COST ASSESSMENT DATA ENTERPRISE

CADE Update

NDIA IPMD Winter Meeting

Fred Janicki

OSD CAPE Cost Assessment

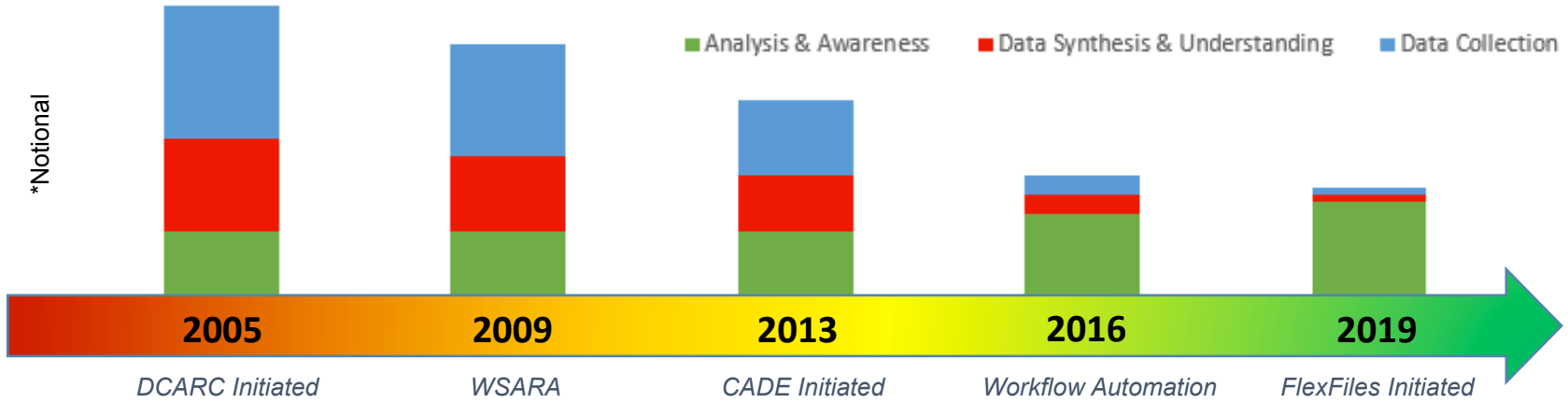
January 2020

Agenda

- CADE – A look back
- FlexFiles
  - Development Priorities
  - How is the FlexFile implementation going?
- Continuing CADE Initiatives
  - SRDR
  - 1921-3
- Improving Data Quality

CADE – A look back

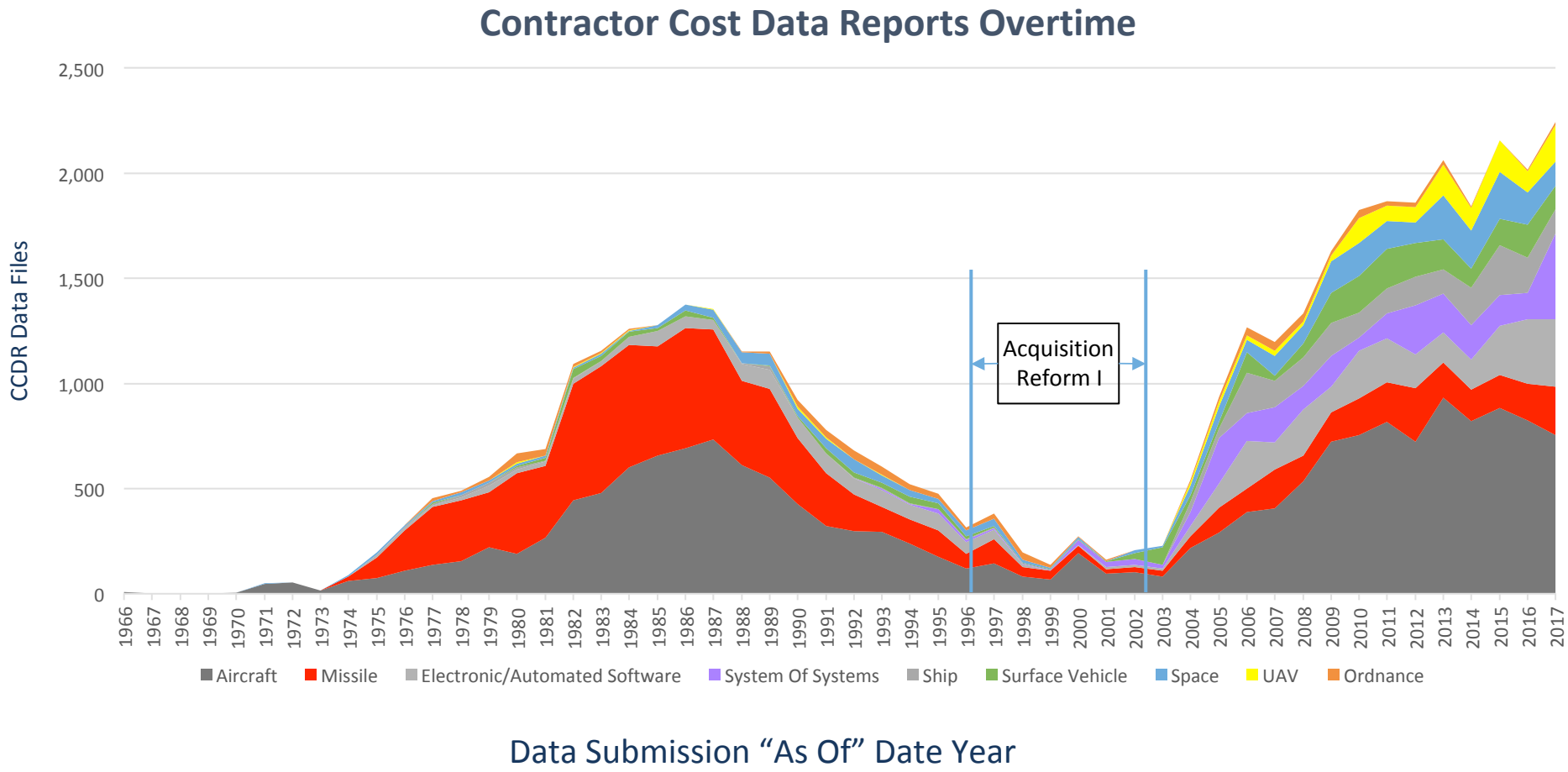
Recent DoD Historical Cost Data Collection



	2005 DCARC Initiated	2009 WSARA	2013 CADE Initiated	2016 Workflow Automation	2019 FlexFiles Initiated
Data Sources	• Program Office • DACIMS • SARs • DAES • Contractors • Service O&S • Data Libraries • Colleagues Network	• **EVM-CR** • DACIMS • **DAMIR** • Contractors • Service O&S • Data Libraries	• **EVM Visual Display** • **DCARC Bulk Download** • DAMIR • Contractor Upload • Data Libraries	• **Cost Community Data Sharing** • Service O&S • Automated Planning & Validation	• **FlexFiles** • Cross-Program Search • SAR Database • Analysis-Ready Exports • ACDB & JIAT Integration
Synthesis and Analysis	 PDF Manual Entry	 Excel Cut & Paste	 Automated Entry Manual Analysis	 Seamless Knowledge Sharing	 Machine-Machine FlexFiles

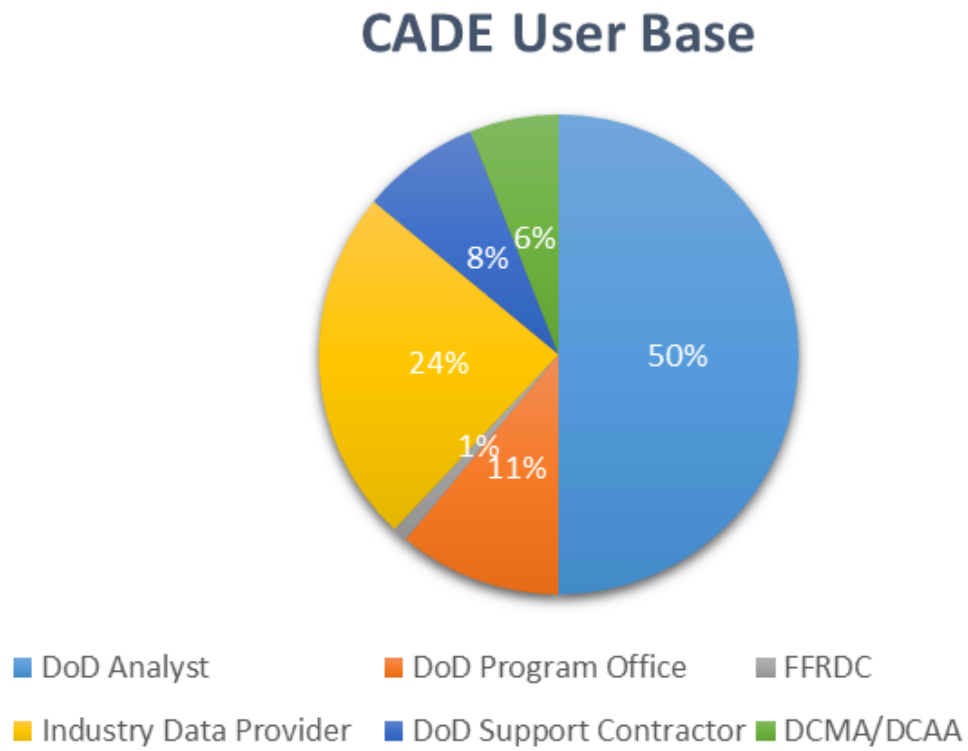
CADE replaced stove-piped service data collection and management

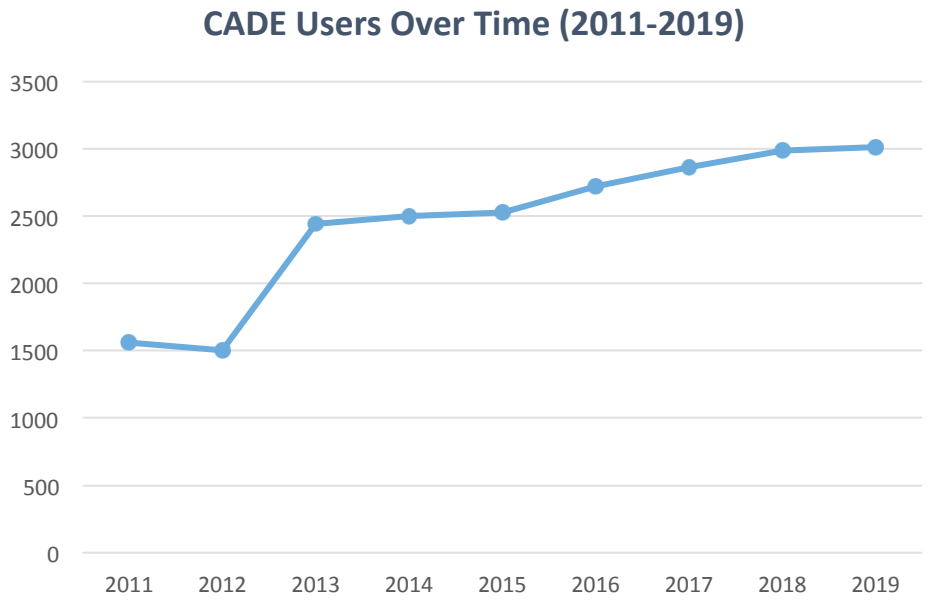
Available Cost Data in CADE



CADE User Base

CADE contains over 3,000 active users, with over 2,000 DoD Analysts & Program Office personnel and over 700 Industry Data Providers

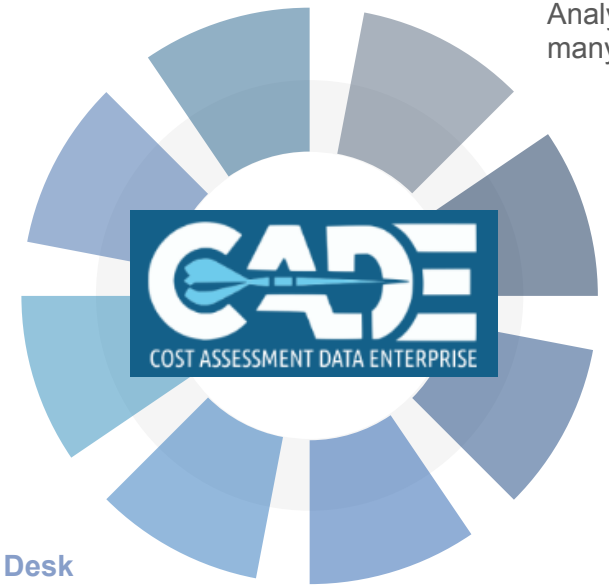




CADE Overview

Database Development
Custom designed and developed relational databases to secure government and contractor proprietary cost, schedule, and technical data

DOD Data Collection Policy Development
Responsible for developing OSD cost, software, and technical data collection policies and standards such as, FlexFiles, Software Resource Data Reporting (SRDR), Mil-STD-881D, CSDR Standard Plans, Cost Analysis Requirements Document (CARDs), and many more



Network Security Administration
Delivering and maintaining strong data protection and security posture for high-availability systems within multiple DOD network/server environments with specialized security requirements

Data Collection Planning & Validation
Custom workflows and business processes to ensure cost data reporting requirements are accurately placed on contract, as well as a full-time, on-site operations team ensuring the data is reported accurately according to the Data Item Descriptions (DIDs)

Training & Help Desk
Design and implementation of training materials, user guides, interactive courses, and videos on all aspects of CAPE policy, processes, and applications, as well as full-time Help Desk personnel to assist over ~3000 users

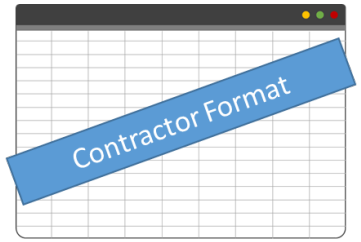
Cost Research & Analysis
Support the DOD Cost Community in specialized research and analysis of cost, schedule, and technical data to inform future requirements and initiatives

The goal of CADE is to provide the cost community with an authoritative source for cost, software, technical, and programmatic data, from both contractor and government sources, that allows for intuitive search, query, and export capabilities in any format necessary for analysis.

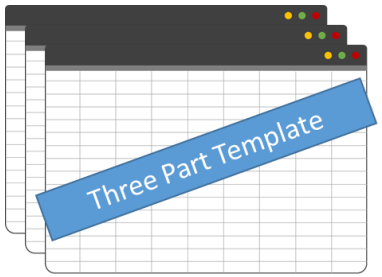
FlexFiles

FlexFile Submission Options

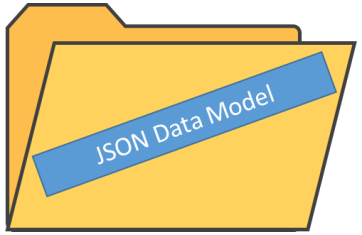
Contractor has three options to submit the data in….



Contractor submits the FlexFile and Quantity Data Report in their own format, so long as it adheres to the DID and approved CSDR Plan



Contractor submits the FlexFile and Quantity Data Report utilizing an Excel template that mirrors the File Format Specifications (FFS)



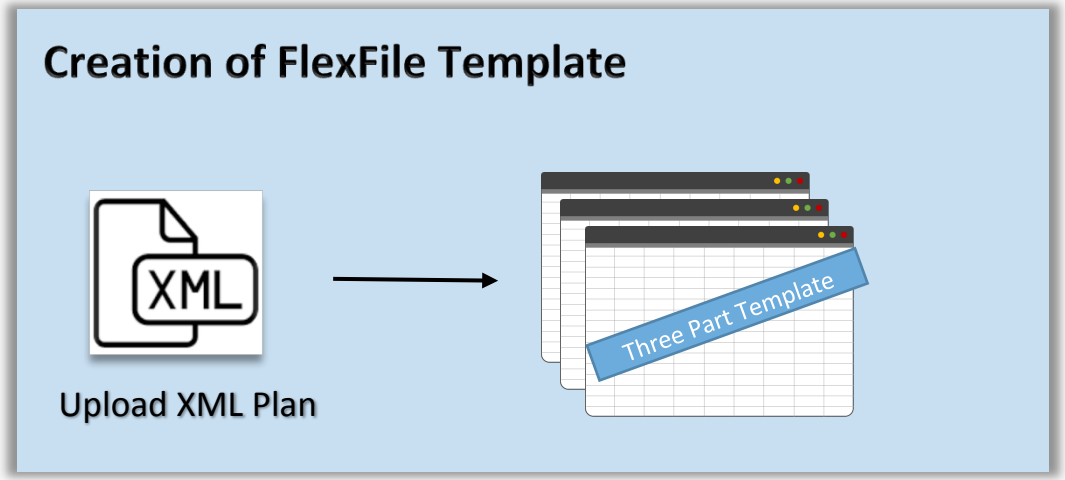
Contractor submits the FlexFile and Quantity Data Report in the data model according to the File Format Specifications (FFS)

The following documents provide additional details regarding the submission mechanisms and processes

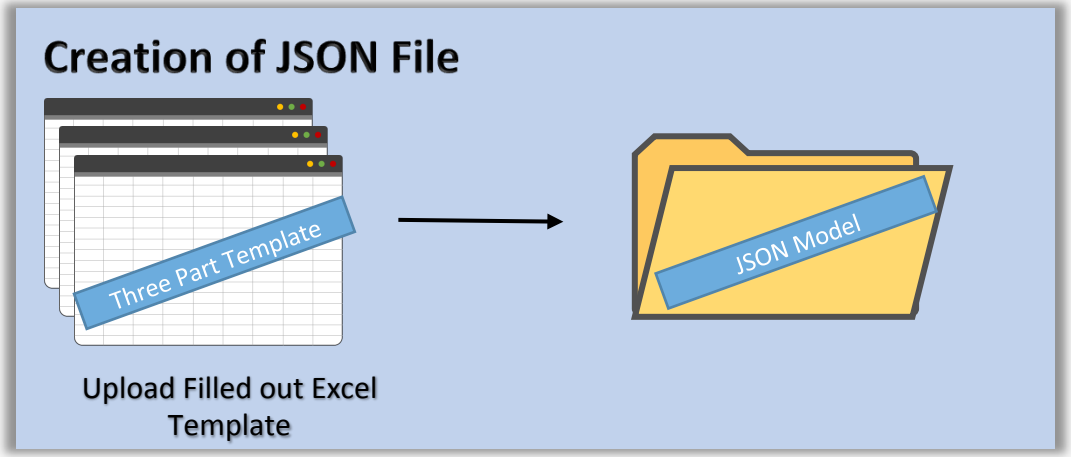
- ✓ FlexFile and Quantity Data Report DIDs
- ✓ Implementation Guide
- ✓ Date Exchange Instructions (DEI)
- ✓ File Format Specifications (FFS)
- ✓ Excel-Compatible File Guidance
- ✓ New DD Form 2794 Format

All documents can be found at…
https://cade.osd.mil/policy/flexfile-quantity

cPet Basic Process



- Contractor can create a blank Excel Template populated with information from the XML Contract Plan:
  - Contractor can upload their XML plan into cPet and generate an empty Three Part Template or an empty Excel Template
  - These templates will contain information from the plan
    - Basic Metadata
    - WBS Structure
    - Order/Lots (as identified by the plan)
    - End Items (as identified by the plan)



- Contractor can then import a populated Three Part Excel Template or an Excel Template into cPet to generate the JSON file
  - cPet will generate errors to show where the imported file does not adhere to the DEI/FFS
  - Once the errors are corrected, cPet will generate a JSON file that adheres to the DEI/FFS & can be ingested into CADE
  - Upload the JSON file to CADE

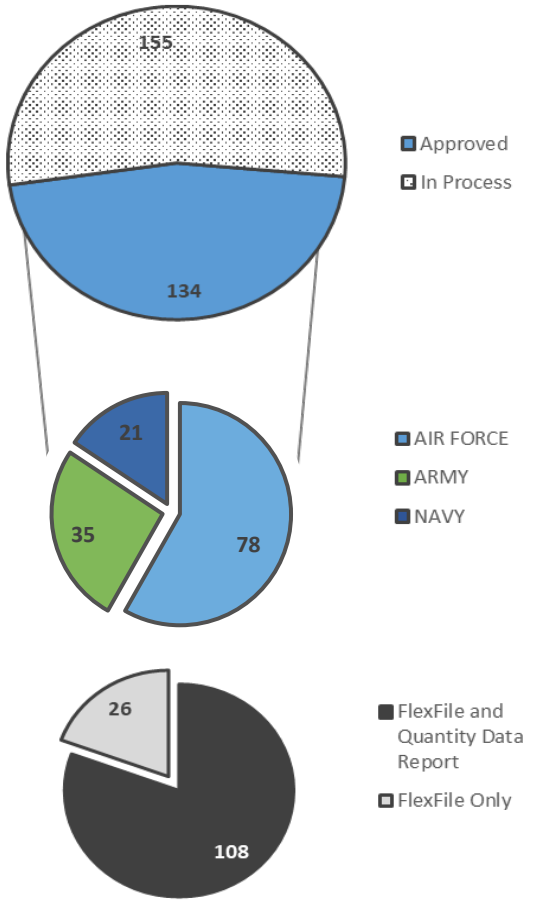
FlexFile & Quantity Validation & Review

- **cPet FlexFile & Quantity Validation Capabilities**
  - Validation of JSON file format against Data Exchange Instructions (DEI) and File Format Specifications (FFS)
    - Will guarantee that the file format will upload in the CSDR Submit-Review without errors
  - Validation of data and compliance to CSDR Plan
    - Ensures all End Items, Orders/Lots, and WBS elements are present
    - Ensures all Summary Costs are present and match reported cost values
    - Validates accuracy and consistency of Reporting Periods
    - Validates accuracy and consistency of Unit/Sublot reporting

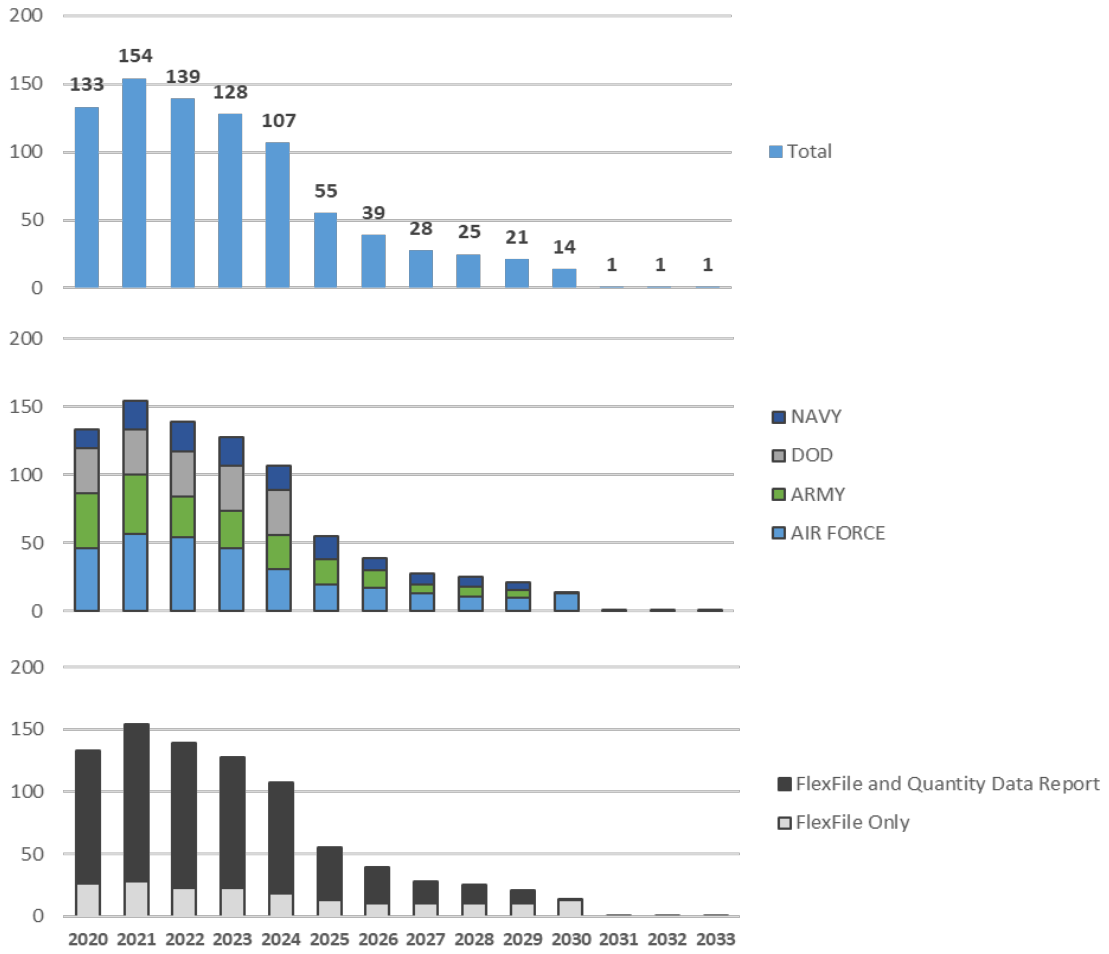
- **cPet FlexFile & Quantity Review Capabilities**
  - In addition to the validation of the formats and data, cPet provides Industry with copies of the government "Reviewer" files prior to submission
    - Allows pre-review of the following formats:
      - Summary, 1921 Data Reports by Lot
      - FlexFile and Quantity Data zipped Excel files
      - FlexFile Pivot Data
    - The above files are auto-generated from the FlexFile & Quantity JSON files upon submission to the Submit-Review and will be used by DCARC, CAPE, Program Office, and Service Cost Center Analysts to review the accuracy and validity of the data prior to acceptance of the submission

FlexFile Implementation Status

Total Approved Plans (134)

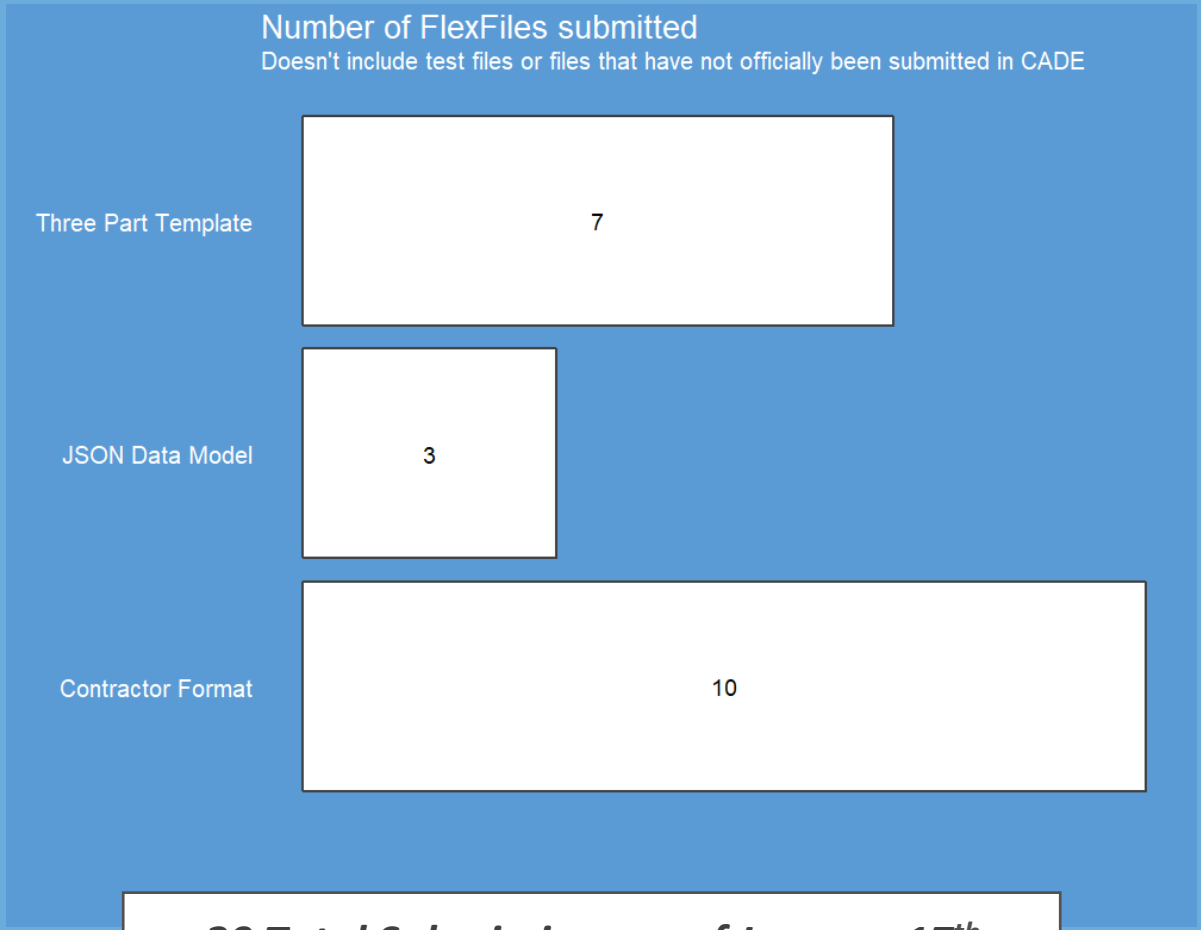


134 Approved Plans = 846 Total Submissions



Don’t wait…get on board…transition now!

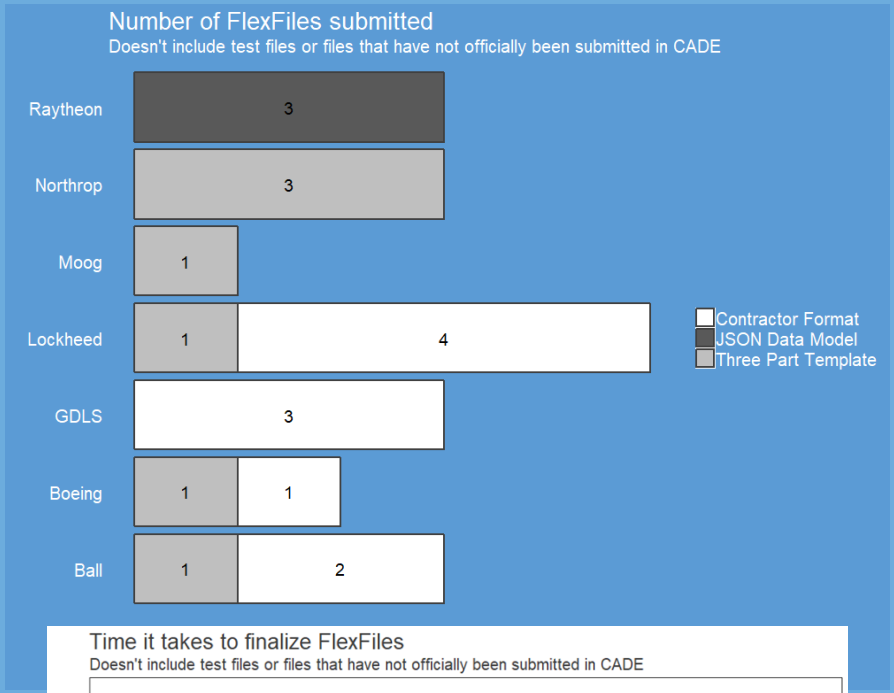
FlexFile Submissions Received

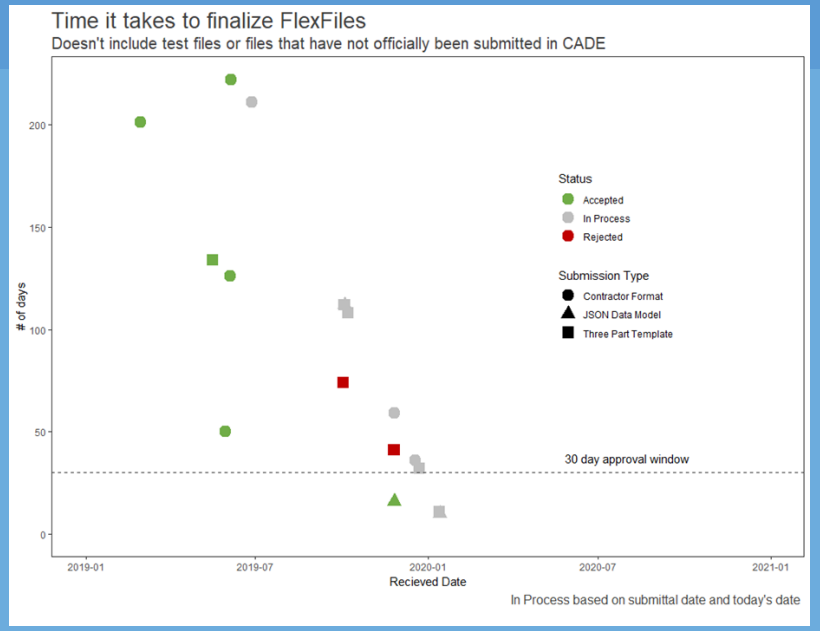


20 Total Submissions as of January 17th

- **As of January 17th, 20 submissions have been received**
  - Time-phasing by month is the most common element being tailored out of the DID (11 submissions)
  - Coincidently, one element that has been tailored into the DID is time-phased forecasts (4 submissions)
  - Tailoring of the DID has resulted in submissions in Contractor Format vs JSON Data Model or the Three Part Template
- **Industry Input**
  - Use of cPet and clarification on errors received
  - Mapping data to government standards (both the WBS and Standard Functional Categories)
  - Other common discussion topics with industry highlighted in following slides

FlexFile Submissions Received





- **FlexFile submission review duration is decreasing**
  - Factors impacting review time include:
    - Contractor familiarity with FlexFile Requirement
    - Engagement with contractor prior to submission
- **Success Stories**
  - Contractors currently standardizing the way they report across business units, ensuring repeatable processes and consistent data (*Boeing, NG, LMCO, Raytheon, GDLS all working on standardizing their approach*)
  - FlexFiles have been received from smaller companies and subcontractors

20 Total Submissions as of January 17th

Common Discussion Topics w/ Industry

- Contractor's should understand the relationship between Functional Category, Functional Overhead Category and Standard Functional Category.

- Contractor's should still be familiar with the File Format Specifications (FFS) regardless if they are not submitting the data in the JSON Data Model.
  - Ensure that Nonrecurring or Recurring and the Standard Functional Categories follow the proper enumeration.*
  - Ensure that the allocation methodology is reported properly according to the FFS.*

- Contractor's should ensure they are following the approved CSDR plan (this is especially important for ensuring the WBS, End Item, and Order/Lot tags are correct).*

- A lot of focus is on the Actuals data table, but contractor's have to remember to also provide Metadata, FACs, Summary Elements, Summary Remarks, WBS Element Remarks, and the WBS Definitions.

- Contractor's should understand the three options they have available to submit this data and choose the one that makes the most sense for them and their processes.

*If contractor is submitting in Contractor Format and those data fields do not adhere to the plan, FFS, etc., then ensure that it is clear on how they map to the proper format

Continuing CADE Initiatives

Future SRDR CADE Software Development

- Current SRDR Validation:
  - Industry submits in Excel formats and SURF validation is performed manually
  - It takes roughly 12 hours for a SURF member to validate the SRDR data
  - SRDR manual validation takes an average of 80 days from original submission to finalization, versus 29 days for a CCDR with automated validation
  - SRDR Data is entered into the NAVAIR database, and published to DACIMS on a quarterly basis
  - *SRDR Rejection Rate*
  - Data Quality errors are often discovered months or years after the report has been accepted and finalized.
  - SRDR data processes are *10 years* behind CCDR
- Submission XML Automation:
  - cPet capability to auto-generate CTR submission formats
  - SURF automation reduces validation time from 12 hours to 3
  - SRDR database generation allows for better quality of data, improved validation across programs and contracts, and faster delivery to the data consumer
  - **Reduce manual effort – improve quality & consistency of SRDR data**

CADE SRDR Initiative Integration

- Over the next year, CADE can make the following initiatives a priority to allow for contractor/ government upload, validation, ingestion into a database, and allow for search/query/export capabilities within CADE:
    - SRDR Development & Maintenance
    - SRDR ERP
- Uploading the new data initiatives in a machine-readable format (XML/JSON) will enable better quality of data through automated validation, as well as faster and more accurate database generation
- Investigating forward-looking options regarding SRDR Part II data submissions:
    - The requirement to provide time-phased data, by development activity, release and build, and WBS is similar to time-phased data requirements within the FlexFile
    - If SRDR Part II data equivalent can be provided within FlexFile submission, government is considering waiving the requirement for the SRDR to contain Part II data

1921-3 Background Information

Overview

- The 1921-3 report is the “Contractor Business Data Report,” or “CBDR.” It is an annual report at the business level that provides rates and business-base data and facilitates overhead analysis.

- For the past two years, contractors have had the option to submit either the Government-defined standard format (Legacy) or the contractor unique format (Contractor).

- Starting next year the 1921-3 report is transitioning from the Legacy format to Contractor format.

Why a new 1921-3 DID?

1921-3 Cost Data

- Direct Labor Rates
- Overhead Rates
  - Overhead base by program
  - Overhead pool by component
- Materials/ODCs

Benefits of Contractor format vs. Government-mandated format

- Eliminates allocation issues
- Contractor rates align with
  - FPRs
  - DCAA Audits
  - Proposals/Negotiations
  - Pricing Models/Wrap Rates
- Less burdensome for industry to prepare than existing policy
- Provides cost analysts enhanced insight into contractor rates

Direct Labor Rates

- The Legacy format required business entities to convert their **direct labor rates** into the **standard government categories** shown in the table below.

- In the example to the right, the contractor has **six** distinct engineering **direct labor rates** depending on location, experience, and type of labor. In the Legacy format below, the contractor is forced to average these distinct direct labor rates.

- The **direct labor rates** reported in the Contractor format should align with those reported in the contractor's FPR.

Contractor format

Direct Labor, Fringe, G&A, or Overhead	Category Name	Base, Expense, or Rate	Dollars/Hour, Dollars, Hours, or	2017
Direct Labor	Electrical Engineer - Plant A	Rate	Dollars/Hour	$36.30
Direct Labor	Sr. Electrical Engineer - Plant A	Rate	Dollars/Hour	$79.07
Direct Labor	Industrial Engineer - Plant A	Rate	Dollars/Hour	$43.05
Direct Labor	Electrical Engineer - Plant B	Rate	Dollars/Hour	$29.75
Direct Labor	Sr. Electrical Engineer - Plant B	Rate	Dollars/Hour	$72.50
Direct Labor	Industrial Engineer - Plant B	Rate	Dollars/Hour	$53.66

Legacy format

	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Prior Year	Year: 2016	Year: 2017
DIRECT LABOR RATES (FUNCTIONAL CATEGORIES)	Basic Rate$ c	Effective Rate$ d	Basic Rate$ c	Effective Rate$ d	Basic Rate$ c	Effective Rate$ d	Basic Rate$ c	Effective Rate$ d	Basic Rate$ c	Basic Rate$ c	Basic Rate$ c
1. Engineering - Direct Labor	58.21	59.33	59.90	60.12	60.10	61.21	57.56	60.12	58.67	57.21	59.92
2. Manufacturing Operations - Direct Labor											
a. Tooling - Direct Labor	53.59	64.49	57.58	57.12	58.72	63.26	61.00	62.65	55.30	57.01	58.77
b. Quality Control - Direct Labor	56.71	53.98	51.41	58.93	49.82	53.98	52.47	58.93	51.41	53.00	54.64
c. Manufacturing - Direct Labor	54.48	63.13	56.16	56.52	59.53	64.34	58.97	63.13	54.48	56.16	57.90

Overhead Base Details

- The Contractor format allows the business entities to report **costs** and **hours** **according to the categories in their internal accounting records** rather than according to government-defined categories.

- In the example below, the Legacy format requires a contractor to consolidate all Manufacturing Operations costs into **one functional category**, regardless of whether the contractor has multiple sites/rates.

Legacy format

	Manufacturing Operations		
Program Name a	Workers h	Dollars i	Hours j
1. Program 1	65	$17,834	451
2. Program 2	70	$1,424	40
3. Program 3	68	$1,201	67
4. Program 4	42	$3,046	143
5. Program 5	119	$2,472	594
6. Program 6	73	$10,663	360
7. Program 7	116	$8,967	192
8. Program 8	75	$11,198	261
9. Program 9	44	$5,314	160
10. Program 10	94	$2,379	102
11. Other DoD Effort	63	$1,116	39
12. Other Government Effort	66	$913	244
13. Commercial Effort	69	$52	86

Note: legacy format dollars and hours are in thousands

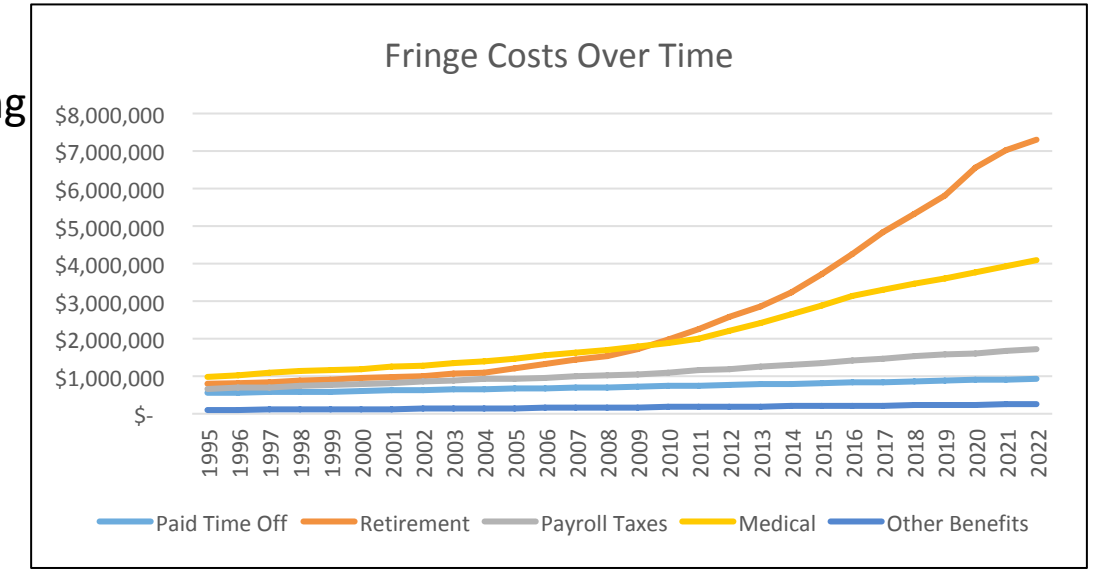
Contractor format

Direct Labor, Materials, or ODCs	Category or Component Name	Buyer	Program Name	Direct Dollars/Hours	2017
Direct Labor	Manufacturing Site 1	Navy	Program 1	Dollars	$ 8,902,972
Direct Labor	Manufacturing Site 1	…		Dollars	…
Direct Labor	Manufacturing Site 1	Commercial		Dollars	$ 338,974
Direct Labor	Manufacturing Site 1	Navy	Program 1	Hours	145,950
Direct Labor	Manufacturing Site 1	…		Hours	…
Direct Labor	Manufacturing Site 1	Commercial		Hours	6,163
Direct Labor	Manufacturing Site 2	Navy	Program 1	Dollars	$ 8,876,527
Direct Labor	Manufacturing Site 2	…		Dollars	…
Direct Labor	Manufacturing Site 2	Commercial		Dollars	$ 338,974
Direct Labor	Manufacturing Site 2	Navy	Program 1	Hours	145,950
Direct Labor	Manufacturing Site 2	…		Hours	…
Direct Labor	Manufacturing Site 2	Commercial		Hours	6,785
Direct Labor	Fabrication	Navy	Program 1	Dollars	$ 54,783
Direct Labor	Fabrication	…		Dollars	…
Direct Labor	Fabrication	Commercial		Dollars	$ 52,351
Direct Labor	Assembly	Navy	Program 1	Dollars	$ 54,783
Direct Labor	Assembly	…		Dollars	…
Direct Labor	Assembly	Commercial		Dollars	$ 73,292

Overhead Expense Details

- The Legacy format creates alignment issues. For example, contractors must include fringe into their overhead costs, distorting overhead rates for most companies.

- The Contractor format provides greater insight into specific overhead cost drivers. For example, the contractor format below enables an analysis of fringe costs over time.



Legacy format

	Engineering		
	Workers o	Dollars p	Hours q
15. Indirect Labor	323	$2,316.8	30.5
16. Employee Benefits		$12,269.1	
17. Payroll Taxes		$2,142.0	
18. Employment		-	
19. Communication/Travel		$269.1	
20. Production Related		$184.1	
21. Facilities-Building/Land		$466.9	
22. Facilities-Furniture/Equipment		$465.1	
23. Administration		$208.7	
24. Future Business		-	
25. Other Miscellaneous		$66.5	
26. Credits		-	
27. Total Indirect Cost and Hours		$18,388.3	30.5

Note: legacy format dollars and hours are in thousands

Contractor format

Fringe, G&A, or Overhead	Category Name	Entity Expense Component (as necessary)	2017
Fringe	Engineering 1	Paid Time Off	$ 303,828
Fringe	Engineering 1	Retirement	$ 2,787,366
Fringe	Engineering 1	Payroll Taxes	$ 1,363,140
Fringe	Engineering 1	Medical	$ 1,236,685
Fringe	Engineering 1	Other Benefits	$ 1,000,008
Fringe	Engineering 2	Paid Time Off	$ 654,147
Fringe	Engineering 2	Retirement	$ 4,494,392
Fringe	Engineering 2	Payroll Taxes	$ 778,819
Fringe	Engineering 2	Medical	$ 1,692,426
Fringe	Engineering 2	Other Benefits	$ 100,293

Path Forward

- We solicited and received Government and Industry input on the updated DID
  - No major show-stoppers
  - We followed-up with respondents and made minor adjustments to the DID
  - Majority of contractors were supportive of the new DID

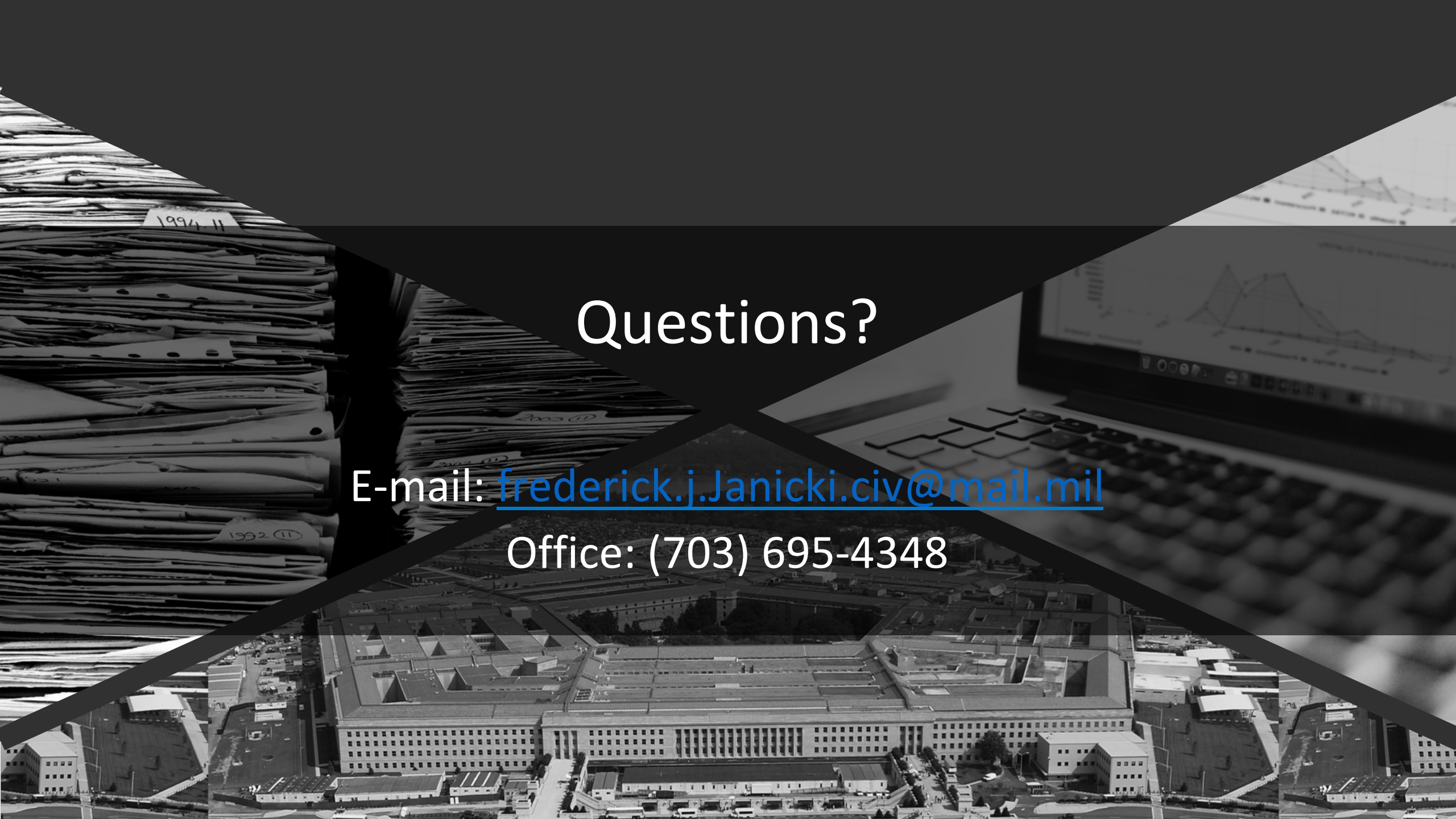
New 1921-3 DID:
- Less burdensome for industry
- Eliminates allocation issues
- Improves government/industry communication
- Provides cost analysts with enhanced insight

Resources:
- Legacy format – https://cade.osd.mil/policy/dids
- Pilot format – https://cade.osd.mil/policy/1921-3

Improved Data Quality

- CSDR Standard Plans, based on MIL-STD-881D, are available on the CADE website, and provide a starting point for government and industry CSDR Plan development
  - Provide the lowest level breakout of WBS elements to provide a consistent method in expanding 881D WBS structures, and can be tailored for contract-specific requirements
  - Excel, XML, and CWBS Dictionary documents available at https://cade.osd.mil/policy/csdr-plan

- CADE Data & Analytics Search & Bulk Download Capabilities:
  - Augmented, standardized metadata and additional search tags/parameters
  - Consistent unit of measure tags in bulk export data



Questions?

E-mail: frederick.j.Janicki.civ@mail.mil

Office: (703) 695-4348