive fee (IF) contracts
- Cost and schedule growth data
- Traceability to IPMR and/or CCDR
- Special studies: weighted guidelines, industrial base issues
- Source selection analysis
- Program growth analysis

## Program Growth Analysis



# How Does CADE Relate to Contracting?



\* formerly Post-Award Conference

## How Can CSDR Help You?



### Proposal data analysis

- › Compare proposals with historical trends/norms
  - › Cost realism analysis
  - › Comparison of costs previously incurred by the same offeror
  - › Review rates/changes to base & pools to observed changes in prior actuals
  - › Comparison of Basis of Estimate to prior incurred cost at and below unit level (confirm distribution of costs)

### Cost data insights

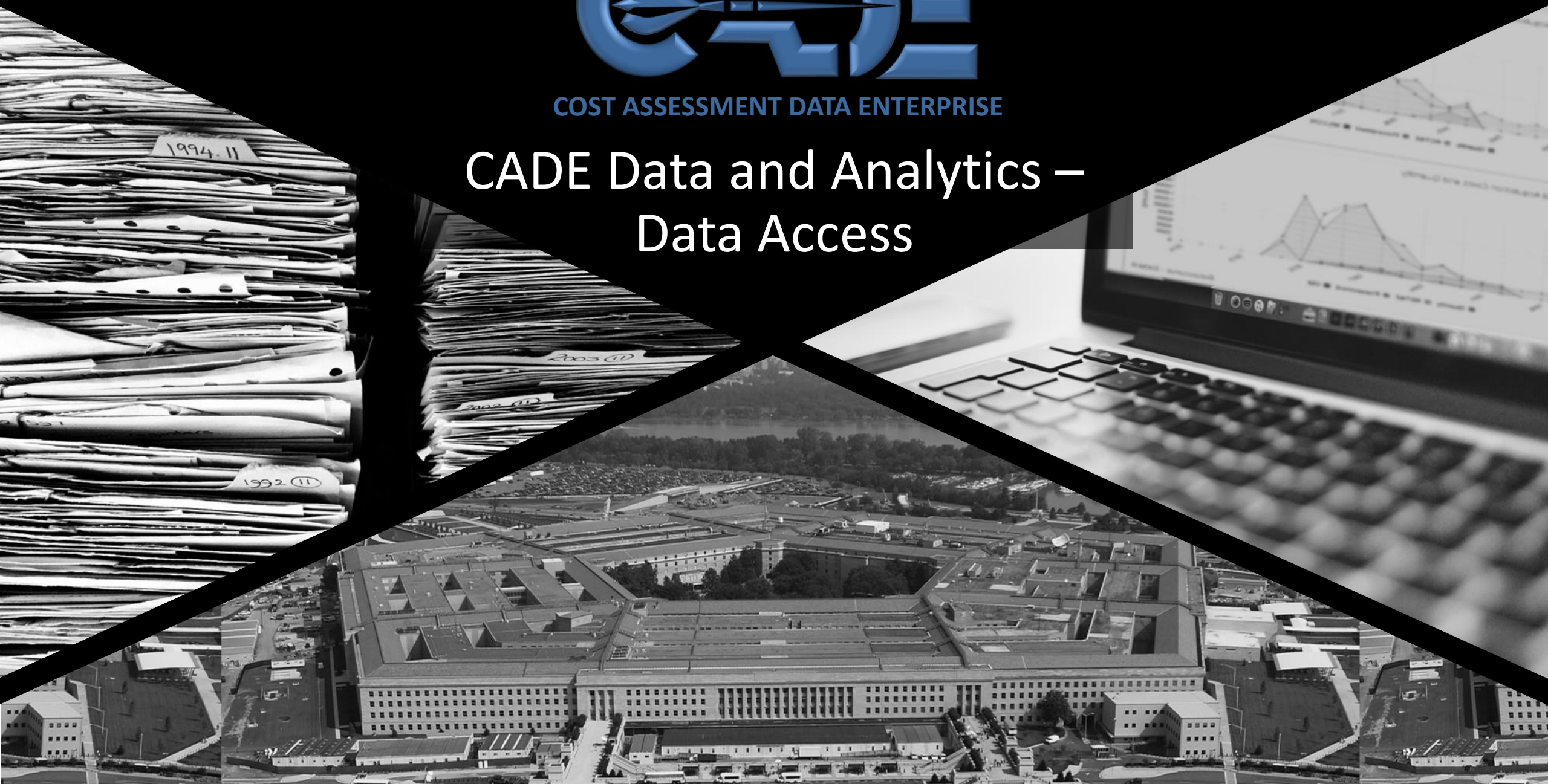
- › Labor & Overhead rate trends
- › Material and labor proportions
  - CSDRs report material and labor discretely by product end item
- › Historical profit/fee analysis
  - Cost report collects fee/profit data regardless of contract type
- › Cost and technical data enable parametric estimating
- › Insight into subcontractor cost vs. fee/profit
  - Subcontractors with work valued over \$50M report CSDRs (or \$20M for special interest)

CSDR are particularly helpful when Certified Cost and Price Data and Earned Value Management data are not available



COST ASSESSMENT DATA ENTERPRISE

# CADE Data and Analytics – Data Access







- The *Data and Analytics home page* design is intended to better support two primary modes of accessing data
  - **Browse Data Across Programs:** Aggregate data from multiple Tasks/Contracts/Programs
    - Think “*analysis-ready flat files*”
  - **Data by Program:** Drill-down by Program, Contract, and Task
    - Think “*standard reporting formats*”

**Welcome to CADE: Data and Analytics**  
The Authoritative Source for Defense Cost Data

Aggregated data from multiple Tasks/Contracts/Programs

Drill-down by Program, Contract & Task

**Search for CSDR Data**

**CSDR Browse**  
Browse CSDR submissions (1921s, SRDRs, FlexFiles) with enhanced searching

**Bulk Exports**  
SRDR & FlexFiles  
Export all published SRDR data and flattened, pivot-friendly FlexFile data

**Quick Downloads**  
Bulk download CSDR submission files for a given Service or Commodity

**Data by Program**  
View all available data for a given program, including SAR data, CARDS, associated documents, and planned and scheduled CSDR submissions by contract.

Search Programs   [Advanced Program Search](#)  
[★ My Favorite Programs](#)

**Additional Data**

**CADE Library** **Business Base Data** 1921-3 and FPR **ACDB Inventory** **Other Libraries** ▾

**Service Libraries**

**ARMY (CRH)** **NAVY (CCRL)** **AIR FORCE**

**Endorsed Datasets, Tools and Models Hub**

## Multiple CSDRs – Flexible Search



- The ***Browse CSDR Submissions*** function provides a more flexible “DACIMS-like” search/browse
  - Simultaneously locate and download multiple CSDRs
  - Works with any mix of Contractor Cost Data Reports (CCDRs) and Software Resources Data Reports (SRDRs)
- Access to all contract-specific 1921-series forms
  - CDSR (1921), FCHR (1921-1), PCR (1921-2), Sustainment FCHR (1921-5)
  - **Includes FlexFiles!**
- CCDRs are available as both “formatted” and flat file downloads

The screenshot displays the 'Search for CSDR Data' section of the CADE portal. It features three main buttons: 'CSDR Browse', 'Bulk Exports SRDR & FlexFiles', and 'Quick Downloads'. The 'CSDR Browse' button is highlighted with a yellow box and a callout that reads: 'Choose **CSDR Browse** from the **Data and Analytics** home page...'. Below this, a 'Data' menu is open, showing a list of options including 'Data By Program', 'CSDR Browse', 'Quick Downloads', 'Bulk Exports: SRDR & FlexFiles', 'Business Base Data: 1921-3', 'CADE Library', 'Air Force Library', 'Search ACDB Inventory', and 'EVM Data'. The 'CSDR Browse' option in the menu is also highlighted with a yellow box and a callout that reads: '...or from the **Data menu**'. The bottom of the page shows a navigation bar with 'CADE Portal', a home icon, and tabs for 'Data', 'Resources', and 'Retrieval'. Below the 'Data' tab, there are buttons for 'CADE Library', 'Business Base Data 1921-3 and FPR', 'ACDB Inventory', and 'Other Libraries'. At the bottom right, there are buttons for 'CSDR Browse' and 'Bulk Exports SRDR & FlexFiles'.


# CADE Endorsed Datasets, Tools and Models Hub (DTMHub)




**Endorsed Datasets, Tools and Models Hub**

---


Endorsing Organization Keyword search Service Commodity




**FCoM: Full Cost of Manpower Tool**  
The FCoM tool generates cost estimates associated with DoD military, civilian, and contractor personnel. \*The application




**NAVAIR SRDR DB: NAVAIR Software Data Compilation**  
Joint agency SRDR database compiled by NAVAIR as of August 2021.




**AFTOC System: Air Force Total Ownership Cost**  
Provides routine, timely visibility into all AF costs including all major AF systems, all appropriations and Major commands



**OSMIS: Army Operating and Support Management**  
OSMIS tracks O&S information for more than 1,600 major Army weapon/material systems for DASA-CE.



**VAMOSC - Navy: Navy Visibility and Management of Operating &**  
The Navy VAMOSC management information system collects and reports US Navy and Marine historical operating and support costs.



**VAMOSC Air Force - Aircraft: Consolidated VAMOSC Tool Air**  
The CVT allows each Service's VAMOSC data to be retrieved and analyzed in a common framework using a common tool.

• • • • •

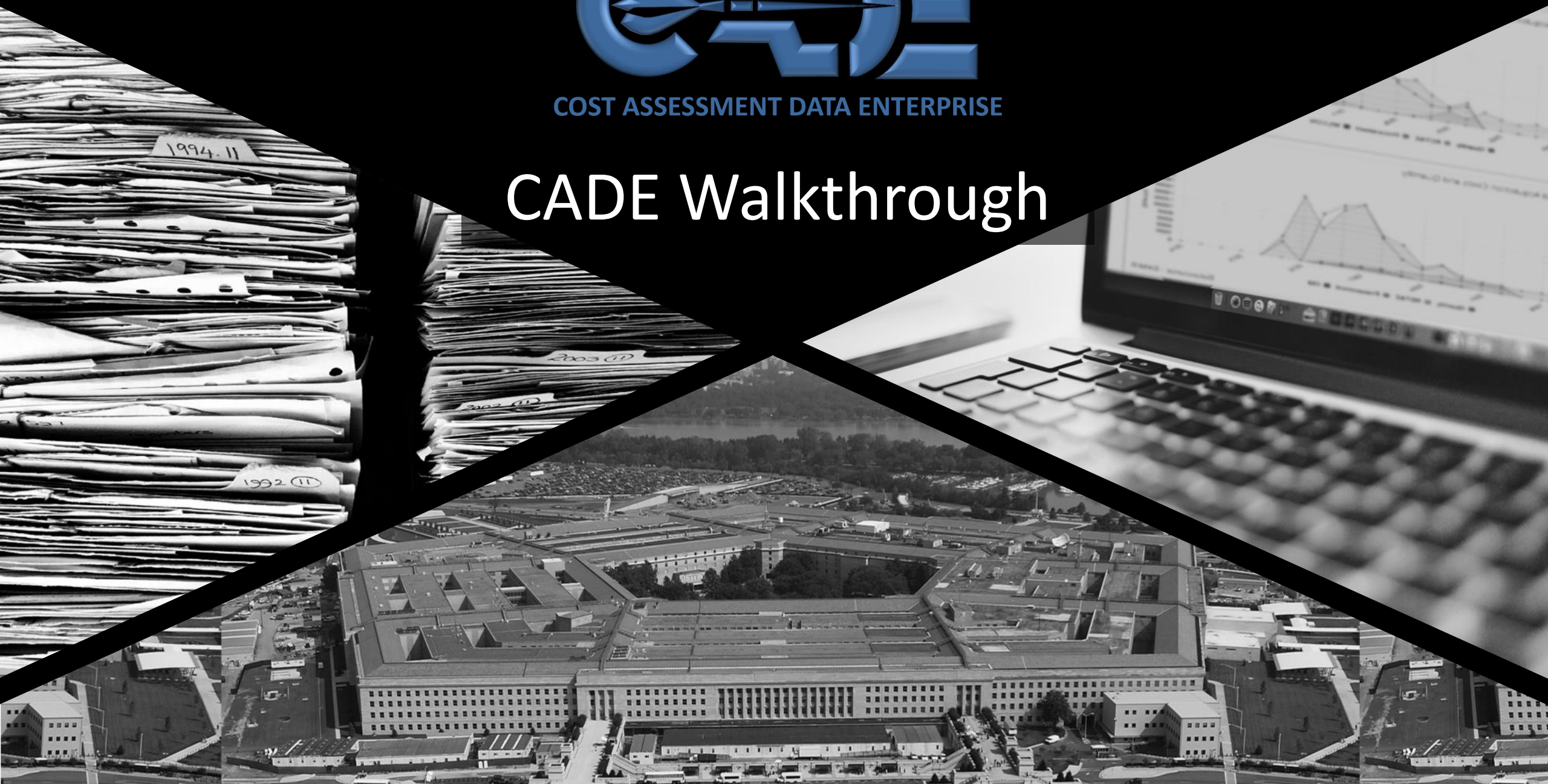
- ❑ Allows endorsing organizations to share datasets, tools and models with the DoD cost community
- ❑ Contains ~30 Datasets, Tools & Models endorsed by ~15 organizations across the Air Force, Army, Navy, MDA, NRO, and DoD
- ❑ Closes the knowledge gap, bringing valuable datasets, tools & models spanning various commodities, services & programs to the fingertips of analysts across the DoD; aids analysts in the development of quality cost estimates & analysis
- ❑ Conduit to cross-sharing of modernized analytical tools allowing us to stay on the cutting edge of data analysis

**CADE enables robust collaboration for Cost Community best practices**



COST ASSESSMENT DATA ENTERPRISE

# CADE Walkthrough





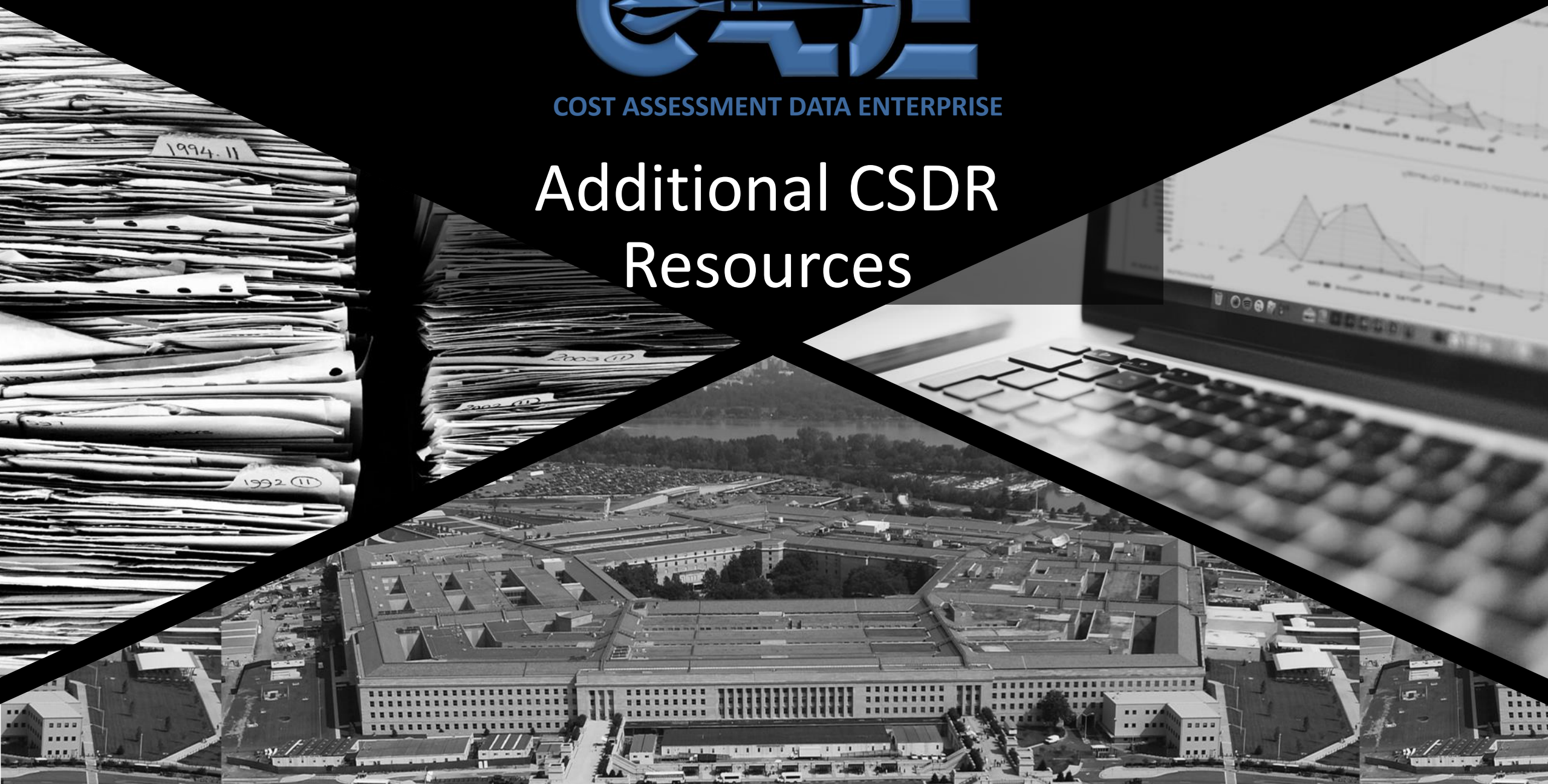
- **CADE Public**
  - <https://cade.osd.mil/> – links to CADE Portal and FACADE
  - **Includes Policy, Training, and other resources**
- **CADE Portal**
  - Requires Certificate – **CAC** (Government) or **ECA** (Industry)
  - Customizable **Dashboard** and access to **Apps** via (collapsible) left-hand sidebar
- **Dedicated Applications**
  - “Local” databases – **SAR** (Acquisition)
- **Data & Analytics**
  - “Anchor store” of the mall – CSDR “one-stop shop” = **CSDR Browse**
  - Data by Program
  - Access to endorsed databases (**DTMHub**) and artifacts (**Libraries**)





COST ASSESSMENT DATA ENTERPRISE

# Additional CSDR Resources





CADE

<https://cade.osd.mil>

Policy & Guidance

<https://cade.osd.mil/policy>

Technical Data

<https://cade.osd.mil/policy/techdata>

Maintenance & Repair Data

<https://cade.osd.mil/policy/maintandrepair>

*"FlexFile and Technical Data reports are newer requirements. How do I implement them to my program? What even are they?!?"*

*"I have this 'Flexible' report required on contract. Do I report the data in the 1921 form?"*

FlexFile and Quantity

<https://cade.osd.mil/policy/flexfile-quantity>

**CADE offers Implementation and submission guidance**



## 1) Sign up for a CADE account!



## 2) Explore CADE and familiarize yourself with the different sections. CADE exists for:

- Contractors to submit deliverables
- Government analysts to review the reports
- CWIPs to prepare CSDR plans

## Important Documents and POC



All documents can be found at <https://cade.osd.mil/>

- ✓ Report DIDs (FlexFile, Quantity Data Report, SRDR, and Tech Data Report)
- ✓ Report Implementation Guides
- ✓ Instructions for completing DD 2794
- ✓ DD Form 2794 Format
- ✓ Draft CDRL Language

***See <https://cade.osd.mil/support> for training material and information on upcoming training events***