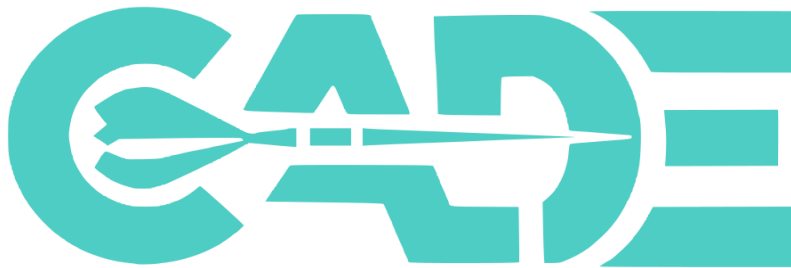


COST & TECHNICAL FOCUS GROUP

Lockheed Martin Global Vision Center
2121 Crystal Dr #100
Arlington, VA 22202



COST ASSESSMENT DATA ENTERPRISE

June 27-28, 2018

Who Should Attend:

- › Cost Analysts and Program personnel (Government and Industry) who are or will be involved in CSTDR contracting and reporting and affected by OSD CAPE Initiatives

Why You Should Attend:

- › CAPE is implementing new cost and technical data initiatives and would like your feedback

How:

- › OSD CAPE – Plenary sessions and community feedback forums to discuss implementation guidance on all cost and technical data reporting initiatives

The Focus Group will enable you to:

- › Describe and implement the following data initiatives: FlexFiles, Quantity, Technical, Maintenance & Repair, Software Resources Data Reporting (SRDR), and BOM
- › Understand benefits to cost community



Agenda

Wednesday, June 27, 2018

Seating and Check-In / Networking	Topic and Location	8:00 am – 8:30 am
Welcome – <i>Fred Janicki, OSD CAPE</i> Initiatives Overview – <i>David Lyons, OSD CAPE</i>	CADE Vision & Initiatives Auditorium	8:30 am – 9:00 am
Industry Feedback:	Feedback & Concerns Auditorium	9:00 am – 12:00pm
Flex File: Creation Tool Demo – <i>Marc Stephenson</i>	Flex Files	9:00 am – 9:15 am
Break ₁	Various	9:15 am – 9:30 am
Industry Panel Discussion ₁ - <i>Cost Initiatives</i> <i>FlexFiles – Industry Panelists</i>	FlexFile Industry Feedback	9:30 am – 11:00am
Break ₂	Various	11:00am – 11:15 am
<i>Recap, Next Steps, & Audience Feedback</i>	Industry Feedback	11:15am – 12:00pm
LUNCH:		12:00 pm – 1:00 pm
General Body Lunch	Various	
Working Lunch (<i>Invite Only with Industry Leads</i>)	Room: GVC A	
Community Feedback:	Auditorium	1:00 pm – 3:30 pm
Community Feedback Forum – <i>Daron Fullwood, OSD CAPE</i>	Group Exercise & Dialogue	1:00 pm – 2:15 pm
Break ₃	Various	2:15 pm – 2:30 pm
Government Panel Discussion – <i>Service Cost Center & SYSCOM Representatives</i> (Army, Navy, Air Force)	Feedback & Concerns Auditorium	2:30 pm – 3:15 pm
Day 1 RECAP – <i>Fred Janicki, OSD CAPE</i>	Auditorium	3:15 pm – 3:30 pm
Break Out Sessions / 1-on-1s	Auditorium Rooms: Viking, Trident, GVC A, Poseidon	3:30 pm – 4:30 pm 4:30 pm – 5:30 pm

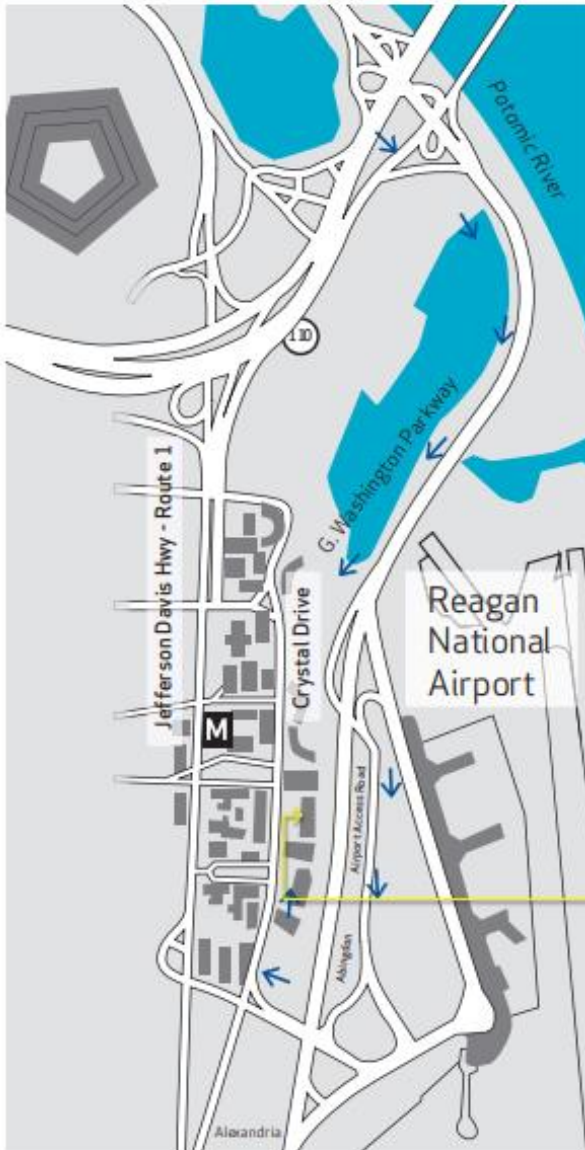
Agenda

Thursday, June 28, 2018

Seating and Check-In / Networking	Topic and Location	8:00 am – 8:30 am
eCARD, Tech Data, SRDR	Feedback & Concerns	8:30 am – 12:00pm
Tech Data Discussion – <i>Greg Hogan, AFCAA</i>	<i>Auditorium</i>	
eCARD Overview		8:30 am – 9:00 am
Tech Data Overview		9:00 am – 9:30 am
Discussion	<i>Feedback & Concerns</i>	9:30 am – 10:30 am
Break ₁		10:30am – 10:45 am
Software Resources Data Report (SRDR) – <i>Ranae Woods, AFCAA</i>	<i>Auditorium</i>	10:45am – 11:15 am
Maintenance & Repair – <i>Lisa Mably, AFCAA</i>	<i>Auditorium</i>	11:15am – 12:00 pm
LUNCH:	<i>Various</i>	12:00 pm – 1:00 pm
BOM Overview & Tech Day Recap	<i>Auditorium</i>	1:00 pm – 2:30 pm
BOM Overview – <i>Nicholas Cesare, DASA-CE</i>		1:00 pm – 2:00 pm
Day 2 RECAP – <i>Fred Janicki, OSD CAPE</i>		2:00 pm – 2:15 pm
Break ₂		2:15pm – 2:30 pm
Break Out Sessions ₂ / 1-on-1s	<i>Auditorium</i> <i>Rooms: Viking, Trident,</i> <i>GVC A, Poseidon</i>	2:30 pm – 5:30 pm

Directions

Metro and Driving Directions to THE LOCKHEED MARTIN GLOBAL VISION CENTER (GVC) 2121 Crystal Drive ■ Arlington, VA 22202



FROM CRYSTAL CITY METRO STATION

(0.3 mi / approx 5 min) Blue/Yellow Line

- Exit the Metro Station and walk east on 18th St S
- Turn right on Crystal Drive
- Cross the Street to 2121 and proceed through glass doors to 1st floor Visitor Desk (Lockheed Martin lobby)

FROM REAGAN NATIONAL AIRPORT

- Stay left and take "Airport Exit/Rte. 1 Crystal City/Alexandria" exit
- Stay right and take "Rte. 1 Crystal City/Economy Parking/General Aviation/South Airport Services" exit onto Abingdon Rd
- Stay to the right and make a right at the stop sign following 395 North signs
- Make right onto Crystal Drive exit ramp
- At intersection of S 23rd St TURN RIGHT into parking garage
- Follow signs to gold/yellow columns labeled 2121, park your vehicle and proceed to 1st floor Visitor Desk (Lockheed Martin lobby) via elevator

FROM DULLES AIRPORT

- Leaving terminal, follow signs for Washington
- Take exit onto I-66 E
- Take exit 75 to merge onto Jefferson Davis Hwy/VA-110 toward Alexandria
- Follow Jefferson Davis Hwy
- Turn left on 20th St S
- Turn right at Crystal Drive
- At intersection of S 23rd St, TURN LEFT into parking garage
- Follow signs to gold/yellow columns labeled 2121, park your vehicle and proceed to 1st floor Visitor Desk (Lockheed Martin lobby) via elevator



Security Information

All guests must register at the Lockheed Martin Security Desk located near the large globe on the first floor Lobby Level.

Paid parking is available in the building during regular business hours.



FACILITIES



AUDITORIUM

- Location: **1st Floor**
- Seating: **160**
- Maximum Capacity: **181**
- Features: **Desktop, VTC Capability, Projector, DVD Player, Laptop Connectivity, Internet Connection, Hi-WAE**



GVC A

- Location: **2nd Floor**
- Table Seating: **34**
- Recommended Table Seating: **33**
- Maximum Capacity: **38**
- Features: **Desktop, VTC Capability, Projector, DVD Player, Laptop Connectivity, Internet Connection, Hi-WAE**



TRIDENT

- Location: **2nd Floor**
- Table Seating: **10**
- Recommended Table Seating: **9**
- Maximum Capacity: **12**
- Features: **Polycom, Projector, Laptop Connectivity, Internet Connection, Hi-WAE**



POSEIDON

- Location: **2nd Floor**
- Table Seating: **13**
- Recommended Table Seating: **13**
- Maximum Capacity: **20**
- Features: **Desktop, Projector, DVD Player, Laptop Connectivity, VTC Capability, Internet Connection, Hi-WAE**



VIKING

- Location: **2nd Floor**
- Table Seating: **10**
- Recommended Table Seating: **9**
- Maximum Capacity: **12**
- Features: **Polycom, Projector, Laptop Connectivity, Internet Connection, Hi-WAE**



COST ASSESSMENT DATA ENTERPRISE

CADE Initiatives

CADE Cost & Technical Focus Group





COST ASSESSMENT DATA ENTERPRISE

FlexFiles

CADE Cost & Technical Focus Group



Legacy 1921 Reports



1. Requires **cost and hours to be mapped/allocated** to standard “government” categories
 - Belief is that requesting data in standard categories from industry will relieve govt. effort normalizing data
 - However, normalization is not straightforward and data requested does not provide enough detail to understand/reevaluate industry normalization

2. Forms **do not** account for **capabilities of modern data systems**
 - Require Excel (~2004) and XML (2014) formats **but** volume of data requested same as when forms were submitted in **paper**
 - Native data and tags that are already present in industry systems are not accommodated by legacy formats

Legacy cost reports are useful in many cases, but given additional time and industry cooperation cost estimators will generally request more detailed data from industry

Value of FlexFiles

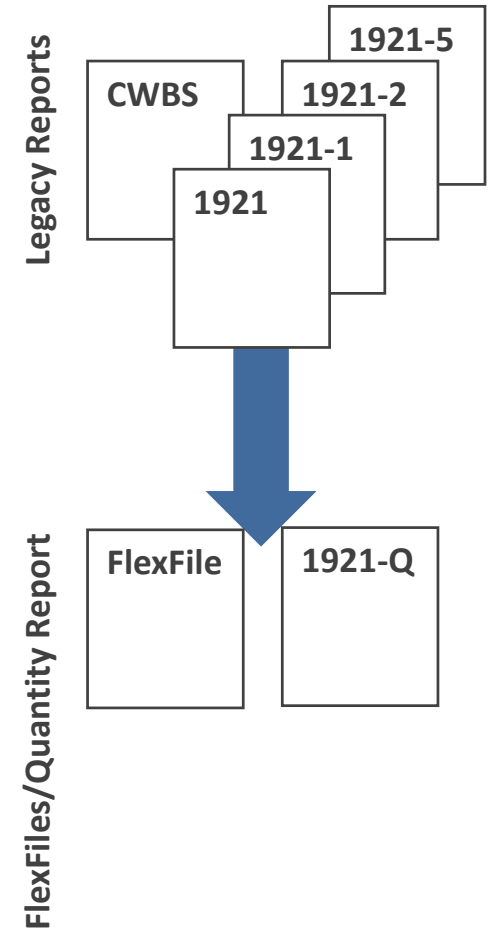
1. Additional insight for cost estimators

- Insight below WBS reporting level (e.g., control accounts, work packages)
- CLIN and contractor-internal categories that align with FPRAs
 - Helps to trace back to proposal information
- Time-phased by month
- Other data fields explicitly planned into DID/ data structure
 - E.g., allocation scheme (as necessary), 12 additional contract-specific fields

2. Potential efficiencies for industry

- Increased traceability in reporting allocations and mappings
- Less incentive for Government to require lower level in reporting WBS
 - Changes EACs to FACs in attempt to avoid concerns with CCDRs driving EVM effort

FlexFiles require data already present in industry's systems that is useful to cost estimators and does so in a way that overall lessens or is neutral to the industry cost to prepare the reports





Approved FlexFile Data Requirements

Data Group A

Report Metadata

Approved Plan Number
Submission Event
Period of Performance
Reporting Organization
Date Prepared
Classification

Data Group B

DD Form 2794 Data Elements

WBS Code/Level/Name
Order Name
End Items
Additional Tags #1-#12

Data Group C

Contractor Definitions and Remarks

CWBS Dictionary
Remarks by WBS element
Summary Remarks

Data Group D

Summary Elements

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

Data Group E

Actuals To Date (ATD)

Nonrecurring/Recurring
Standard Func. Categories Tier 1/2
Unit/Sublot First/Last Number
Account
Reporting Period
CLIN
Contractor Functional Categories
Contractor Rate Pool
Dollars/Hours

Data Group F

Allocation Methodology

Allocation Method Type ID
Allocation Method Name

Data Group G

Forecasts At Completion (FAC)

FAC (Dollars/Hours)

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

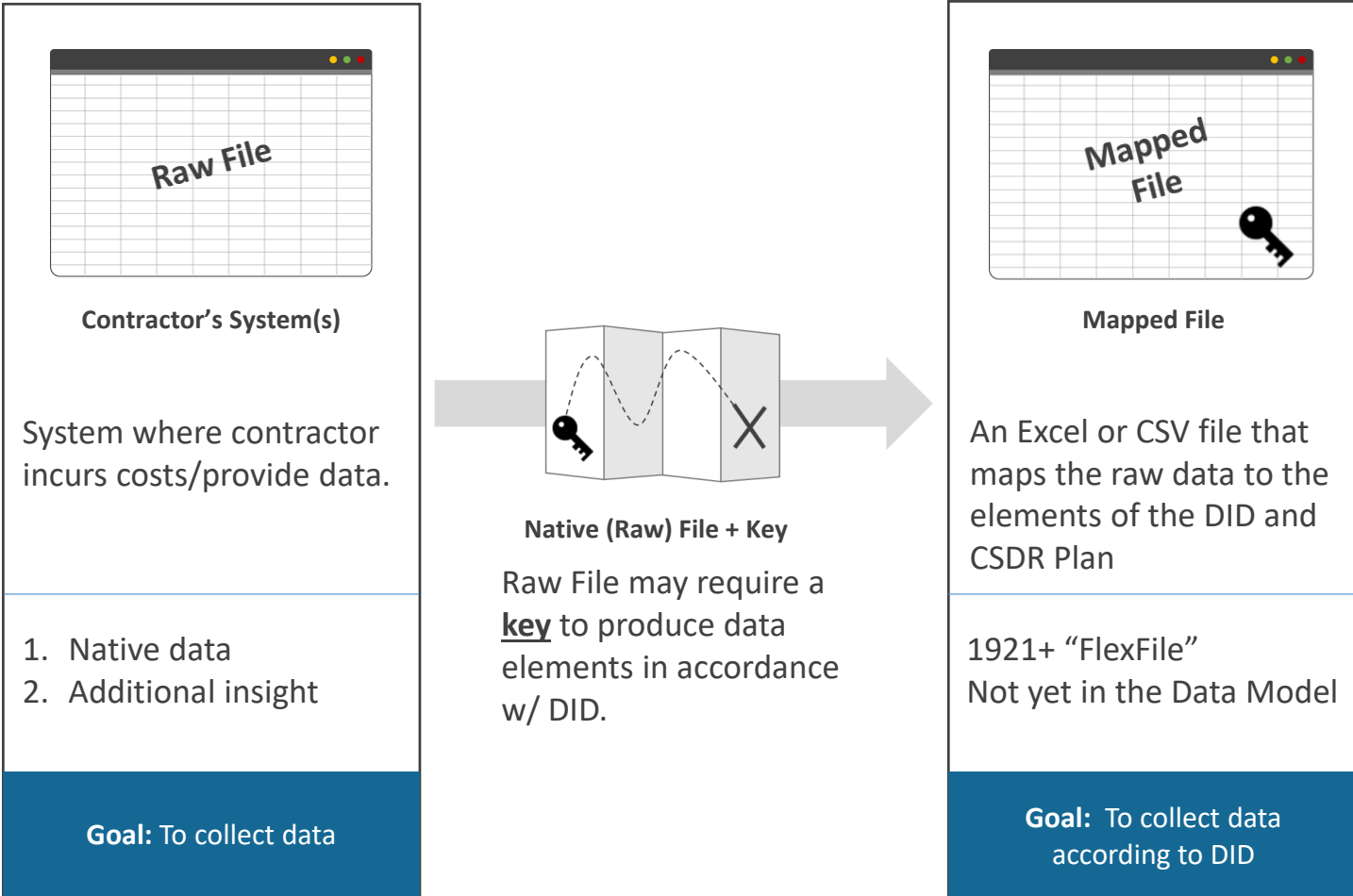
The foundation of the FlexFile is a **Resource** associating dollars or hours with a **Account** in the accounting system at a point in **Time**

- Traceability across programs and contracts by requiring the legacy government tags
- Consistent costs elements from contract proposal through execution
- Insight into how the contractor manages the program
- Flexible reporting scope with additional/revised structure

Overview of Submission Process

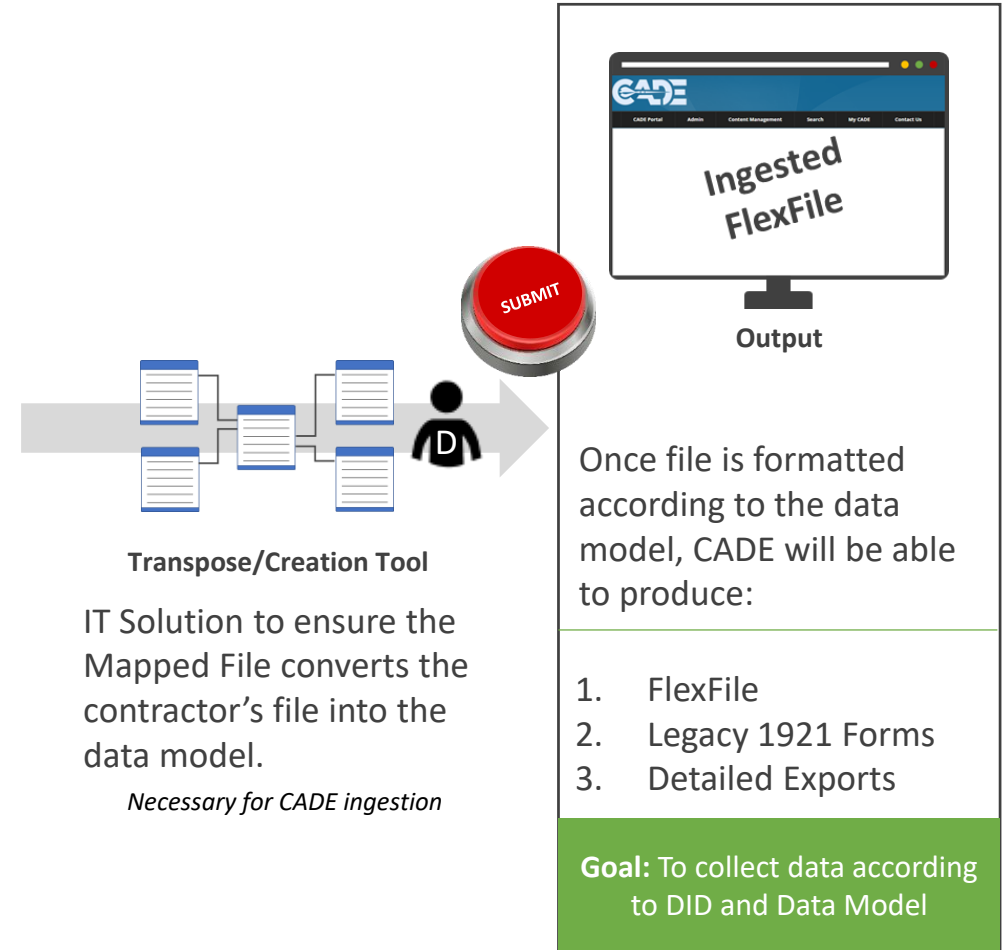
Data Mapping

Question: Who provides the key?



Data Model

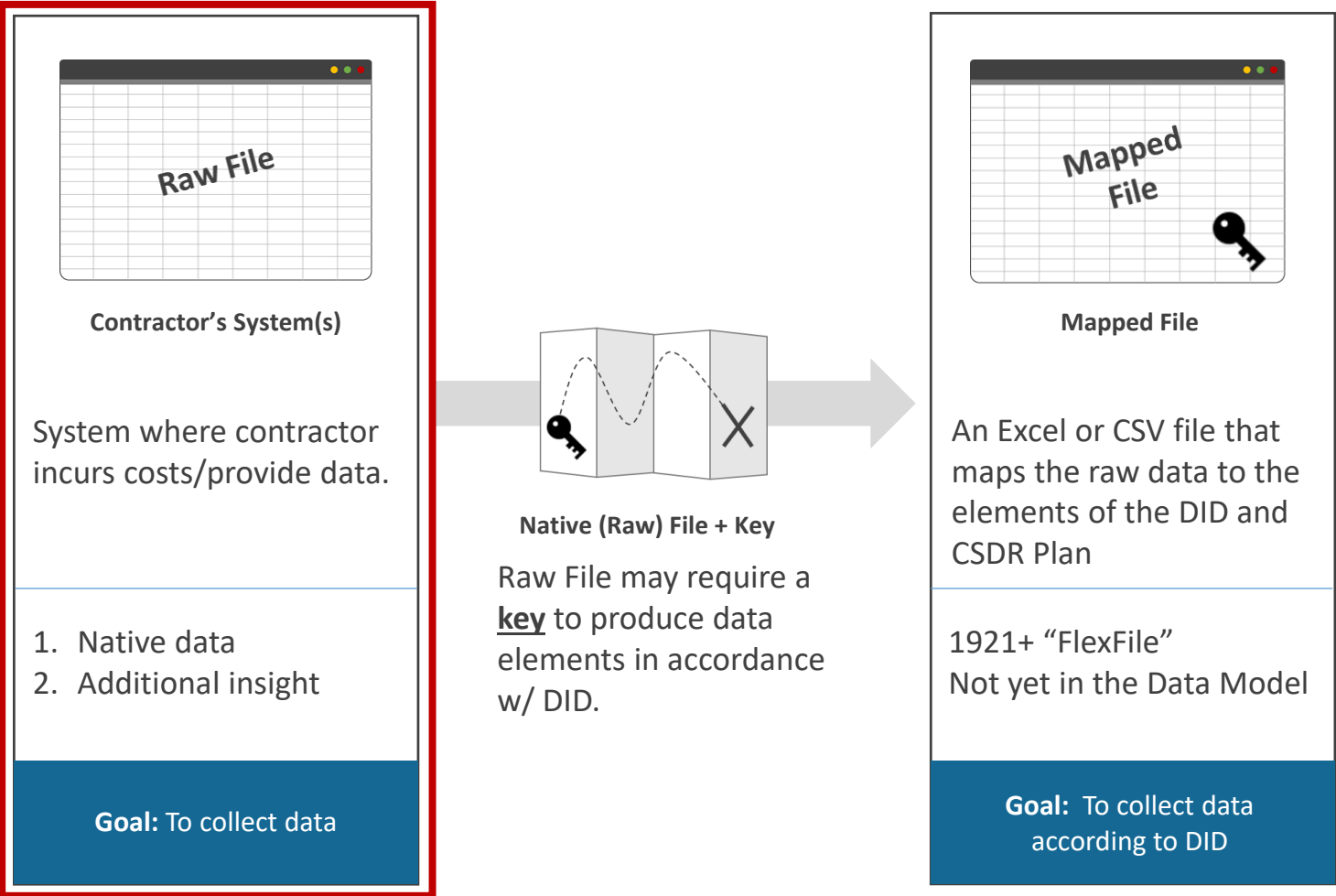
Question: Who does the transposing?



Raw Submission

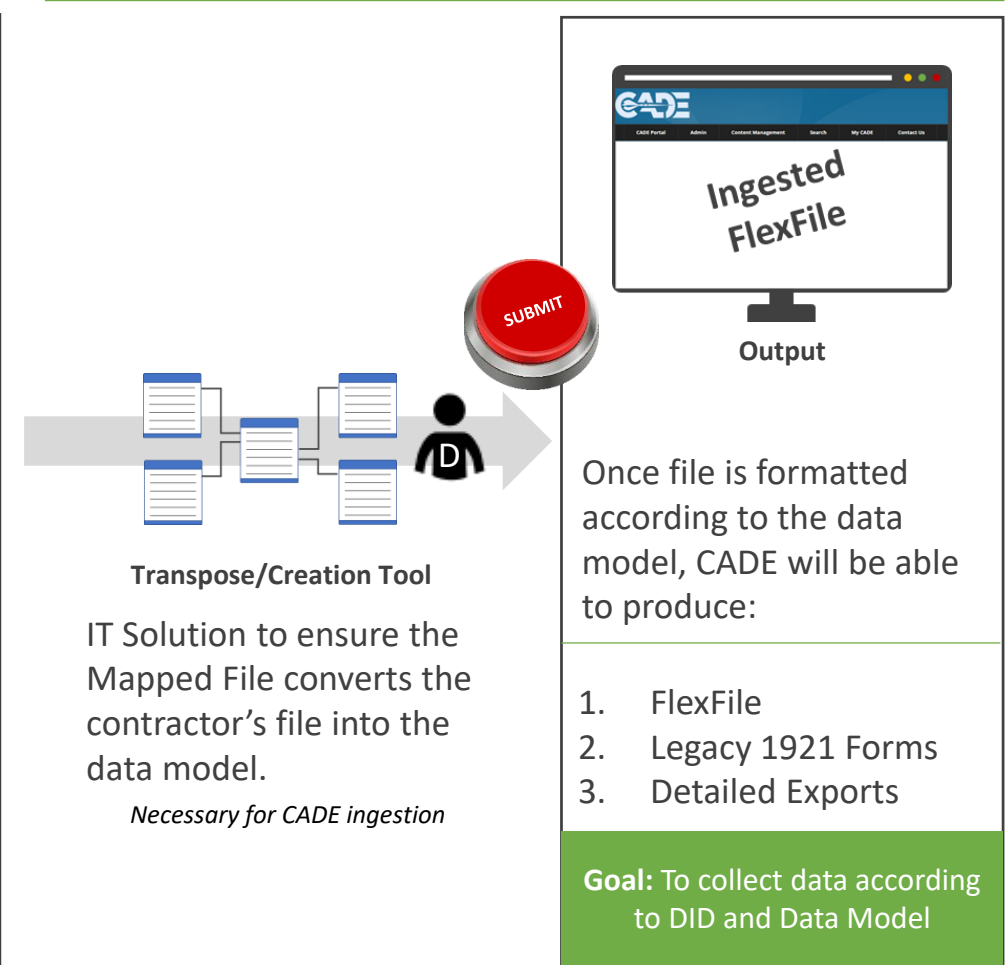
Data Mapping

Question: Who provides the key?



Data Model

Question: Who does the transposing?



Legend: Cost IT Ctr Effort

Mapped Submission

Data Mapping

Question: Who provides the key?



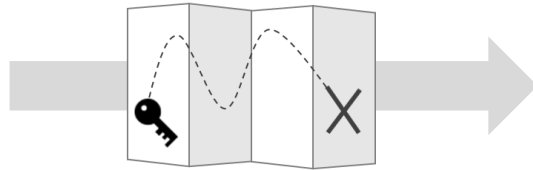
Raw File

Contractor's System(s)

System where contractor incurs costs/provide data.

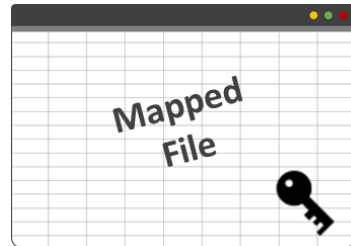
1. Native data
2. Additional insight

Goal: To collect data



Native (Raw) File + Key

Raw File may require a **key** to produce data elements in accordance w/ DID.



Mapped File

Mapped File

An Excel or CSV file that maps the raw data to the elements of the DID and CSDR Plan

1921+ "FlexFile"
Not yet in the Data Model

Goal: To collect data according to DID

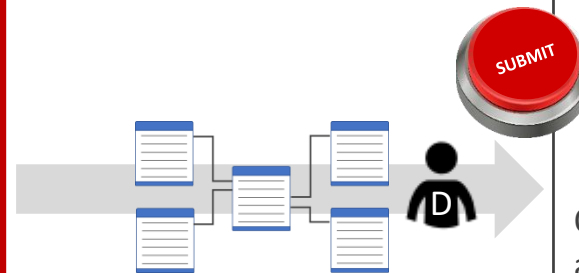
Data Model

Question: Who does the transposing?



Ingested FlexFile

Output



Transpose/Creation Tool

IT Solution to ensure the Mapped File converts the contractor's file into the data model.

Necessary for CADE ingestion

Once file is formatted according to the data model, CADE will be able to produce:

1. FlexFile
2. Legacy 1921 Forms
3. Detailed Exports

Goal: To collect data according to DID and Data Model

Legend: Cost IT Ctr Effort

Reflects Current Effort

Data Model Submission

Data Mapping Question: Who provides the key?

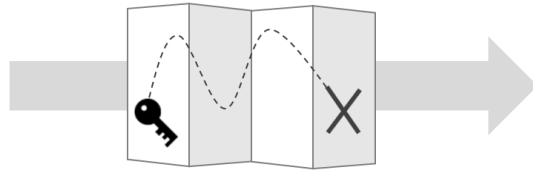


Contractor's System(s)

System where contractor incurs costs/provide data.

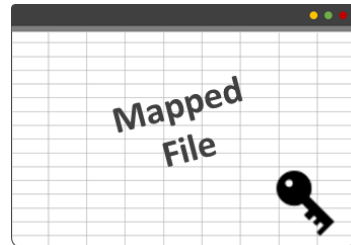
1. Native data
2. Additional insight

Goal: To collect data



Native (Raw) File + Key

Raw File may require a **key** to produce data elements in accordance w/ DID.



Mapped File

An Excel or CSV file that maps the raw data to the elements of the DID and CSDR Plan

1921+ "FlexFile"
Not yet in the Data Model

Goal: To collect data according to DID

Data Model Question: Who does the transposing?



Transpose/Creation Tool

IT Solution to ensure the Mapped File converts the contractor's file into the data model.

Necessary for CADE ingestion



Output

Once file is formatted according to the data model, CADE will be able to produce:

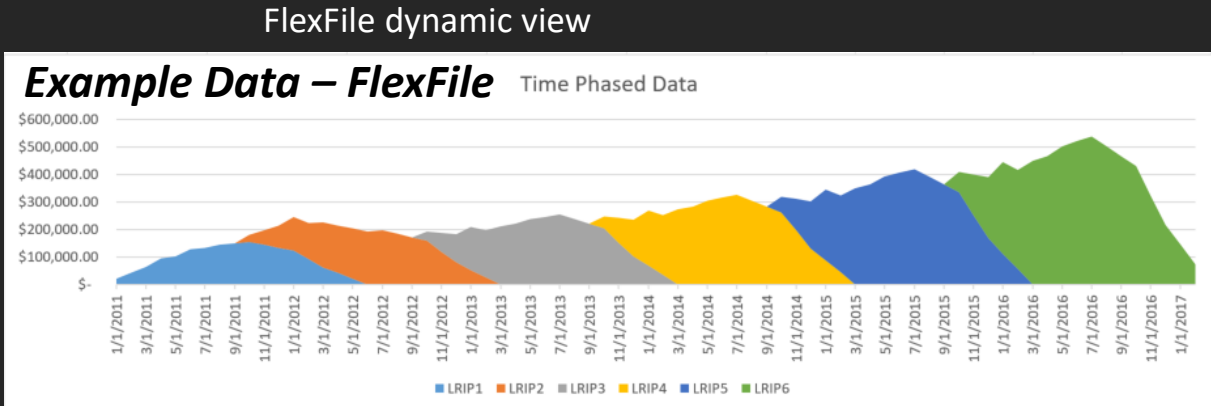
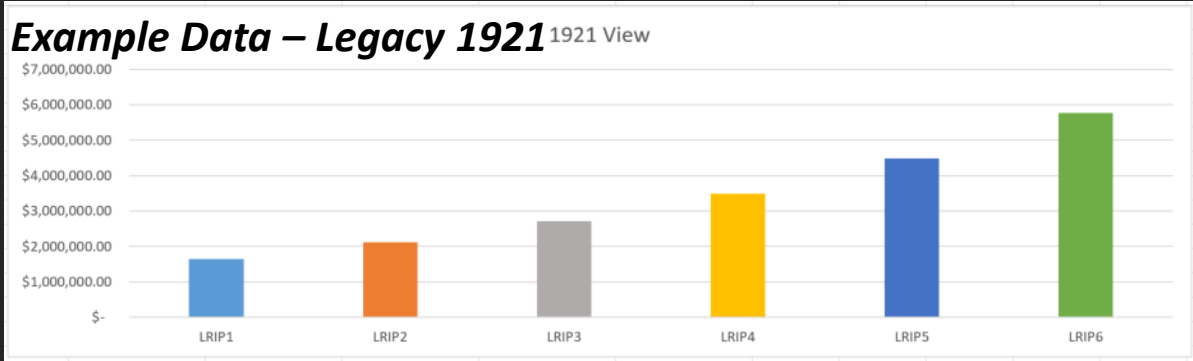
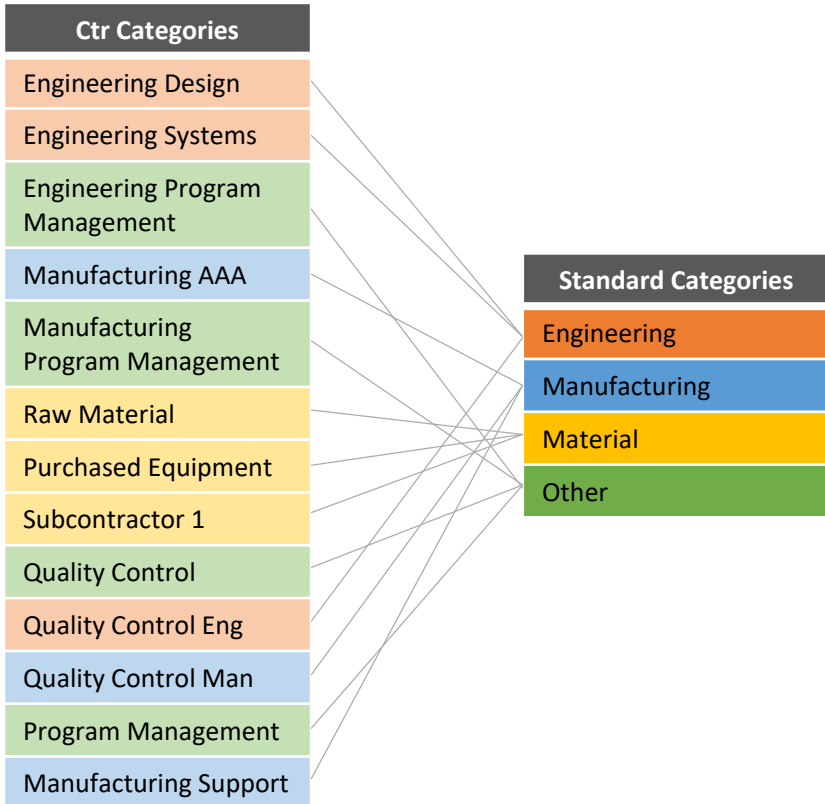
1. FlexFile
2. Legacy 1921 Forms
3. Detailed Exports

Goal: To collect data according to DID and Data Model

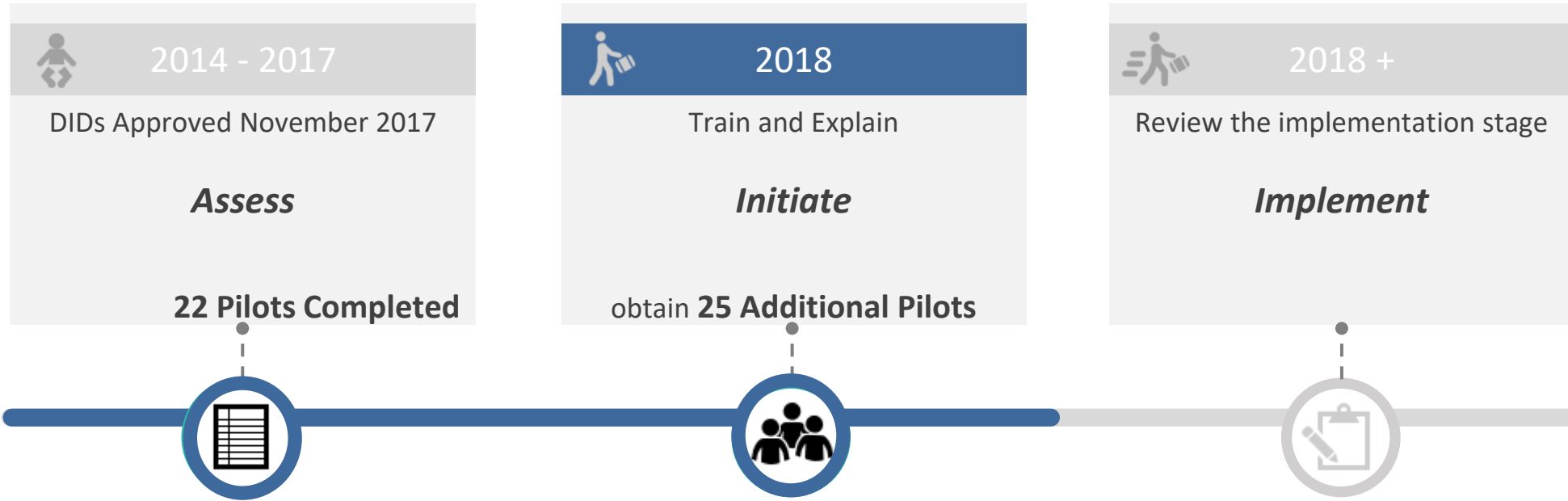
Examples



In this case, CCDRs do not support all cost estimating needs –
 Not practical to expect generic labor categories to work for all programs/situations



Time phased data provides a more dynamic view of costs overtime rather than the static, infrequent data points provided by the 1921 reports



TRAIN and EXPLAIN	INITIATE FlexFile	PILOTS – Final Round
<p>Training Events: CADE will educate the community by:</p> <ul style="list-style-type: none"> • Hosting 4 regional and 2 local training events in CY18 • Learning Management System (LMS): CADE Training team has established LMS to host all training material, presentations, case studies and demos of IT capabilities. • Work with Industry and working level analyst to answer any questions 	<p>DCARC team will:</p> <ul style="list-style-type: none"> • Provide 1-on-1 guidance to Industry analyst • Allot sufficient time to complete FlexFile submissions • Convert, verify, and submit for Industry <p><i>Industry submissions can be provided in any format so long as it is in Excel or CSV and all the data items are included and identified.</i></p>	<p>7 Plans Approved; 25 Pilots planned ** 2 Plans approved using older draft version of the DID and CSDR plan</p> <p>13 Plans Being Negotiated Plans currently using all approved documentation</p> <p>11 Reports Due in CY 18 Based on approved plans and plans that have been drafted</p>

Train and Explain

1. In-Person Sessions

Will be holding 6 training events in CY18

21 Feb	South (Huntsville, AL)
10 May	Midwest (Detroit, MI)
9, 10 Apr	West (SD/LA, CA)
31 May	DMV Area
7 Aug	West (Hill AFB)
12 Sep	Midwest (TACOM, Warren, MI)
3 Oct	North (Hanscom AFB MA)

2. Online Learning

Learning Management System (LMS): Assists those who may not be able to attend In-Person Sessions. Will host all training material and demos.

Public Website: Contains all approved documents and policy in addition to user guides and FACADE (academic CADE).

3. Analyst Support

Call our office to set up any additional meetings needed to answer questions or to provide feedback.



FlexFile Material

Team will have a number of different artifacts to train government analysts and industry on the FlexFile initiative....

- Training Material
- Demos of IT capabilities (e.g., Creation Tool, FlexFile Ingestion In CADE, Chart and Analytics)
- Demo using fake data to show how an analyst may be able to use FlexFile data
- Implementation Guide
- Detailed instructions on how to fill out the new Co-Plan form

What do we need from you?

1. Identify early adapters that can benefit from a FlexFile

2. Become and advocate for the FlexFile

- Socialize the benefits of the FlexFile
- Attend similar meetings to support initiative

3. Allow us to come train

- Coordinate a meeting with your team to educate them on initiative



Government Lead:

Daron Fullwood
Director, Defense Cost and Resource Center (DCARC)
571-372-4267 Office
301-580-7222 Cell
Daron.D.Fullwood.civ@mail.mil

CADE Lead:

Marc Stephenson
(703) 697-0362 Office
Marc.J.Stephenson.ctr@mail.mil



COST ASSESSMENT DATA ENTERPRISE

1921-3 Business Base Report

CADE Cost & Technical Focus Group



1921-3 Intent and Uses



- The “CCDR” was implemented in 1973 and included 1921-3 as one of four forms
 - 1921, -1, and -2 provide detailed data related Direct cost expenditures on major system contracts
 - Assists in cost estimating the next contract or next system
 - Overhead applied as a factor/rate with no additional insight
 - The 1921-3 was intended for insight into Overhead rates
 - Assists in cost estimating the effects of changes to the business base, such as production rates
 - Insight into changes to organizational and accounting practices
 - Original intention for all CCDR forms to have a standardized set of Government functional categories:
 - “By use of the standard definitions and common data base of CCDR, it will be possible to evaluate contractor performance **consistent with proposal data** both in terms of a contractor’s own performance or proposed activity and against the **activity of other contractors**. This is especially true in the area of **overhead costs** which now account for over half of contract costs.... CCDR provides a basis for assessment of a contractor’s overhead cost status... in the context of the **overall incurrence posture** rather than just expressed as a non-specific rate of some base.”
- The CCDR has had no significant changes since 1973 until today
 - FlexFile as the update to 1921, -1, -2
 - Current effort seeks to update the 1921-3

Theory and Reality of Today's 1921-3



THEORY

- *If* both proposal and actual costs for contracts are provided in 1921-1 format, *then* the 1921-3 allows for consistent analyses of the business base and effects on overhead rates
- Standard gov't functional categories in 1921-1 and 1921-3 allows for cross-contractor comparisons
 - Aids in source selection, performance measurement, and so forth

REALITY

- Contract proposal data are not generally analyzed in 1921-1 Government categories
 - More often in contractor categories that align with Forward Pricing Rates (FPRs)
 - Contractor categories do not have a simple cross-walk to 1921-1 Gov't categories
 - Challenging to normalize
- Each contractor defines direct/indirect differently and interprets the binning to Gov't categories differently
 - Even today, cross-contractor comparisons are not valid without a deep dive into how the data were binned
 - For example, using disclosure statements
- Cost analysts have expressed a preference for contractor categories that align with FPRs
- 1921-3 Gov't categories can obfuscate important business base info
 - For example, the 1921-3 aggregates over separate bases/pools representing different locations



- Today's 1921-3 ***can lead to errors in cost estimates***
 - Inconsistencies between contractors
 - Inconsistencies within a contractor over time
 - Individual analyst interpretation
 - Accounting and organizational changes
- Government format creates a disconnect between the 1921-3 and the broader acquisition practices performed in contractor format
 - Does not line up with proposals, negotiations, and Forward Pricing Rates, and so forth
- Limited use of 1921-3 by cost analysts
 - Does not mean business base data is not valuable



Format Comparison: 1921-1 vs. 1921-3

The 1921-3 functional categories (right) are intended to align with the 1921-1 categories (below)

- **Engineering; Manufacturing Ops; Materials; Other**

Potential inconsistencies of relating 1921-1 to 1921-3:

- A program reflected in 1921-1 is manufactured at Location X, but the 1921-3 Manufacturing (mfg.) functional category aggregates over separate bases/pools for different locations
- For 1921-1, engineers supporting mfg. may be manually tagged to mfg., but 1921-3 data will not be manually segregated in the same way
- 1921-3 includes work scope not captured by 1921-1, and if significantly different in content or location, it may misalign
- Report as of dates may not align, and is especially hard to relate without time-phasing of cost/hours

Current 1921-3

SECTION A	DIRECT COST BY PROGRAM					DIRECT: COST / HOURS / MANPOWER											
	Program Name a	A/F	Contract Number b	Equivalent Units c	Buyer d	Engineering			Manufacturing Operations			Materials	Other				
						Workers e	Dollars f	Hours g	Workers h	Dollars i	Hours j	Dollars k	Workers l	Dollars m	Hours n		
6.																	
7.																	
8.																	
9.																	
10.																	
11.	Other DoD Effort																
12.	Other Government Effort																
13.	Commercial Effort																
14.	Total Direct Cost and Hours Base																
a.	Total Direct Workers																
SECTION C	INDIRECT COST CATEGORY					INDIRECT: COST / HOURS / MANPOWER											
						Engineering			Manufacturing Operations			Materials	Other			G&A	
						Workers o	Dollars p	Hours q	Workers r	Dollars s	Hours t	Dollars u	Workers v	Dollars w	Hours x	Dollars y	Hours z
15.	Indirect Labor																
16.	Employee Benefits																

Current 1921-1

FUNCTIONAL DATA ELEMENTS	COSTS AND HOURS INCURRED TO DATE			COSTS AND HOURS INCURRED AT COMPLETION		
	A. NONRECURRING	B. RECURRING	C. TOTAL	D. NONRECURRING	E. RECURRING	F. TOTAL
ENGINEERING						
(1) DIRECT ENGINEERING LABOR HOURS						
(2) DIRECT ENGINEERING LABOR DOLLARS						
(3) ENGINEERING OVERHEAD DOLLARS						
(4) TOTAL ENGINEERING DOLLARS						
MANUFACTURING OPERATIONS						
(5) DIRECT TOOLING LABOR HOURS						
(6) DIRECT TOOLING LABOR DOLLARS						
(7) DIRECT TOOLING & EQUIPMENT DOLLARS						
(8) DIRECT QUALITY CONTROL LABOR HOURS						
(9) DIRECT QUALITY CONTROL LABOR DOLLARS						
(10) DIRECT MANUFACTURING LABOR HOURS						
(11) DIRECT MANUFACTURING LABOR DOLLARS						
(12) MANUFACTURING OPERATIONS OVERHEAD DOLLARS (Including Tooling and Quality Control)						
(13) TOTAL MANUFACTURING OPERATIONS DOLLARS (Sum of rows 6, 7, 9, 11, and 12)						
MATERIALS						
(14) RAW MATERIAL DOLLARS						
(15) PURCHASED PARTS DOLLARS						
(16) PURCHASED EQUIPMENT DOLLARS						
(17) MATERIAL HANDLING/OVERHEAD DOLLARS						
(18) TOTAL DIRECT-REPORTING SUBCONTRACTOR DOLLARS						
(19) TOTAL MATERIAL DOLLARS						
OTHER COSTS						
(20) OTHER COSTS NOT SHOWN ELSEWHERE (Specify in Remarks)						8
SUMMARY						
(21) TOTAL COST (Direct and Overhead)						

Format Comparison: 1921-3 vs. Contractor Format (FPRR/FPRP/FPRA)



Gov't 1921-3 Format

Problem: bucketing to gov't categories ambiguous and different for each contractor; probably cannot be used to compare to FlexFile.

	hrs and \$				
	Engr	Mfg Ops	Mat'l	Other	G&A
Direct cost					
By program/contract					
Total Direct Base					
Total G&A Base					
Indirect Cost					
15. Indirect Labor					
16. Employee Benefits					
17. Payroll Taxes					
18. Employment					
19. Communication/Travel					
20. Production Related					
21. Facilities-Building/Land					
22. Facilities-Furniture/Equip					
23. Administration					
24. Future Business					
25. Other Miscellaneous					
26. Credits					
27. TL Indirect Cost and Hrs					
29. Indirect/Direct Cost Rate					

Problem: one CTR's direct is another's indirect (e.g., foremen at CTR A are indirect)

Problem: rates from gov't categories may not line up with FPRs – cannot be applied to pricing proposals

May or may not = FPR rates

Example Contractor A

Product Engr 1, Product Engr 2, Product Engr 3

Manufacturing, Plant Support, Modifications, QA, Mat'l Inventory

Mat'l Mgt Buyers

Program Office, Services, Admin

	hrs and \$							
	Engr	Mfg 1	Mfg 2	Mfg 3	MM	Mat'l	ODC	G&A
Direct cost								
By program/contract								
Total Direct Base								
Total G&A Base								
Indirect Cost								
Indirect Labor								
Indirect Fringe								
Travel, Taxes, & Insurance								
Depreciation & Amortization								
New Business Funds								
Corporate Office								
Facilities Cost								
Administrative Services								
Computing								
Other								
TL Indirect Cost and Hrs								
Indirect/Direct Cost Rate								

Benefit: insight into business base by location

Benefit: lines up with FPRs so gov't cost analyst is talking the contractor's language

FPR OH Rates

Benefit: direct mapping from contractor categories; 1921-3 may provide mappings for FlexFile

Example Contractor B

Engr Supt (AAF, IDX, PSD), Mechanical, Design (PPO, PPK, PPN...)

Touch (TEC, TRE, TWD, TSD, TPS, TPC, TPV,...)

Program support

Separate OH for each Location

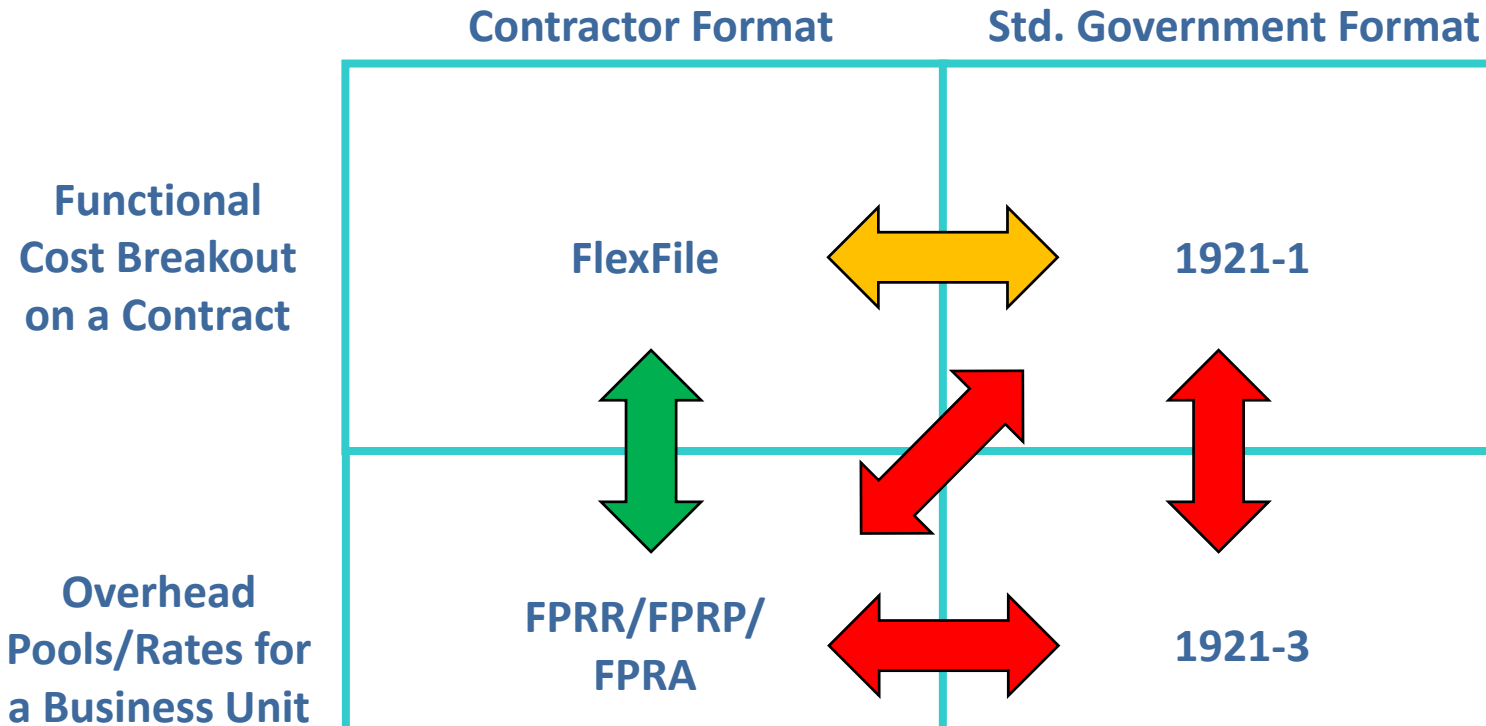
	hrs and \$					
	Engr	Mfg	Prog Supt	Mat'l	Other	G&A
Direct cost						
By program/contract						
Total Direct Base						
Total G&A Base						
Indirect Cost						
Indirect Labor						
Indirect Fringe						
Internal Categories..						
Home Office						
Shared Service Groups						
EO&T						
TL Indirect Cost and Hrs						
Indirect/Direct Cost Rate						

FPR OH Rates

Potential inconsistencies of using the Government 1921-3 Format:

- 1) 1921-3 categories may aggregate over several different bases/pools;
- 2) may not have consistent mappings to gov't standard over time due to ambiguous categories such as SEPM and material buyers;
- 3) illusion of comparability – difficult to compare across contractor without detailed accounting disclosure statements and extensive normalization

FlexFile Touchpoints



The FlexFile provides **both** contractor and government functional categories, allowing us to utilize and update legacy parametric models

The FlexFile provides **both** contractor and government functional categories, allowing us to update the 1921-3 to contractor format without losing the cross-walk with detailed FlexFile contract data

Major inconsistencies may result from relating contract-level and/or business unit-level costs using the government format



Ultimate Goal: Integrate cost and contract processes

- 1921-3 is part of a broader effort seeking to tie the cost and contracting communities
 - Contract community cannot use CSDR (or EVMS) data effectively because it comes in different cost categories
 - **Contracting:** CLIN and Contractor Rates
 - **CSDR:** Standardized WBS and Rates
 - *No cross-walk between the two*
- FlexFile and 1921-3 together will tie cost actuals to the contracting process
 - **Direct costing:** FlexFile will include CLIN as well as labor/materials consistent with FPR
 - **Overhead costing:** 1921-3 will include those same FPR categories that allows analysts to build up to fully burdened costs
- **Bottom line:** This update will not only improve cost estimating, but the entire defense acquisition process

Auditing

DCAA audits as part of overall surveillance of contractor accounting practices and DCMA audits EVMS, but not CSDR

Pricing Rates

DCMA negotiates rates/factors for contract proposals according to audited bases/pools for each major contractor

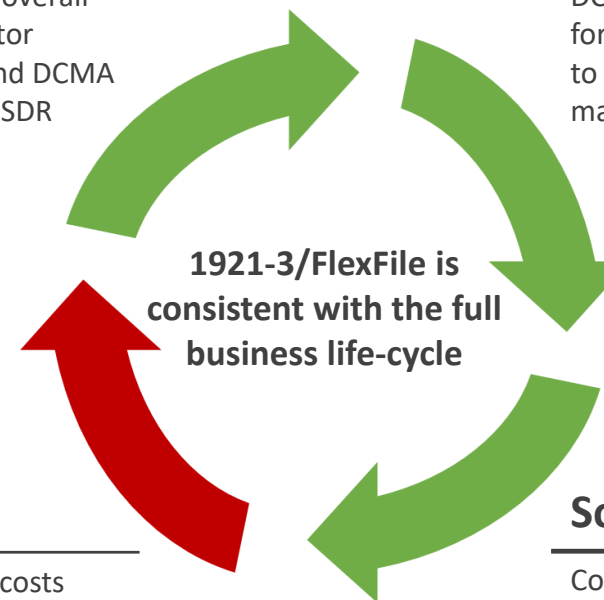
Cost Actuals

EVMS and CSDR actual costs reports are often not reported by CLIN or DCMA rates/factors. WBS is often not standard and inhibits comparative analysis

Legacy Reports only supports cost analysis

Source Selection

Contracting officers solicit and receive proposals by CLIN consistent with DCMA rates/factors





1921-3 Working Group Leads:

Michael Biver, OSD Cost Assessment & Program Evaluation (CAPE)

Marvin Charles, Air Force Cost Analysis Agency (AFCAA)

1921-3 Support :

Eric Lofgren, Cost Assessment Data Enterprise (CADE)

eric.m.lofgren.ctr@mail.mil

(571) 256-9972



COST ASSESSMENT DATA ENTERPRISE

Bill of Material (BOM)

CADE Cost & Technical Focus Group





Purpose of BoM DID

- BoM data already exists in industry data systems, but no effort previously made by Government cost estimating community to centralize collection and investigate some level of standardization in format
- BoM data mapped to Work Breakdown Structure (WBS) is very important for cost estimating in some situations
 - E.g., cost breakdown below what exists in accounting system, insight into cost by supplier, part commonality across platforms

Status

- Draft DID developed and distributed for comment in January 2018

We plan on continuing to pursue a standardized BoM DID, but tradespace exists in terms of format and data fields requested

BoM DID Path Forward



- Current draft DID assumes standardized data model for all contracts with ~40 fields for each part
 - Assumption is that contractor-format BoMs already have some percentage of this information, but existing vs. non-existing fields and effort associated with standardized format have not fully been explored
- Before approving any new DID, we need to understand status quo BoM submissions and cost of requiring data submission in standardized format (with potential additional of data fields that don't already exist)
- Our priority will be determining policy for new approved DIDs (e.g., flexfile) and understanding status quo BoM submissions prior to requesting comments on new iterations of draft BoM DID

We will be asking for industry help (notionally in the August timeframe) in understanding the cost-effectiveness of points within the BoM DID tradespace via pilots sometime later this summer



COST ASSESSMENT DATA ENTERPRISE

Back-Up






The BoM IPT is made up of leaders across the Services, Acquisition and Contracting communities in order to make sure key stake holders are represented in requirements phase.


 **Air Force**
AFCAA

 **Navy**
NCCA
NAVAIR
NAVSEA
SPAWAR

 **USMC**

 **Army**
DASA-CE
TACOM
ARMY
USAMC

 **MDA**
MDA/CP

 **AT&L**
DCMA
DCAA

 **OSD**
CAPE

Industry
CIPTs
Aviation,
WTV

BOM Objectives



Problem Statement:

Current FAR/DFARS Requirements provide very little format guidance for submitting cost and pricing data

Need Statement:

The absence of DoD-wide policy requiring the collection of structured and consistent BOM data is severely limiting the DoD's ability to make effective acquisition and cost estimating decisions.



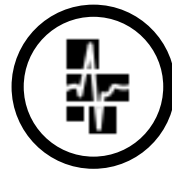
Increase Effectiveness

- Provide a holistic view of total program costs
- Create a standardized and repeatable process for submitting BOMs



Ensure Completeness

- Provide the missing link between supplier and prime contractor costs
- Facilitate Commonality across programs/platforms
- Provide more insight into material cost for Flex File and Quantity
- Receive crucial supplier information in addition to a complete list of parts, materials, quantities and unit price



Improve Cost Estimate Fidelity

- Connect Product Development, Supply chain ,Manufacturing and purchase agreement in relationship with Work Break Down structure
- Allow insight into pre-contract award process, knowledge of supply chain and provide material cost analysis capabilities with standard database
- Provide annual BOM updates
- Integrate Cost and Contracting Communities like DCMA and DCAA

Goal: Structured BOM data stored in single repository available to defense cost, acquisition, contracting and logistics communities.

Gaps in Today's Current CSDR Material Cost Data

Policy

- › Absence of DoD-wide policy for collecting BoMs of robust, consistent content to support acquisition decision-making and life-cycle cost analysis

Product

- › Lack of standardization in the BoM submissions
- › Variations in part numbers, nomenclature, and serial numbers even for the same contractor, and sometimes within the same business segment
- › Cost analysts have material cost data by WBS, but does not know the key cost drivers by WBS
- › No data of commonality available to cost analysts
- › Very difficult to understand product complexity to normalize historical cost data
- › No data for minimum quantity buy and supply chain

Linkage to a Mil-Standard WBS

- › Linkage to WBS is inconsistent or non-existent



Solutions to Gaps provided by a BOM Data Report

Policy

- › Creation of a standardized reporting format (created by cross-organizational Integrated Product Team) and searchable database with capability to query parts across Services and/or part numbers

Product

- › BOM data provided will integrate into FlexFile Material Costs line
- › Part Nomenclature per DoD Standards
- › Supplier and supply tier information will be identified for all part numbers.
- › Collecting purchase data information such as: exchange rate, factor buy, basis of unit price, step pricing information

Linkage to a Mil-Standard WBS

- › Breakout material cost and parts data by WBS

Data and Initial Findings

- › Six BOMs collected by DCMA HA for NCCA/Technomics (Pre-Option Year 1)
 - › Aircraft (Excel)
 - › P-8A Poseidon
 - › KC 46
 - › Missiles (Excel)
 - › SM-2
 - › Tomahawk
 - › AIM-9
- › Unmanned Aircraft (PDF)
 - › Triton
- › The number of data fields range from 98 (Tomahawk) to 31 (AIM-9)
- › No uniformity on fields across programs and contractors

2017 Aviation CIPT Contractor Responses



Questions	Supplier A	Supplier B	Supplier C	Supplier D	Supplier E
Level of BOM Shared with Govt./Is this the same BOM for DCAA Audits	No, not same shared with DCAA	Yes	Yes, CBOM shared with DCAA	Yes, CBOM shared with DCAA	Yes, CBOM shared with DCAA
Is a BOM mapped to WBS with parent child relationship?	No but can supply if requested	Yes	Yes, mapped if requested in RFP	Yes	Yes, depending on site/program
Is BOM output of your MRP system?	Fully integrated BOM and MRP system (SAP) and BOM is input to MRP system not output	BOM is output of the ERP system and loaded into Material Planning System/ utilizes SAP system	Yes, maintain Material Management and Accounting System for planning, controlling and acquisition	Yes/ scheduled requirements, BOM, Part/Material Master Data and inventory feed MRP	Yes, CBOM is best of what is known at time for estimating
Parts commonality across platforms	Yes, across platforms	Yes	Some hardware and material components	Yes, common parts across many platforms	Yes
How is BOM used across competency skills (cost estimating, product engineering, O&S, etc.)	<ul style="list-style-type: none"> • Engineering – Design &SE • Configuration of end item • Manufacturing • Supply Chain • O&S managed through EBOM • Cost Estimating 	<ul style="list-style-type: none"> • Engineering • Manufacturing • Supply chain • Sustainment • Contracting • Cost Estimating 	<ul style="list-style-type: none"> • Engineering -SE • Manufacturing • Supply chain • Sustainment • Contracting • Cost Estimating 	<ul style="list-style-type: none"> • Engineering • Manufacturing • Supply chain • Sustainment • Contracting • Proposal 	<ul style="list-style-type: none"> • Systems Engineering-PBOM/CBOM • Cost Estimating-creators of PBOM/ CBOM • Manufacturing • Supply chain
Make vs Buy decision tracked in BOM	Yes	Yes	Yes/ kept in current SAP	Yes/ tracked in BOM	Yes/ tracked in BOM



Cost Estimating

- › Improves Government's negotiating position by creating symmetry in material data collection across DoD. Reduce information asymmetry to improve the Government's negotiating position.
- › Develop additive factor for scrap, spoilage, recognition of salvageable material etc.
- › Allow the cost analyst to compare prices across platforms and suppliers
- › Develops accurate and defensible escalation factors
- › Understand the prime mission program complexity and scope from analogous program for data normalization and risk analysis
- › Make vs Buy strategy used by prime contractor

Should Cost Analysis

- › Quantity discount, multi-year procurement
- › Cost data benchmarking across platforms

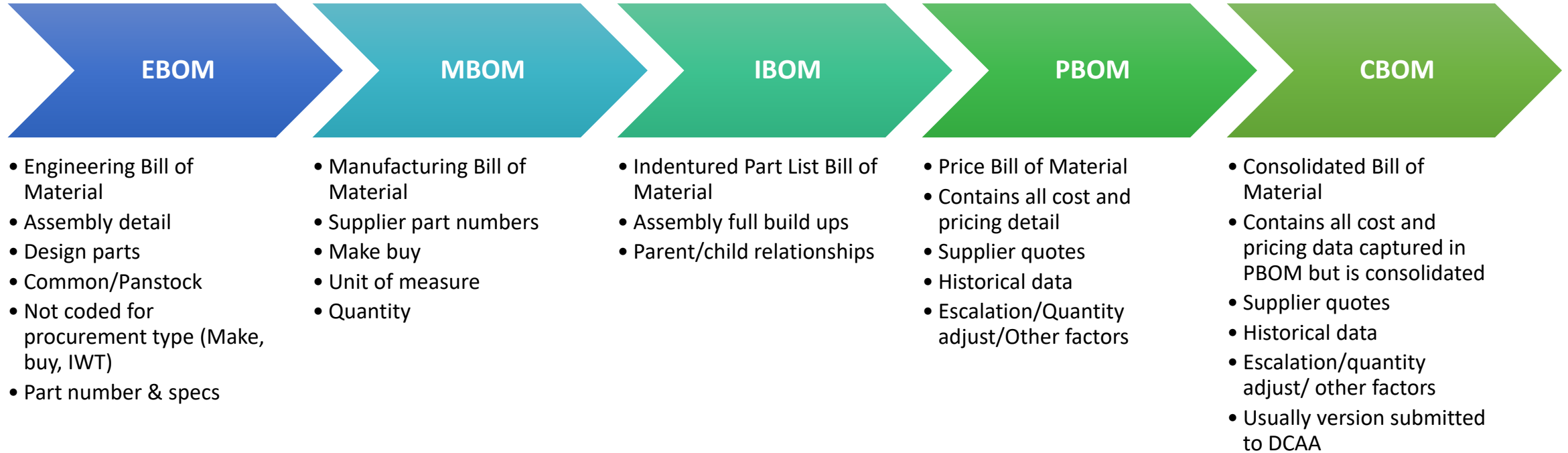
Supply Chain Management

- › Highlights vendor chain- Tier 1, 2, and 3
- › Better Evaluation of proposed material prices (Competing supplier quotes for same quantities, discounts, minimum buy, productivity factor, inventory etc.)

Acquisition Strategy/Audit

- › Determine if proposed costs are consistent with established /disclosed practices
- › Compare proposed quantity to supporting documents per CAs 401/402;/FAR 31.202/31.203
- › Commonality across platforms to estimate total quantity, learning curve and EOQ analysis.
- › Understand effect of contracting strategies by contract type using BoM
- › Detail material cost analysis as required by FAR 31-205-26

Bill of Material Development Process





Pilot Implementation Phase

Formal Coordination & Roll-Out

Solicit volunteer pilot program
April - May



Pilot Phase 1



Pilot Review/ Update DID
& Comment Adjudication



Industry Comment
& Adjudication



Pilot Phase 2



Pilot Review/ Update DID
& Comment Adjudication



Industry Comment
& Adjudication



BoM DID Data Modeling – IT Development



Formal Coordination



Training/ Roll-Out



BOM IPT Meeting



Industry Review



BOM IPT Meeting



Industry Review



BOM IPT Meeting



BOM IPT Meeting



June 2018

July

August

September

October

November

December

January

February 2019

March

April

WALK

RUN



Learn

- How contractors develop BOMs, with attention to
 - Contractor source data systems
 - Existing data fields
 - Barriers to establishing a common taxonomy
- Assess full impact on Industry
- Identify opportunities to refine requirements

Educate

- Government use cases for cost data
- How BOM requirements coincide with current contractor BoM data collection
- Provide summary and lessons learned from pilots
- Obtain buy-in from all stakeholders

Industry Participation is Needed



This Effort is A Work in Progress:

- Ensure we understand the domain experts data need and contractor Current State Capabilities
- Select Pilot Programs – Encourage contractors to volunteer
- Need to define the expected BoM integration into CAPE/CSDR business process
- What are the traceability constraints to a CCDR or Flex File?
- Define database requirements and IT capabilities
- Develop Training for government cost analyst

Industry Engagement: Pilot by commodity to capture voice of customer



COST ASSESSMENT DATA ENTERPRISE

CADE Sustainment Reporting
Maintenance and Repair Parts (-M/R) Reporting

CADE Cost & Technical Focus Group

Lisa Mably

lisa.a.mably.civ@mail.mil



- › Maintenance/Repair Parts Reporting (-M/R)
 - › What is it?
 - › When should I use it?
 - › How do I identify the requirement?
 - › How do I use the data?
 - › Where do I get more information?



Collects maintenance event and LRU and/or repair part cost and failure data from contractors, equivalent to what we collect for organically repaired systems

Some of this type of data has been collected in the past (e.g., JSF, Stryker) using CDRLs but –M/R form institutionalizes the requirement to ensure analysts have same level of data currently available from organically repaired systems

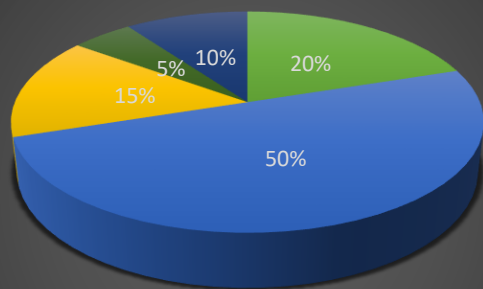
Provides critical information needed to better understand cost, availability, and develop improved estimating techniques

This information is critical to assessing and managing cost/availability performance

When Should I Request a 1921-M/R?



Relative Contract Cost*



- Program Management
- Supply Chain Management
- Training System Sustainment
- Technica Data Updates
- Support Services

*Notional

When a significant portion of contract cost is tied up in parts related maintenance activities

- › Supply Chain
- › Heavy Maintenance
- › Recurring Spares
- › Repair

When Flex File reporting eliminates insight into what is driving maintenance activities

Flex File Software, & Technical Data Co-Plan



COST, SOFTWARE, & TECHNICAL DATA REPORTING/EARNED VALUE MANAGEMENT CO-PLAN													
11. WORK BREAKDOWN STRUCTURE (WBS)				12. FLEXFILE		13. IPMR	14. TECHNICAL DATA						
a. PROGRAM/ CONTRACT/ SUBCONTR	b. WBS CODE	c. WBS LEVEL	d. WBS ELEMENT NAME	a. ACTUALS TO DATE (ATD)	b. FORECAST AT COMPLETION (FAC)	a. FORMAT 1 ALIGNMENT WITH FAC	a. QUANTITY		b. SOFTWARE			c. TECHNICAL DATA	d. MAINT. & REPAIR
							i. QUANTITY DATA	ii. GFE QUANTITY	i. SRDR DEV.	ii. SRDR MAINT.	iii. SRDR ERP		
1.0	1.0	1	Sustainment Effort	X	X							X	
1.1	1.1	2	Unit-Level Manpower (System Level Cost Only)	X	X							X	
1.1.1	1.1.1	3	Operations Manpower	X								X	
1.1.2	1.1.2	3	Unit-Level Maintenance Manpower	X								X	
1.1.3	1.1.3	3	Other Unit-Level Manpower (Specify in Remarks)	X								X	
1.2	1.2	2	Unit Operations (System Level Cost Only)	X	X								
1.2.1	1.2.1	3	Operating Material	X									
1.2.1.1	1.2.1.1	4	Energy	X								X	
1.2.1.1.1	1.2.1.1.1	5	Fuel	X									
1.2.1.1.2	1.2.1.1.2	5	Petroleum, Oil and Lubricants (POL)	X									
1.2.1.1.3	1.2.1.1.3	5	Electricity	X									
1.2.1.2	1.2.1.2	4	Training Munitions/Expendable Stores	X								X	
1.2.1.2.1	1.2.1.2.1	5	Ammunition	X									
1.2.1.2.2	1.2.1.2.2	5	Bombs	X									
1.2.1.2.3	1.2.1.2.3			X									
1.2.1.2.4	1.2.1.2.4			X									
1.2.1.2.5	1.2.1.2.5			X									
1.2.1.2.6	1.2.1.2.6			X									
1.2.1.2.7	1.2.1.2.7			X									
1.2.1.3	1.2.1.3	4	Other Operating Material (Specify in Remarks)	X									
1.2.2	1.2.2	3	Support Services (Including Non-Maintenance FSRs)	X									
1.2.2.1	1.2.2.1	4	Non-Maintenance Field Service Reqs	X									
1.2.2.2	1.2.2.2	4	Communication Services	X									
1.2.2.3	1.2.2.3	4	Facility/Storage Services	X								X	
1.2.2.4	1.2.2.4	4	Transportation Services	X								X	
1.2.2.5	1.2.2.5	4	Other Support Services	X									
1.2.3	1.2.3	3	Temporary Duty	X									
1.3	1.3	2	Maintenance	X	X							X	X
1.3.1	1.3.1	3	Consumables and Repair Parts	X								X	X
1.3.1.1	1.3.1.1	4	Airframe/Hull/Vehicle Consumables and Repair Parts	X									
1.3.1.2	1.3.1.2	4	Propulsion Consumables and Repair Parts	X									
1.3.1.3	1.3.1.3	4	Electronics/Avionics Consumables and Repair Parts	X									
1.3.1.4	1.3.1.4	4	Other Major Subsystem Consumables and Repair Parts 1.n (Specify)	X									
1.3.1.5	1.3.1.5	4	Other Consumables and Repair Parts	X									
1.3.2	1.3.2	3	Depot Level Repairables (DLRs) / Repair of Repairables (RORs)	X								X	X
1.3.2.1	1.3.2.1	4	Airframe/Hull/Vehicle DLRs	X									
1.3.2.2	1.3.2.2	4	Propulsion DLRs	X									
1.3.2.3	1.3.2.3	4	Electronics/Avionics DLRs	X									
1.3.2.4	1.3.2.4	4	Other Major Subsystems DLRs 1.n (Specify)	X									
1.3.2.5	1.3.2.5	4	Other DLRs	X									
1.3.3	1.3.3	3	Intermediate Maintenance	X								X	X
1.3.3.1	1.3.3.1	4	Intermediate Maintenance Consumable Materials and Repair Parts	X									
1.3.3.2	1.3.3.2	4	Intermediate-Level Government Maintenance	X									
1.3.3.3	1.3.3.3	4	Intermediate-Level Contractor Maintenance	X									
1.3.3.4	1.3.3.4	4	Other Intermediate-Level Maintenance	X									
1.3.4	1.3.4	3	Depot Maintenance	X								X	X

WBS Reporting Structure

FlexFile

TDR

-M/R

Partial View



Maintenance Event Report

Maintenance Event

System/End Item Data:

- End Item Number
- End Item/Variant

Failure Data:

- Non-Mission Capable
- Scheduled Event
- Failure Code
- Failure Code Description

Repair Data:

- Start/Completion Date
- Org/Location
- Maintenance Type
- WBS ID
- Labor Hours

FORMAT 3 (1921-M, PART B)



Repair Part Report

Repair Parts

Repair Code/Description

Repair Part Data:

- LRU or Part Name
- 881 Reference
- Repairable or Consumable
- Quantity
- LRU or Part Number
- NSN
- WUC
- FWG
- Replacement Cost
- Repair Cost

FORMAT 3 (1921-R, PART C)

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

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



Contractor Managed Repair with Contractor IT System

- › Effort includes scheduled and unscheduled events and DLR management/repair activities
- › Contractor would have knowledge of most all required information

MAINTENANCE EVENT REPORT															
MAINTENANCE EVENT NUMBER	SYSTEM/END ITEM DATA				FAILURE DATA				REPAIR DATA					COMMENTS	
	SYSTEM/END ITEM or DLR NIIN	SYSTEM/END ITEM SERIAL NUMBER	END ITEM (VARIANT)	ORDER NAME	NON-MISSION CAPABLE	SCHEDULED EVENT	FAILURE CODE	FAILURE CODE DESCRIPTION	START DATE	COMPLETION DATE	REPAIR ORG/LOCATION	MAINTENANCE EVENT TYPE	WBS ID		LABOR HOURS
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
0001	432	12345	XXXX	XXXX	Y	N	7A	020 Worn Excessively	4/9/16	4/9/16	XXXX	Unscheduled Overhaul	1.3.4.2	12	
0002	4325	100012	XXXX	XXXX	N	N	R45	020 Worn Excessively	4/9/16	4/17/16	XXXX	DLR Repair	1.3.2	2	DLR repaired and returned to inventory

REPAIR PART REPORT														
MAINTENANCE EVENT NUMBER	REPAIR ACTION CODE	REPAIR ACTION DESCRIPTION	REPAIR PART NAME	881 REFERENCE	REPARABLE or CONSUMABLE	REPAIR PART QUANTITY	CONTRACTOR PART NUMBER	REPAIR PART NSN (OR NIIN)	REPAIR PART WUC/LCN	REPAIR PART FWG	REPLACEMENT COST	REPAIR COST	COMMENTS	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	
0001	8881	Replace Main Blade 1	Main Blade 1	XXXX	R	2	7000	XXXX	XXXX	19XL 199	\$ 4,000	\$ 350		
⋮	⋮	⋮	Balance Shaft Cover	XXXX	C	2	7001	XXXX	XXXX	19XL 199	\$ 200			
⋮	⋮	⋮	Balance Block	XXXX	C	2	7002	XXXX	XXXX	19XL 199	\$ 40			
⋮	⋮	⋮	Flybar Rod	XXXX	C	1	7003	XXXX	XXXX	19XL 199	\$ 75			
⋮	⋮	⋮	Flybar Joint	XXXX	R	1	7004	XXXX	XXXX	19XL 199	\$ 3,000	\$ 250		
0002	8881A	Repair Flybar Joint	Flybar Joint	XXXX	R (Y)	1	7004	XXXX	XXXX	19XL 199	\$ 3,000	\$ 250	DLR repaired and returned to inventory	
			Replace pins	XXXX	C	1	70236	XXXX	XXXX	19XL 199	\$ 10			

-M/R Reporting, Example 2



Repair Only Contract

- › Contractor is required to repair components but lack knowledge of what happened before receiving them
- › Specific system/end item may be unknown (i.e., serial number and variant)
- › Non-Mission Capable data item would not apply
- › Components may have been unscheduled removals or scheduled removals

MAINTENANCE EVENT DATA															
MAINTENANCE EVENT NUMBER	SYSTEM/END ITEM DATA				FAILURE DATA				REPAIR DATA						COMMENTS
	SYSTEM/END ITEM or DLR NIIN	SYSTEM/END ITEM SERIAL NUMBER	END ITEM (VARIANT)	ORDER NAME	NON-MISSION CAPABLE	SCHEDULED EVENT	FAILURE CODE	FAILURE CODE DESCRIPTION	START DATE	COMPLETION DATE	REPAIR ORG/LOCATION	MAINTENANCE EVENT TYPE	WBS ID	LABOR HOURS	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
0001	4325	?	?	XXXX	NA	?	R45	020 Worn Excessively	4/9/16	4/17/16	XXXX	DLR Repair	1.3.2	2	DLR repaired and returned to inventory

REPAIR PART REPORT													
MAINTENANCE EVENT NUMBER	REPAIR ACTION CODE	REPAIR ACTION DESCRIPTION	REPAIR PART NAME	881 REFERENCE	REPARABLE or CONSUMABLE	REPAIR PART QUANTITY	CONTRACTOR PART NUMBER	REPAIR PART NSN (OR NIIN)	REPAIR PART WUC/LCN	REPAIR PART FWG	REPLACEMENT COST	REPAIR COST	COMMENTS
A	B	C	D	E	F	G	H	I	J	K	L	M	N
0001	8881A	Repair Flybar Joint	Flybar Joint	XXXX	R (Y)	1	7004	XXXX	XXXX	19XL 199	\$ 3,000	\$ 250	DLR repaired and returned to inventory
			Replace pins	XXXX	C	1	70236	XXXX	XXXX	19XL 199	\$ 10		

-M/R Reporting, Example Cost Reports




Maintenance Event Date Report - Example

MAINTENANCE EVENT DATA															
MAINTENANCE EVENT NUMBER	SYSTEM/END ITEM DATA				FAILURE DATA				REPAIR DATA						COMMENTS
	SYSTEM/END ITEM OR DLR NIIN	SYSTEM/END ITEM SERIAL NUMBER	END ITEM (VARIANT)	ORDER NAME	NON-MISSION CAPABLE	SCHEDULED EVENT	FAILURE CODE	FAILURE CODE DESCRIPTION	START DATE	COMPLETION DATE	REPAIR ORG/LOCATION	MAINTENANCE EVENT TYPE	WBS ID	LABOR HOURS	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	100000004	170004	A	-	N	Y	804	Removed for scheduled maintenance	9/1/18	9/3/18	I-Level Activity	Inspection	1.3.3.3	34	
2	100000014	170014	A	-	Y	N	805	Removed for Safety of Flight Msg/use/analysis	9/3/18	9/6/18	I-Level Activity	Inspection	1.3.3.3	46	
3	100000027	170027	B	-	N	Y	804	Removed for scheduled maintenance	9/6/18	9/8/18	I-Level Activity	Inspection	1.3.3.3	29	
4	012639440	-	-	-	-	-	-	DLR Repair	9/9/18	9/12/18	DLR Facility	DLR	1.3.2	31	
5	100000006	170006	A	-	N	Y	804	Removed for scheduled maintenance	9/10/18	12/29/18	Depot Facility	Depot Repair	1.3.4.1	2,110	
6	100000016	170016	B	-	N	Y	804	Removed for scheduled maintenance	10/31/18	1/20/19	Depot Facility	Depot Repair	1.3.4.1	1,275	
7	100000024	170024	B	-	N	Y	804	Removed for s							
8	010540042	-	-	-	-	-	-								
9	100000019	170019	B	-	N	Y	804	Removed for s							
10	100000012	170012	A	-	N	Y	804	Removed for s							

Repair Part Data Report - Example

MAINTENANCE EVENT NUMBER	REPAIR ACTION CODE	REPAIR ACTION DESCRIPTION	REPAIR PART NAME	REPAIR PART DATA												COMMENTS
				881 REFERENCE	REPARABLE or CONSUMABLE	REPAIR PART QUANTITY	CONTRACTOR PART NUMBER	REPAIR PART NSN (OR NIIN)	REPAIR PART WUC/LCN	REPAIR PART FWG	REPLACEMENT COST	REPAIR COST				
				A	B	C	D	E	F	G	H	I	J	K	L	
12	B	Adjusted	BRACKET,MOUNTING	1.2.3	C	0	666070	003437458	23	-	-	138.04				
13	A	Replaced	LIGHT ASSEMBLY INDICATOR	1.2.4.3	C	1	1271986	012480953	44	-	-	21,364.00				
14	B	Adjusted	NUT,TUBE COUPLING	1.2.4.8	C	0	168467	002033831	46	-	-	2.74				
15	N	Checked not reparable	POWER UNIT,GAS TURBINE ENGINE	1.2.4.3	R(N)	1	1038871	012639440	24	-	-	24,607.00	6,915.28			
16	A	Replaced	NUT,RTNR-ASSY	1.2.4.2	C	1	1842566	012700518	14	-	-	697.58				
17	A	Replaced	TERMINAL JUNCTION BLOCK,SECTIONAL	1.2.4.3	C	1	527541	014500409	44	-	-	97.70				
18	A	Replaced	BOOT,DUST AND MOISTURE SEAL	1.2.4.2	C	1	1259249	011752032	14	-	-	842.01				
18	B	Replaced	WHEEL ASSEMBLY,AIRCRAFT	1.2.4.9	C	1	1233173	012982516	13	-	-	76,101.90				
19	A	Replaced	PIN,RETAINING	1.2.4.4	C	1	438689	002236112	45	-	-	21.71				
19	B	Adjusted	PIN,RETAINING	1.2.4.4	C	0	438689	002236112	45	-	-	21.71				
19	A	Replaced	BUTTON,BEARING,THRO	1.2.3	C	1	254863	011020531	23	-	-	2.40				
19	B	Adjusted	NUT,RTNR-ASSY	1.2.4.2	C	0	1842566	012700518	14	-	-	697.58				
19	A	Replaced	TRANSPARENCY,CANOPY,FORWARD	1.2.2.2	R	1	140822	011950673	12	-	-	6,526.00	1,077.65			
19	A	Replaced	PANEL,POWER DISTRIBUTION	1.2.5.5	R	1	974960	010510534	74	-	-	886.00	155.22			
19	A	Replaced	ANTENNA ASSEMBLY	1.2.5.2	C	1	1580945	013513710	63	-	-	4,800.51				
19	A	Replaced	DUCT ASSEMBLY,AIR CONDITIONING-HEATING,AIRCRAFT	1.2.4.7	C	1	1754422	010467687	41	-	-	1,094.30				
19	C	Repaired	STEERING UNIT,AIRCRAFT NOSEWHEEL	1.2.4.9	R(Y)	-	294365	010540042	13	-	-	1,916.00	631.73			
19	A	Replaced	WICK	1.2.4.7	C	1	1850775	012130942	41	-	-	139.50				
19	A	Replaced	HOSE,AIR BREATHING	1.2.4.7	C	1	472661	007622336	47	-	-	209.84				
19	A	Replaced	WASHER,FLAT	1.2.4.2	C	1	596046	006557219	14	-	-	6.20				
19	A	Replaced	COVER,DUST	1.2.4.7	C	1	1751989	010681461	41	-	-	15.95				
19	A	Replaced	SWITCH,SENSITIVE	1.2.4.9	C	1	1600696	014685473	13	-	-	793.24				
19	A	Replaced	RECEIVER-TRANSMITTER,RADAR	1.2.5.5	C	1	1579419	013499175	74	-	-	27,865.00				
19	A	Replaced	COUPLING,CLAMP,GROOVED	1.2.4.5	C	1	55132	003434276	42	-	-	970.12				
19	A	Replaced	BEARING,SLEEVE	1.2.2	C	1	2043907	010761467	11	-	-	320.88				
19	C	Repaired	GEARBOX,ACCESSORY DRIVE,TURBINE ENGINE	1.2.4.3	R(Y)	-	1267041	012355249	24	-	-	47,582.00	13,268.18			
19	B	Adjusted	COUPLING ASSEMBLY,TUBE,FLEXIBLE	1.2.3	C	0	453099	011636997	23	-	-	566.93				
19	A	Replaced	BATTERY,STORAGE	1.2.5.5	R	1	1672470	010550435	74	-	-	29,900.53	5,238.53			
19	A	Replaced	PLUG,MACHINE THREAD	1.2.4.7	C	1	989922	008370856	41	-	-	2.20				





[Request CADE Account](#)
[CADE Registration Instructions](#)
[CADE Portal Login](#)
[STUDENT FACADE Login](#)

Who We Are
CADE Users
Policy & Guidance
Tools
Training
News
Contact Us

Sitemap / Home / Policy & Guidance / Tech Data

Tech Data

- Emerging Guidance >
- CARD Guidance
- Contract Data Requirements List
- CSDR Compliance Rating
- CSDR Plan Standards
- CSDR Reporting Policies
- CSDR/EVM Co-Plan
- Data Item Descriptions and Forms
- Data on Government Performed Efforts
- FlexFiles
- Inflation and Escalation
- Indefinite Delivery/Indefinite Quantity
- Knowledge Sharing and Data Storage
- O & S
- PARCA EVM Guidance
- Software Data
- Sustainment Data
- Technical Data

Tech Data

The CAPE & Service Cost Agencies have developed a standardized data template format that specifies the universe of technical parameters that can be collected for each weapon system commodity type (e.g., aircraft, ships, missiles) and defines each parameter consistent with systems engineering practices, MIL-STDs, and Industry guidelines. This revolutionary improvement to the DoD data repository lays the foundation for system architecture trades, affordability analysis, root cause analyses, and life cycle cost estimating activities. The resulting data templates serve as the basis of a new report titled the Technical Data Report (TDR), or 1921-T, that will be a key component of CSDR on future contracts. The Technical Data Working Group includes representatives from the Offices of the Deputy Assistant Secretary of Defense for Systems Engineering (DASD(SE)) and Assistant Secretary of Defense for Logistics and Materiel Readiness (ASD(L&MR)). This cooperation ensures that the parameters, units, and collection methodologies proposed are consistent with DoD data taxonomy and Industry processes.

Technical Data Report DID – Nov. 2017

Technical Data Reporting DID Training - Nov. 2017

DRAFT FlexFile CSDR/EVM Co-Plan – June 2017 Release

Draft Technical Data Commodity Specific Standard Plans Tables.zip

Plan Standards By Commodity

- Aircraft
- ICBM
- AIS Investment
- Launch
- Avionics
- Missile
- C4I Electronics
- Space
- C4I Radar
- UAV
- Electronic Warfare
- Download All Commodities
- Engine

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

Maintenance and Repair Data

The Maintenance and Repair part DID and form is used by contractors to submit: (1) maintenance event data 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, and (2) identify the repair parts associated with each maintenance event.

Maintenance and Repair Parts Data Report DID – Nov 2017

Maintenance and Repair Data DID Training – Nov. 2017

Backup



-M/R, Data Elements & Definitions



Data Element	Report Column		Data Type	Definition
Maintenance Event Number	-M	A	Identifier	The event number associated with the maintenance activity.
System/End Item or DLR NIIN	-M	B	System Data	The National Item Identification Number (NIIN) of the system or end item (i.e., aircraft, tank, ship, etc.). Also used for the DLR NIIN for depot work on DLRs (e.g., overhaul of engines, transmissions).
System/End Item Serial Number	-M	C	System Data	The contractor issued serial number of the end item or system receiving maintenance.
End Item (Variant)	-M	D	System Data	The End Item or variant, consistent with Data Group B (Government Furnished Information), which applies to the reported maintenance event. The End Item shall be the same as Block 20, referenced from the current Co-Plan.
Order Name	-M	E	System Data	Enter the Order Name, consistent with Data Group B (Government Furnished Information), which applies to the reported maintenance event. The Order Name shall be the same as Block 19b, referenced from the current Co-Plan.
Non-Mission Capable	-M	F	Failure Data	Y if the fault caused the equipment to be Non-Mission Capable or N if the fault did not cause the equipment to be Non-Mission Capable.
Scheduled Event	-M	G	Failure Data	Y if the maintenance was a scheduled event or N if the maintenance was an unscheduled event.
Failure Code	-M	H	Failure Data	The failure code associated with the maintenance event. If Army, enter the Army's three (3) digit numeric failure code for the part. See DA Pamphlet 750-8, Table B-2 for a complete list of failure codes and their descriptions. If Navy, refer to Naval Aviation Maintenance Program (NAMP) CNAFINST 4790.2C. If Air Force, refer to AFI 63-101/20-101, Integrated Life Cycle Management.
Failure Code Description	-M	I	Failure Data	A brief description of the failure code. If Army, see DA Pamphlet 750-8, Table B-2 for a complete list of failure codes and their descriptions. If Navy, refer to Naval Aviation Maintenance Program (NAMP) CNAFINST 4790.2C. If Air Force, refer to AFI 63-101/20-101, Integrated Life Cycle Management.
Start Date	-M	J	Repair Data	The date when failure occurred.
Completion Date	-M	K	Repair Data	The date when the repair was completed and the unit was available for use.
Repair Org/Location	-M	L	Repair Data	The location where the repair was performed (use the CAGE code if identified).
Maintenance Event Type	-M	M	Repair Data	The type of maintenance event (e.g., Scheduled Maintenance, Unscheduled Maintenance, Engineering Change Order (ECO), Deprocessing, etc.).
WBS ID	-M	N	Repair Data	The corresponding O&S WBS Element Code related to the maintenance event.
Labor Hours	-M	O	Repair Data	The total labor hours associated with the repair event.
Comments	-M	P	Comments	Any comments which would clarify or complete the maintenance event data entered.

-M/R, Data Elements & Definitions



<u>Data Element</u>	<u>Report</u>	<u>Column</u>	<u>Data Type</u>	<u>Definition</u>
Maintenance Event Number	-R	A	Identifier	The event number associated with the maintenance activity.
Repair Action Code	-R	B	Identifier	The code identifying the repair action.
Repair Action Description	-R	C	Identifier	The description of the repair action.
Repair Part Name	-R	D	Repair Part Data	The name of the LRU (Line Replaceable Unit), SRU (Shop Replaceable Unit) or part.
881 Reference	-R	E	Repair Part Data	The corresponding MIL-STD-881 WBS related to the LRU, SRU or part.
Reparable or Consumable	-R	F	Repair Part Data	Indicate whether the part is a reparable (R) or consumable (C). If the maintenance event includes repairing (not replacing) a reparable item and it was returned to use put yes (Y) in parenthesis. If the reparable item was not able to be repaired, put no (N) in parenthesis. Additional information can be provided in Comments Column L.
Repair Part Quantity	-R	G	Repair Part Data	The quantity of same LRU, SRU or part required to complete the maintenance action.
Contractor Part Number	-R	H	Repair Part Data	The Contractor Part Number. This is a number used to identify an item of production or a range of items of production by the manufacturer controlling the design, characteristics, and production of the item by means of its engineering drawings, specifications, and inspection requirements.
Repair Part NSN	-R	I	Repair Part Data	National Stock Number (NSN) preferred, and/or, National Item Identification Number (NIIN)
Repair Part WUC/LCN	-R	J	Repair Part Data	The repair part Work Unit Code (WUC) or Logistics Control Number (LCN).
Repair Part FWG	-R	K	Repair Part Data	The Functional Working Group (FWG) that identifies to which particular system, subsystem, component, or assembly the item belongs to.
Replacement Cost	-R	L	Repair Part Data	The replacement cost associated with the LRU, SRU or Part. Replacement cost should be identified/entered for all items. If cost data represents cost to contractor, please provide a nominal contractor cost to government price cost factor in comments.
Repair Cost	-R	M	Repair Part Data	The repair cost associated with the LRU, SRU or Part. Repair cost should be identified/entered for all reparable items. If cost data represents cost to contractor, please provide a nominal contractor cost to government price cost factor in comments.
Comments	-R	N	Comments	Any relevant information that could be used in the interpretation of the data provided in this report by repair part.



COST ASSESSMENT DATA ENTERPRISE

Technical Data Reporting

Industry Collaboration

CADE Cost & Technical Focus Group



Technical Data Overview

Cost data has been delivered on DoD contracts for 60 years, SW data has been provided for 10 years. Technical Data has always been a requirement; however, not implemented effectively

Tech Data initiative:

- › Improves the DoD CARD process
- › Creates a common Tech Data Vocabulary
- › Defines core set of needed parameters
- › Leverages other Tech Data on contract
- › Provides mechanism to systematically capture Tech Data on contracts

Results:

- › **Tech Data Plan** reported via WBS
- › Common **taxonomy** for both CARD and TDR - consistent with GOVT ENGR groups and Industry



Technical Data...



Enduring Cost Analysis Need

- › Provides context to the cost data
- › Defines the Program's Technical Baseline
- › Ingredient of acquisition strategies, e.g., schedules
- › Identification and quantification of cost drivers
- › Foundation for Independent Technical Assessments
- › Supports architecture trade studies
- › Highlights areas of potential risk

Unfortunately Tech Data is a Knowledge Gap

- › Technical Data has always been a requirement; however, not implemented effectively
- › Current data collections are ad-hoc, inefficient, and random within DoD
- › Program documents contain lots of narrative and not enough real data
- › Result: We re-construct Technical analogies for nearly every estimate

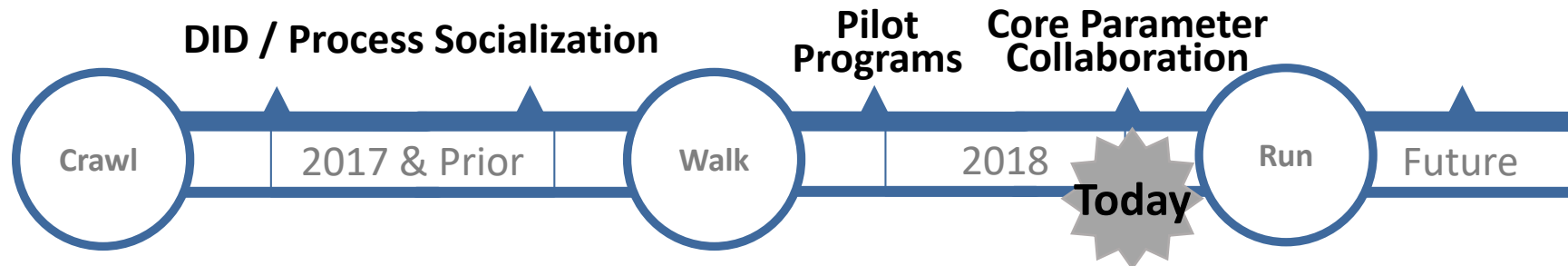


Tech Data initiative thus far (Crawl-Walk)

- › Initial detailed identification of potential Tech Data parameters
- › DoD CARD process improved – now requires tabular descriptions of tech parameters
- › Tech Data DID – contractual mechanism to systematically capture Tech Data
- › Tech Data Vocabulary – ensures consistency across programs and with ENGR community
- › Defined core set of parameters – best value of tech data requirement
- › Implementation plan - CWIPT involvement and Industry coordination

Industry Collaboration will inform practical implementation (Walk-Run)

- › Refine core parameters as **discriminators** to forecast program cost and schedule
- › Identify **existing engineering CDRLs** that may satisfy some of this list
- › Determine what parameters **normally produced** through Industry design / build processes
- › ID engineering gates these technical parameters **naturally available** as forecasted values





Tech Data DID

DATA ITEM DESCRIPTION
 Title: Technical Data Report

Number: DI-MGMT-82165 Approval Date: 20171116
 AMSC Number: 9871 Limitation:
 DTIC Applicable: No GIDEP Applicable: No
 Preparing Activity: CAPE 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, logisticians 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://assist.dia.mil> -- Downloaded: 2017-11-29T17:08Z
 Check the source to verify that this is the current version before use.

OSD CADE Links

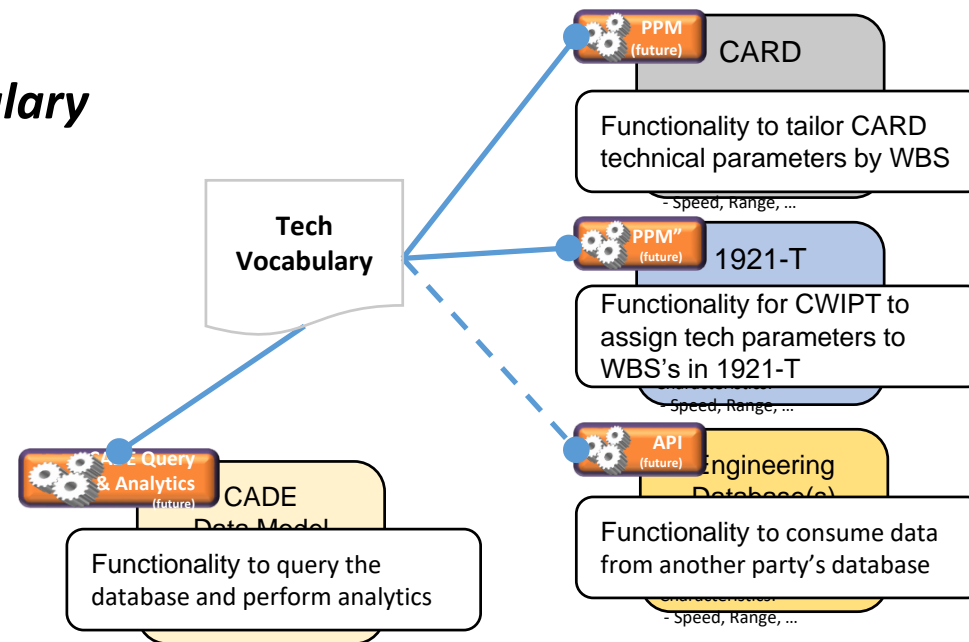
<http://cade.osd.mil/policy/dids>

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

Contract 2794 CSDR Plan

Core Parameters by Commodity

Configured Vocabulary



Data Model Structure

TECH: Parameters by Mapping ID									
Mapping ID	Item Type	Technical Parameter Name	Group Key	Value	Unit of Measure	Unit of Measure Qualifier	Estimate/Actual	Margin	Remarks

Core Parameter Introduction

The magnitude of data sought varies by length and depth of the WBS

Common parameters for every¹ hardware WBS element

Size, Weight, and Power (SWAP)

- › *Volume (Cubic Feet)*
- › *Weight (Pounds)*
- › *Max Power Consumed (Watts)*

Heritage

- › *Percent New Design*
- › *Predecessor System*

Unique parameters for every¹ hardware WBS element

Varies by Item Type. Examples:

- › *Antenna: Aperture, Effective Radiated Power, etc.*
- › *Engine: Inlet Temperature, TSFC, etc.*
- › *Wing: Area, Wingspan, Number of Movable Surfaces, etc.*

Unique parameters by end item

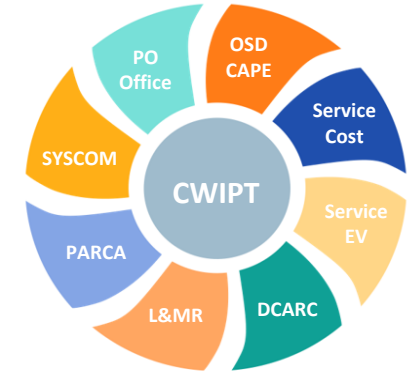
Varies by Commodity. Examples:

- › *Spacecraft: Orbit Regime, Mission Duration, Pointing Accuracy, etc.*
- › *Aircraft: Combat Radius, Max Speed, Max Useful Load, etc.*
- › *Missile: Speed, Max Effective Range, Burnout Weight, etc.*



Determine the Tech data to require on Contract

- Start with Core parameters aligned with each Program Commodity Type
 - ✓ Is the parameter a reasonable cost / schedule driver for subject Program
 - ✓ Is the parameter typically captured by Industry practices or other existing CDRLs?
 - ✓ Is the parameter value available at required submission events?



Alignment to Program WBS?

Which phase(s) are covered by this contract?

Is this a typically Contractor determined value?

Will this value be available at the submission event?

Reference to Common Tech Vocabulary and Definitions

ITEM TYPE	SUBTYPE	PARAMETER NAME	UNIT OF MEASURE	Core by Phase			Final Authoritative Data Source For Actuals	Anticipated Availability					DEFINITION	VocabularyID
				Dev	Prod	O&S		MS A	PDR	MS B	CDR	MS C		
1.1.3.2.1 Flight Control HW	ElecBox	Circuit Cards - Number of	Quantity	X	X		Contractor		X	X	X	X	Also referred to as Printed circuit boards. The IPC preferred term for	CADEVocab0282
1.1.3.2.1 Flight Control HW	ElecBox	Circuit Cards - Clock Speed	Megahertz				Contractor		X	X	X	X	The rate at which the processor can complete a processing cycle	CADEVocab0283
1.1.3.2.1 Flight Control HW	ElecBox	ASIC - Gate Count	Quantity				Contractor		X	X	X	X	Enter Avg Application Specific Integrated Circuit (ASIC) gate count (f	CADEVocab0285
1.1.3.2.1 Flight Control HW	ElecBox	FPGA - Gate Count	Quantity				Contractor	X	X	X	X	X	FPGA gate count NOT including memory	CADEVocab0286
1.1.3.2.1 Flight Control HW	ElecBox	Circuit Cards - Percent Analog/Digital	Percentage				Contractor		X	X	X	X	Percentage of circuit card that is analog signal and percentage that i	CADEVocab0288
1.1.3.2.1 Flight Control HW	ElecBox	Circuit Cards - Quantity of Interfaces	Quantity				Contractor		X	X	X	X	A shared boundary between two functional units, defined by specific	CADEVocab0290
1.1.3.2.1 Flight Control HW	ElecBox	ASIC Designs	Quantity	X			Contractor		X	X	X	X	Enter the number of Application Specific Integrated Circuit (ASIC)	CADEVocab0292
1.1.3.2.1 Flight Control HW	ElecBox	Field Programmable Gate Array (FPGA) Designs	Quantity	X			Contractor		X	X	X	X	Enter the number of Field Programmable Gate Array (FPGA)	CADEVocab0293
1.1.3.2.1 Flight Control HW	Heritage	Heritage	New Design	List	X		Contractor		X	X	X	X	The extent of the item's design that is new on a 0-100% scale as	CADEVocab0464
1.1.3.2.1 Flight Control HW	Heritage	Heritage	Predecessor System	Year	X		Contractor		X	X	X	X	When Percent New Design is less than 100%, cite the systems from	CADEVocab0465
1.1.3.2.1 Flight Control HW	Heritage	Heritage	Design Reuse	List			Contractor		X	X	X	X	Choice List: 1) New Design; 2) Modified Design; 3) Complete Reuse	CADEVocab0466
1.1.3.2.1 Flight Control HW	Heritage	Heritage	Technology Readiness Level (TRL)	Percent			Government		X	X	X	X	Technology Readiness Levels (TRL)are a set of nine graded	CADEVocab0467
1.1.3.2.1 Flight Control HW	Heritage	Heritage	Manufacturing Readiness Level (MRL)	Name/Number			Government		X	X	X	X	Manufacturing Readiness Levels are a set of nine graded	CADEVocab0468
1.1.3.2.1 Flight Control HW	PhysicalElec	PhysicalElec	Volume	Cubic Inches	X	X	Contractor			X	X	X	Physical volume of the item.	CADEVocab0710
1.1.3.2.1 Flight Control HW	PhysicalElec	PhysicalElec	Weight	Pounds	X	X	Contractor			X	X	X	Physical weight of the item.	CADEVocab0711
1.1.3.2.1 Flight Control HW	PhysicalElec	PhysicalElec	Weight - Structural	Pounds	X	X	Contractor			X	X	X	The item's mechanical/structural weight.	CADEVocab0712
1.1.3.2.1 Flight Control HW	PhysicalElec	PhysicalElec	Weight - Electronics	Pounds	X	X	Contractor			X	X	X	The item's electronics weight.	CADEVocab0713
1.1.3.2.1 Flight Control HW	PhysicalElec	PhysicalElec	Power - Maximum Consumption Rate	Kilowatts	X	X	Contractor			X	X	X	Maximum rate of power consumption by the item.	CADEVocab0714
1.1.3.2.1 Flight Control HW	PhysicalElec	PhysicalElec	Power - Average Usage	Watts			Contractor			X	X	X	Enter average power usage (consumption) in watts.	CADEVocab0724
1.1.3.2.1 Flight Control HW	PhysicalElec	PhysicalElec	Power - Input	Watts			Contractor			X	X	X	Power required to operate the item.	CADEVocab0725
1.1.3.2.1 Flight Control HW	PhysicalOther	PhysicalOther	Material Mix 1...n	Descriptor	X	X	Contractor			X	X	X	List primary materials comprising the item. (Cite one or more materia	CADEVocab0727
1.1.3.2.1 Flight Control HW	PhysicalOther	PhysicalOther	Manufacturing Process 1...n	Descriptor			Contractor			X	X	X	List the item's primary fabrication processes. (Cite one or more	CADEVocab0728

Frequently Asked Questions.....and Answers



Active Participation Requested



This Week

- › Breakout Meeting with CAPE and/or members of Tech Data Working Group
 - › Discuss immediate concerns
 - › Initial discussion of alternate CDRLs
 - › Initial discussion of processes to satisfy requirements
- › Accept action to deep dive on core parameter list and provide feedback

In July

- › Scrub core parameter list with your internal SMEs
- › Return edited core parameter list by 31 July

In Months Ahead

- › Work with us to refine tech data requirement pre-contract award



COST ASSESSMENT DATA ENTERPRISE

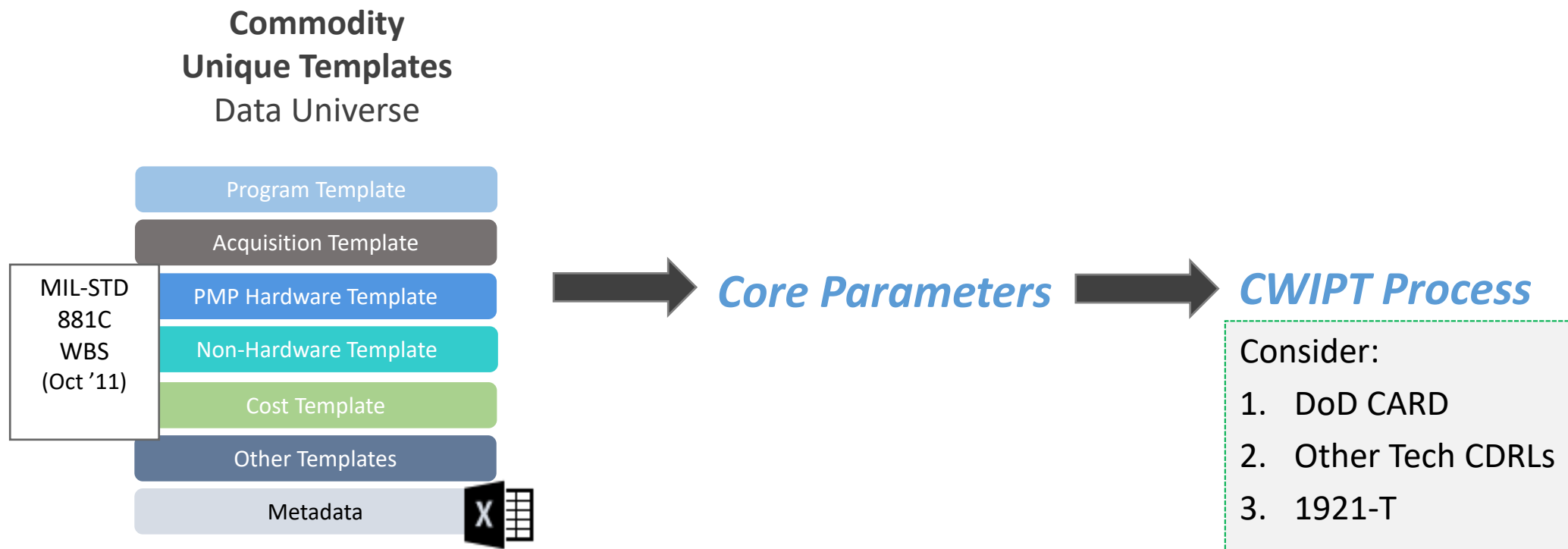
Technical Data Reporting

Back Up

CADE Cost & Technical Focus Group



Streamlining – Balance Data Utility and Cost



- From the Standard Data Templates, we have developed “core” parameters
 - ✓ Absolutely Required to Perform Cost Analysis
 - ✓ Typically not Produced by Govt Team
 - ✓ Normally Produced by Industry
 - ✓ Segregated by each Commodity
 - ✓ Changes throughout the evolution of a Program

CWIPT Tailoring Process



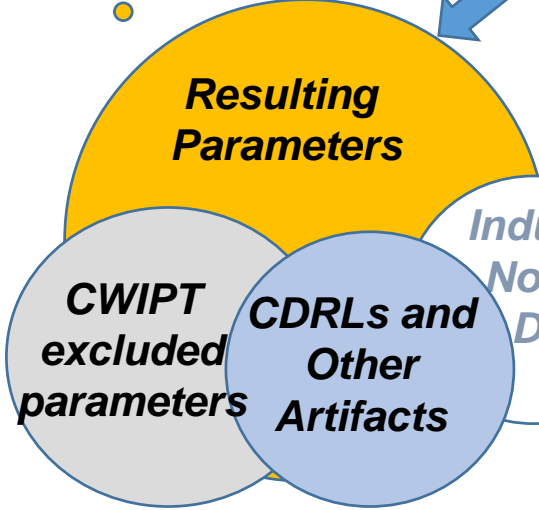
The CWIPT may start from the full set of Parameters listed in the Standard Tech Data Plans, the:

1. Select WBS (number of elements and level)
 - Start from CEM Templates
2. Map WBS to Item Type
3. Deconflict parameters from other Documents
4. Remaining Parameters are included in a draft DD Form 2794 (Page 4)
 - CWIPT considers non-Core parameters
5. Contractor delivers Tech Data Report

Commodity Templates

11. WBS ELEMENT CODE		12. WBS REPORTING ELEMENTS	
a. PROGRAM CONTRACT/SUBCONTRACT	b. CONTRACT/SUBCONTRACT		
1.0	1.0	Aircraft	
1.1	1.1	Air Vehicle	
1.1.1	1.1.1	Airframe	
1.1.1.1	1.1.1.1	Airframe Integration, Assembly, Test And Checkout	
1.1.1.2	1.1.1.2	Fuselage	
1.1.1.2.1	1.1.1.2.1	Forward Fuselage	
1.1.1.2.2	1.1.1.2.2	Crewer Fuselage	
1.1.1.2.3	1.1.1.2.3	Other Fuselage (specify)	
1.1.1.3	1.1.1.3	Wing	
1.1.1.4	1.1.1.4	Empennage	
1.1.1.5	1.1.1.5	Nacelle	
1.1.1.6	1.1.1.6	Propulsion Software Release 1.n (Specify)	
1.1.2	1.1.2	Propulsion Hardware	
1.1.2.1	1.1.2.1	Propulsion Software Release 1.n (Specify)	
1.1.2.2	1.1.2.2	Propulsion Hardware	
1.1.2.3	1.1.2.3	Propulsion Software Release 1.n (Specify)	
1.1.2.3.1	1.1.2.3.1	Propulsion Software Release 1.n (Specify)	
1.1.3	1.1.3	Vehicle Subsystems	
1.1.3.1	1.1.3.1	Vehicle Subsystems Integration, Assembly, Test And Checkout	
1.1.3.2	1.1.3.2	Flight Control Subsystem	
1.1.3.2.1	1.1.3.2.1	Flight Control Hardware Integration, Assembly, Test And Checkout	
1.1.3.2.2	1.1.3.2.2	Flight Control Hardware 1.n (Specify)	
1.1.3.2.3	1.1.3.2.3	Flight Control Software Release 1.n (Specify)	
1.1.3.2.3.1	1.1.3.2.3.1	Flight Control Software Release 1.n (Specify)	
1.1.3.3	1.1.3.3	Auxiliary Power Subsystem	
1.1.3.3.1	1.1.3.3.1	Auxiliary Power Hardware Integration, Assembly, Test And Checkout	
1.1.3.3.2	1.1.3.3.2	Auxiliary Power Hardware 1.n (Specify)	
1.1.3.3.3	1.1.3.3.3	Auxiliary Power Software Release 1.n (Specify)	
1.1.3.3.3.1	1.1.3.3.3.1	Auxiliary Power Software Release 1.n (Specify)	

Tailored WBS



1. WBS ELEMENT	2. WBS ELEMENT NAME	3. DEFAULT ITEM TYPE
1.1	Air Vehicle	Heritage
1.1.1	Airframe	PhysicalStruc
1.1.1.1	Airframe	Heritage
1.1.1.1.1	Airframe Integration, Assembly, Test And Checkout	PhysicalStruc
1.1.1.2	Fuselage	PhysicalOther
1.1.1.2.1	Forward Fuselage	PhysicalStruc
1.1.1.2.2	Crewer Fuselage	PhysicalOther
1.1.1.2.3	Other Fuselage (specify)	PhysicalStruc
1.1.1.3	Wing	WingFin
1.1.1.4	Empennage	PhysicalOther
1.1.1.4	Empennage	PhysicalStruc
1.1.1.5	Nacelle	PhysicalOther
1.1.1.5	Nacelle	PhysicalStruc

Selected Item Types

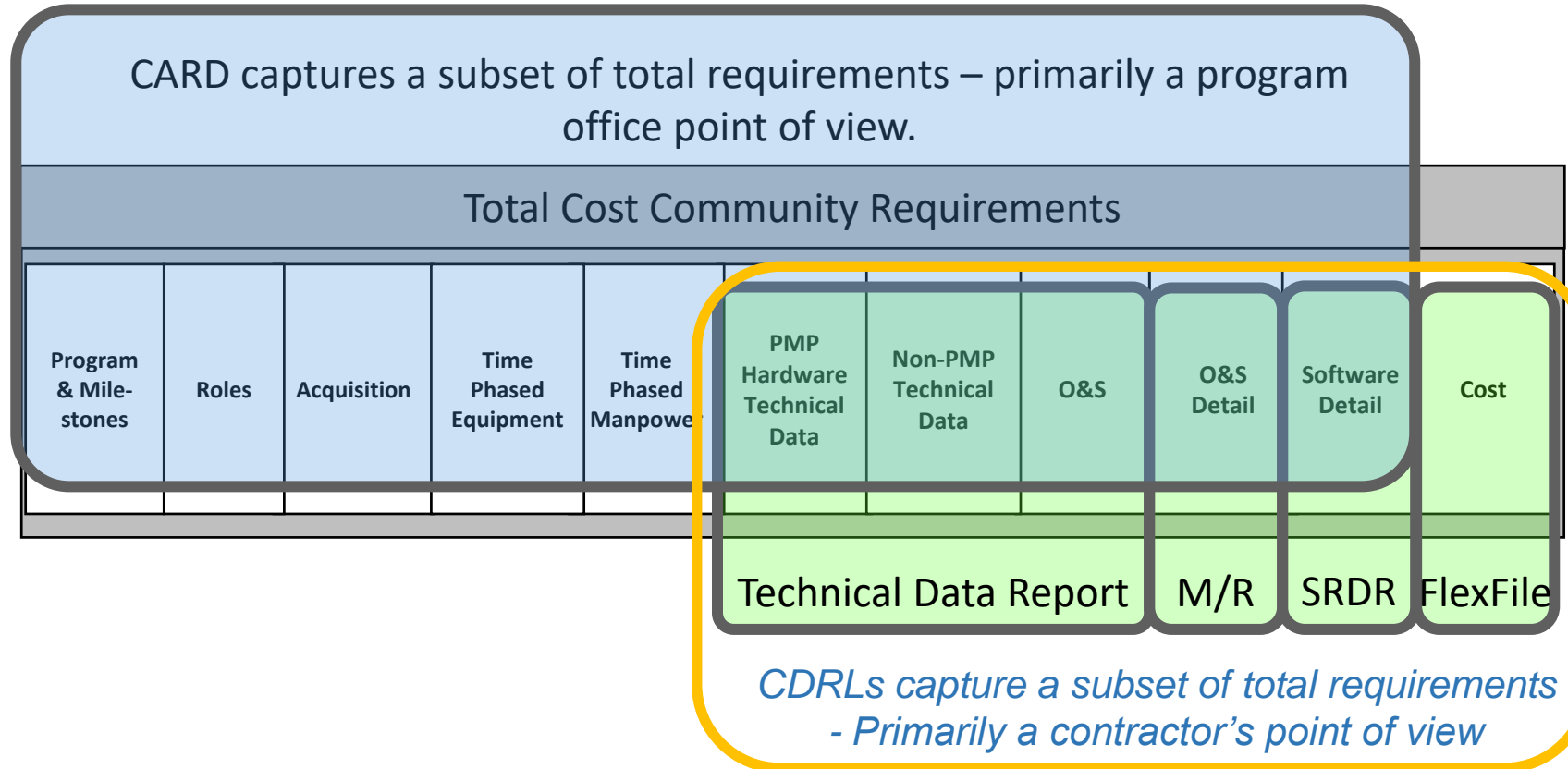
Sample Complete TDR

Step/Para ID	Item Type	Technical Parameter Name	Group Qty	Value	Unit of Measure	Unit of Measure Qualifier	Estimate/Actual	Margin	Remarks
1.1	Heritage	Propulsion System	1	100	HP		Estimate		
1.1.1	Physical	Volume	1	50,000,000	Cubic Inches		Estimate		
1.1.1.1	Physical	Weight	1	500,000	Pounds		Estimate		
1.1.1.1.1	Physical	Crew Size	1	2	Quantity		Estimate		
1.1.1.1.2	Physical	Number of Engines	1	2	Quantity		Estimate		
1.1.1.1.3	Physical	Combit Radius	1	50	Radius		Estimate		
1.1.1.1.4	Physical	Combit Angle	1	30	Angle		Estimate		
1.1.1.1.5	Physical	Combit Center	1	20,000	Inch		Estimate		
1.1.1.1.6	Physical	Weight	1	500,000	Pounds		Estimate		
1.1.1.1.7	Physical	Weight - Maximum Gross	1	500,000	Pounds		Estimate		
1.1.1.1.8	Physical	Weight - Maximum Unbraked Gross	1	500,000	Pounds		Estimate		
1.1.1.1.9	Heritage	New Design	1	100	HP		Estimate		
1.1.1.2	Heritage	Propulsion System	1	100	HP		Estimate		
1.1.1.2.1	Physical/Struc	Volume	1	50,000,000	Cubic Inches		Estimate		
1.1.1.2.2	Physical/Struc	Weight	1	500,000	Pounds		Estimate		
1.1.1.2.3	Physical/Struc	Wing Chord	1	200	Inches		Estimate		
1.1.1.2.4	Physical/Struc	Wing Span	1	200	Feet		Estimate		
1.1.1.2.5	Physical/Struc	Number of Electrical Connections	1	1000	Quantity	Electrical Connections	Estimate		
1.1.1.2.6	Physical/Struc	Number of Mechanical Connections	1	200	Quantity	Mechanical Connections	Estimate		
1.1.1.2.7	Physical/Other	Material M1.1	1	Usage	Aluminum	Descriptor	Estimate		Usage
1.1.1.2.8	Physical/Other	Material M1.2	1	Usage	Steel	Descriptor	Estimate		Usage
1.1.1.2.9	Physical/Other	Material M1.3	1	Usage	Composite	Descriptor	Estimate		Usage
1.1.1.2.10	Physical/Other	Material M1.4	1	Usage	Carbon Fiber	Descriptor	Estimate		Usage

Technical CDRL

Reducing WBS by 1 reportable element eliminates 24 Parameters

CARD and Tech Data Intersection



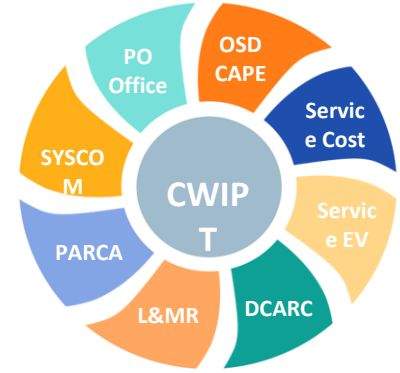
Capture Instruments Designed to be Relevant to Any Point of View

CWIPT to Consider Other Documents to Satisfy Requirement



- CWIPT process will derive contract data plan
 - ✓ Can the requirement be satisfied by GOVT CARD?
 - ✓ Can the requirement be satisfied by other Program CDRL?
 - Step 1 – Ensure that other CDRL is EXPLICITLY providing exact data you want aligned by WBS
 - Step 2 – Balance duplication of CDRLs vice ease of harvesting information from .pdf file/spreadsheet
 - ✓ Can the requirement be satisfied by other reputable data sources?

26 total dev.
11 core
7 on contract



COST, SOFTWARE, & TECHNICAL DATA REPORTING/EARNED VALUE MANAGEMENT CO-PLAN

TECHNICAL PARAMETER REQUIREMENTS

23. WBS ELEMENT CODE	24. WBS ELEMENT NAME	25. ITEM TYPE	26. TECHNICAL PARAMETER				Delivery Remarks
			PARAMETER NAME	UNIT OF MEASURE	Definition	Remarks	
1.1.3.2.2	Flight Control Hardware 1..n (Specify)	ElecBox	Circuit Cards - Number of	Quantity	See Tech Vocab		
1.1.3.2.2	Flight Control Hardware 1..n (Specify)	ElecBox	Circuit Cards - Clock Speed	Megahertz	See Tech Vocab		
1.1.3.2.2	Flight Control Hardware 1..n (Specify)	ElecBox	ASIC - Gate Count	Quantity	See Tech Vocab		
1.1.3.2.2	Flight Control Hardware 1..n (Specify)	ElecBox	FPGA - Gate Count	Quantity	See Tech Vocab		
1.1.3.2.2	Flight Control Hardware 1..n (Specify)	ElecBox	Circuit Cards - Percent Analog/Digital	Percentage	See Tech Vocab		
1.1.3.2.2	Flight Control Hardware 1..n (Specify)	ElecBox	Circuit Cards - Quantity of Interfaces	Quantity	See Tech Vocab		
1.1.3.2.2	Flight Control Hardware 1..n (Specify)	ElecBox	ASIC Designs	Quantity	See Tech Vocab	CDR	Provide CDR to CADE
1.1.3.2.2	Flight Control Hardware 1..n (Specify)	ElecBox	Field Programmable Gate Array (FPGA) Designs	Quantity	See Tech Vocab	CDR	Provide CDR to CADE
1.1.3.2.2	Flight Control Hardware 1..n (Specify)	Heritage	New Design	List	See Tech Vocab	CDR	Provide CDR to CADE
1.1.3.2.2	Flight Control Hardware 1..n (Specify)	Heritage	Predecessor System	Year	See Tech Vocab	CDR	Provide CDR to CADE
1.1.3.2.2	Flight Control Hardware 1..n (Specify)	Heritage	Design Reuse	List	See Tech Vocab	CDR	Provide CDR to CADE
1.1.3.2.2	Flight Control Hardware 1..n (Specify)	PhysicalElec	Volume	Cubic Inches	See Tech Vocab		
1.1.3.2.2	Flight Control Hardware 1..n (Specify)	PhysicalElec	Weight	Pounds	See Tech Vocab	Mass Props CDRL	Provide Mass Props CDRL to CADE
1.1.3.2.2	Flight Control Hardware 1..n (Specify)	PhysicalElec	Weight - Structural	Pounds	See Tech Vocab	Mass Props CDRL	Provide Mass Props CDRL to CADE
1.1.3.2.2	Flight Control Hardware 1..n (Specify)	PhysicalElec	Weight - Electronics	Pounds	See Tech Vocab	Mass Props CDRL	Provide Mass Props CDRL to CADE
1.1.3.2.2	Flight Control Hardware 1..n (Specify)	PhysicalElec	Power - Maximum Consumption Rate	Kilowatts	See Tech Vocab	Power CDRL	Provide Power CDRL to CADE
1.1.3.2.2	Flight Control Hardware 1..n (Specify)	PhysicalElec	Power - Average Usage	Watts	See Tech Vocab	Power CDRL	Provide Power CDRL to CADE
1.1.3.2.2	Flight Control Hardware 1..n (Specify)	PhysicalElec	Power - Input	Watts	See Tech Vocab	Power CDRL	Provide Power CDRL to CADE
1.1.3.2.2	Flight Control Hardware 1..n (Specify)	PhysicalOther	Material Mix 1...n	Descriptor	See Tech Vocab	CDR	Provide CDR to CADE
1.1.3.2.2	Flight Control Hardware 1..n (Specify)	PhysicalOther	Manufacturing Process 1...n	Descriptor	See Tech Vocab	CDR	Provide CDR to CADE

Recent Examples of Tech Data Implementation

- **WSFO** placed about 130 parameters on contract of which 50 were unique
 - ✓ Negotiated scope with PM / SPO team prior to RFP release
 - ✓ Cemented the requirement with Industry during post award conference
 - ✓ First delivery in April 2018
- **GBSD** placed about 900 parameters on contract, 50 of them unique (e.g., weight, power, heritage)
 - ✓ Data requirement worked together by SPO / AFCAA
 - ✓ Decades of no ICBM data drove increased data need
 - ✓ First delivery is TBD
- **GPS IIIF** program identified about 200 parameters (<50 unique) and through CWIPT process concluded requirement could be satisfied with revised CARD and other contract CDRLS
 - ✓ Cost teams identified core parameters required
 - ✓ Program team / AFCAA reviewed other program CDRLs to assess availability and accuracy of data
 - ✓ Program Manager / AFCAA made agreement to include core parameters in the annual CARD and deliver technical CDRLs where needed to define core parameters
- Looking for other opportunities to Pilot Tech Data



COST ASSESSMENT DATA ENTERPRISE

Software Resource Data Report

Cost & Technical Focus Group
27-28 June 2018





- Current SRDR and Recent Changes
- SRDR Unified Review Function (SURF) Verification and Validation (V&V) Guide
- Cost of an SRDR
- Request for Feedback



DI-MGMT-82035A

(APPROVED NOV 2017)

- REVISED - DD FORM 3026-1, Development Report (APPROVED MAY 2018)
- REVISED - DD FORM 3026-2, Maintenance Report (APPROVED MAY 2018)
- NEW - DD FORM 3026-3, Enterprise Resource Planning (ERP) Report (APPROVED MAY 2018)

Link:

<http://cade.osd.mil/policy/srdr>

DATA ITEM DESCRIPTION

Title: Software Resources Data Reporting: Development, Maintenance and Enterprise Resource Planning Development Reports, and Data Dictionary

Number: DI-MGMT-82035A

Approval Date: 20171115

AMSC Number: 9867

Limitation:

DTIC Applicable: No

GIDEP Applicable: No

Preparing Activity: CAPE

Project Number: MGMT-2017-033

Applicable Forms: Forms are available to be used to submit required formats as follows:

Software Data Format	Format Number	Form Number
Software Development Report	1	DD Form 3026-1 (REVISED)
Software Maintenance Report	2	DD Form 3026-2 (REVISED)
Enterprise Resource Planning (ERP) Software Development Report	3	DD Form 3026-3

1. USE/RELATIONSHIP: For background and detailed requirements related to Software Resources Data Reporting (SRDR), refer to DoD 5000.04-M-1 or the latest version of the "Cost and Software Data Reporting (CSDR) Manual."
 - 1.1. CSDR is the Department of Defense (DoD) system for collecting actual costs and software data and related business data. The resulting database serves as the primary contract cost and software data (CSD) database for most DoD resource analysis efforts, including cost database development, applied cost estimating, cost research, program reviews, analysis of alternatives (AoA), and life cycle cost estimates. All formats may be used in response to Government solicitations according to Defense Federal Acquisition Regulation Supplement (DFARS) sections 234.7100, 234.7101, 242.503-2, 252.234-7003, and 252.234-7004.
 - 1.1.1. Format 1, DD Form 3026-1, "Software Development Report", consists of two parts. Part 1, Software Development Technical Data, reports the software development size, context, and technical information. It consists of Release Level and Computer Software Configuration Item (CSCI) Level sections. CSCI is the lowest level of software development at which configuration management is performed by the developer. It is usually indicated by a separate Software Development Folder (SDF), Software Requirements Specification (SRS) etc. The CSDR plan will serve as the authoritative definition for reporting purposes. The Release Level Data includes all information applicable to the entire software release for the reporting event, defines each of the data elements as required, and describes the methods and rules used to perform the data measurement or estimation. The CSCI Level Data is used to obtain the estimated or actual (as-built) characteristics of a software product and its development process at the CSCI Level. Other terms for CSCI include Software End Item, Software Item (SI), etc., but this document will use CSCI as the primary term throughout. Part 2, Software Development Effort Data, reports the software development efforts associated with each reported release and CSCI. Format 1 uses the term "release" to refer to commonly used terms such as build, product build, and increment.
 - 1.1.2. Format 2, DD Form 3026-2, "Software Maintenance Report", consists of two parts. Part 1, Software Maintenance Technical Data, reports the size, context and technical information. It consists of Top Level and Release Level sections. The Top Level Data includes all information applicable to the software maintenance release(s) for the reporting event, defines each of the data elements as required, and describes the methods and rules used to perform the data measurement or estimation. The Release Level Data is used to obtain the actual (as-built) characteristics of the maintenance product and its maintenance process at the Release level. Part 2, Software Maintenance Effort Data, reports the to-date software maintenance efforts for each in-progress and completed release(s) and the annual total software maintenance activities. In Format 1, the words "software release" refer to a set of changes that are released to production. In Format 2, the words "software release" refer to a set of changes that are released to production. Check the source to verify that this is the current version before use.

DD FORM 3026-1 - Example



DI-MGMT-82035A

(APPROVED NOV 2017)

- REVISÉD - DD FORM 3026-1, Development Report (APPROVED MAY 2018)
- REVISÉD - DD FORM 3026-2, Maintenance Report (APPROVED MAY 2018)
- NEW - DD FORM 3026-3, Enterprise Resource Planning (ERP) Report (APPROVED MAY 2018)

SECTION 3.13 UNCLASSIFIED				OMB Control Number 0704-0188 Expiration Date: 8/31/2016	
SECURITY CLASSIFICATION					
The public reporting burden for this collection of information is estimated to average 16 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to Department of Defense, Washington Headquarters Services, Executive Services Directorate, Directives Division, 4800 Mark Center Drive, East Tower, Suite 02G09, Alexandria, VA 22350-3100 (0704-0188). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE ABOVE ORGANIZATION.					
SOFTWARE RESOURCES DATA REPORTING: Metadata SECTION 3.2.1					
MAJOR PROGRAM NAME: SECTION 3.2.1.1			PRIME MISSION PRODUCT SECTION 3.2.1.3		
PHASE/MILESTONE: SECTION 3.2.1.2 <input type="checkbox"/> Pre-A <input type="checkbox"/> B <input type="checkbox"/> C - FRP <input type="checkbox"/> A <input type="checkbox"/> C - LRIP <input type="checkbox"/> O&S			REPORTING ORGANIZATION TYPE SECTION 3.2.1.4 <input type="checkbox"/> PRIME/ASSOCIATE CONTRACTOR <input type="checkbox"/> DIRECT-REPORTING SUBCONTRACTOR <input type="checkbox"/> GOVERNMENT		
PERFORMING ORGANIZATION SECTION 3.2.1.5 a. NAME: SECTION 3.2.1.5.1 b. ADDRESS:			DIVISION SECTION 3.2.1.5.2 a. NAME: b. ADDRESS:		
APPROVED PLAN NUMBER SECTION 3.2.1.6		CUSTOMER SECTION 3.2.1.7			
TYPE ACTION		a. CONTRACT NO: SECTION 3.2.1.8.1		b. MODIFICATION NO.: SECTION 3.2.1.8.2	
d. NAME: SECTION 3.2.1.8.4		e. TASK ORDER/DELIVERY ORDER/LOT NO.: SECTION 3.2.1.8.5		c. SOLICITATION NO.: SECTION 3.2.1.8.3	
REPORT TYPE SECTION 3.2.1.10		INITIAL		FINAL	
PERIOD OF PERFORMANCE SECTION 3.2.1.9 a. START DATE (YYYYMMDD): b. END DATE (YYYYMMDD):		APPROPRIATION SECTION 3.2.1.16 <input type="checkbox"/> RDT&E <input type="checkbox"/> PROCUREMENT <input type="checkbox"/> O&M		SUBMISSION NUMBER SECTION 3.2.1.11	
				RESUBMISSION NUMBER SECTION 3.2.1.12	
				REPORT AS OF (YYYYMMDD) SECTION 3.2.1.13	
				DATE PREPARED (YYYYMMDD) SECTION 3.2.1.15	
POC NAME (Last, First, Middle Initial) SECTION 3.2.1.14		DEPARTMENT		TELEPHONE (Include Area Code)	
				EMAIL ADDRESS	
REMARKS SECTION 3.2.1.17					
SECTION 3.13 UNCLASSIFIED SECURITY CLASSIFICATION					
Common Heading		SW Dev Rpt Pt 1, Release Level		SW Dev Rpt Pt 1, Release-CSCI	
				SW Dev R	



Incorporated standardized tables to collect Agile Development metrics in all three SRDR Forms.

Agile Measures **SECTION 3.3.2.6.4**

Days per Release

Days per Sprint

Release Map **SECTION 3.3.2.6.4.1**

Epic/ Capability ID	Feature ID	Feature Description

Recent Changes – Agile Tables Continued



Planned and Achieved Development SECTION 3.3.2.6.4.2								
Feature ID	Planned Stories	Actual Stories	Planned Story Points	Actual Story Points	Planned Hours	Actual Hours		
Summary Totals SECTION 3.3.2.6.4.3								
Item	Planned	Actual						
Total Features								
Total Epics/ Capabilities								
Total Stories								
Total Story Points								
Total Feature Hours								
Total Sprints								

Updated Guide with Question
Templates to support reviews of:

- Legacy Reports
- Development Reports
- Maintenance Reports
- ERP Reports

Updates based on new DID,
lessons learned and feedback
from SURF and DARC

Link:

<http://cade.osd.mil/policy/srdr>

Version 4.0

DEPARTMENT OF DEFENSE
SOFTWARE RESOURCE DATA REPORT (SRDR)
VERIFICATION AND VALIDATION (V&V) GUIDE
VERSION 4.0



02 February 2018

Primary Authors:

Nicholas Lanham, OSD CAPE

Marc Russo, NCCA

Dan Strickland, MDA

Ron Cipressi, AFCAA

Stephen Palmer, NAVAIR 4.2

Crystal Rudloff, Technomics

This document was generated as a result of the AFCAA-led, Software Resource Data Report Working Group (SRDRWG). This working group represented a joint effort amongst all DoD service cost agencies. The following guidance describes SRDR data verification and validation best practices as documented by NAVAIR 4.2, NCCA, AFCAA, ODASA-CE, and MDA.



Software Resource Data Report (SRDR) Unified Review Function (SURF) Team Charter

Verification and Validation (V&V) Guide Purpose

Summary of V&V Guide Changes

1.0 Review of an SRDR submitted to DCARC

1.1 Question Template Common Heading and Summary Data

1.2 Legacy SRDR Reports

1.3 SRDR Development Reports

1.4 SRDR Maintenance Reports

1.5 SRDR ERP Reports

1.6 Additional Review Guidelines

1.6.1 Super Domain (SD) and Application Domain (AD) Designation

1.6.2 Operating Environment (OE) Designation

1.6.3 Effort

1.6.4 Schedule

1.6.5 Estimate at Completion (EAC) Values

1.6.6 CSDR Plan Review

2.0 Quality Tagging

3.0 Solutions for Common Findings

3.1 Allocation

3.2 Combining

3.3 Early Acquisition Phase Combining

4.0 Pairing Data

5.0 Possible Automation

6.0 Process Improvement Initiatives

6.1 Comments

6.2 Data Collection on the SURF Process

6.3 Process Review Meetings

Appendix A – Super Domain and Application Domain Categories

Appendix B – Productivity Quality Tags

Appendix C – Schedule Quality Tags

Appendix D – CSDR Plans in CADE

Appendix E – Future V&V Questions



- Guide rewritten to discuss use of question templates
- Provides additional guidance on the importance of using comments in defining the issue for DCARC and contractors
- Process Improvement/Initiative Section added
 - Providing additional comments and reach back for DCARC
 - Use of CADE for collecting V&V checklist data
 - Establishing process review meetings between DCARC and SURF analyst
- Updates to Quality Tagging Appendix
 - Updated definitions
 - Added new quality tags (Good-Alteration, Good- Roll Up, and Allocation)
- SURF Analyst Summary Inputs
 - Highlights key issues and summary information for DCARC analyst and contractors
 - Supports database entry
- Improved/Updated Questions
 - “Yes” is a positive response and “No” is a negative response
- Process improvement section

V&V Guide Question Template - Example



Contractor Name:	
Contract Number:	
DCARC ID No.	
SURF Team Analyst Name	
SURF Team Analyst Email	

SURF Analyst Inputs and Summary of Review

SURF Analyst Recommendation	
Operational Environment	
Application Domain	
Super Domain	
SURF Analyst Comments	

Element: Element Description and Sub Element:	Yes	No	N/A	SURF Analyst V&V Comments	Standard SURF Response to DCARC
---	-----	----	-----	---------------------------	---------------------------------

1.1	Reporting Event					
1.1.1	Is the submission compliant with the CSDR Plan, i.e., a comparison of the submission to the plan requirement?					
1.1.2	Does the report reference the CSDR Plan?					
1.1.3	Has the plan type been identified (for example: prime contract, subcontract, or not applicable)?					
1.1.4	Is the As Of Date later than the Actual Date (e.g. Date Prepared) of submission/acceptance (this is important when making a decision about the usability of an initial report - see 4.0 Pairing Data)?					
1.1.6	Is there an easily identifiable event associated with the submission (for example: Contract Award, Build 2 Release, Build 1 Complete, Contract Complete, etc.)?					
1.1.7	If there are prior submissions, does the latest submission clearly describe what report the prior submission is linked to?					
1.1.8	If a prior submissions exists, is the information that has changed readily identifiable and a reason for the change provided (either in the data dictionary or comments section)?					
1.1.9	Is it clear if the information represents a Technology Demonstration (TD) or Engineering and Manufacturing Development (EMD) phase if the program is in that stage of development?					
1.1.10	If this is a Final Report, was there an Initial Report it can be traced to?					
1.2	Demographic Information					
1.2.1	Has the program name been identified?					
1.2.2	Has the Major Defense Acquisition Program (MDAP) or Defense Business System (DBS) designation been listed?					
1.2.5	Is the system description been included within the submission?					
1.2.6	Has the current program phase and/or milestone been included within the report (for example: Pre-A, A, B, C-LRIP, C-FRP, O&S, etc.)?					
1.2.7	Has the contractor or organization that performed the work been identified?					
1.2.8	Has the reporting contractor or organization address and zip code been included?					
1.2.9	Has the specific site or subdivision for the contractor been identified?					



- Initiative to collect the number of hours that it takes a contractor to provide the data and information requested in the SRDR DID
- Quick survey developed to understand the challenges
- Focus on the total number of hours required through the V&V process (if available)
- Collecting data via one-on-one interviews, as well as, data collection through the SRDR Working Group

Request for Feedback

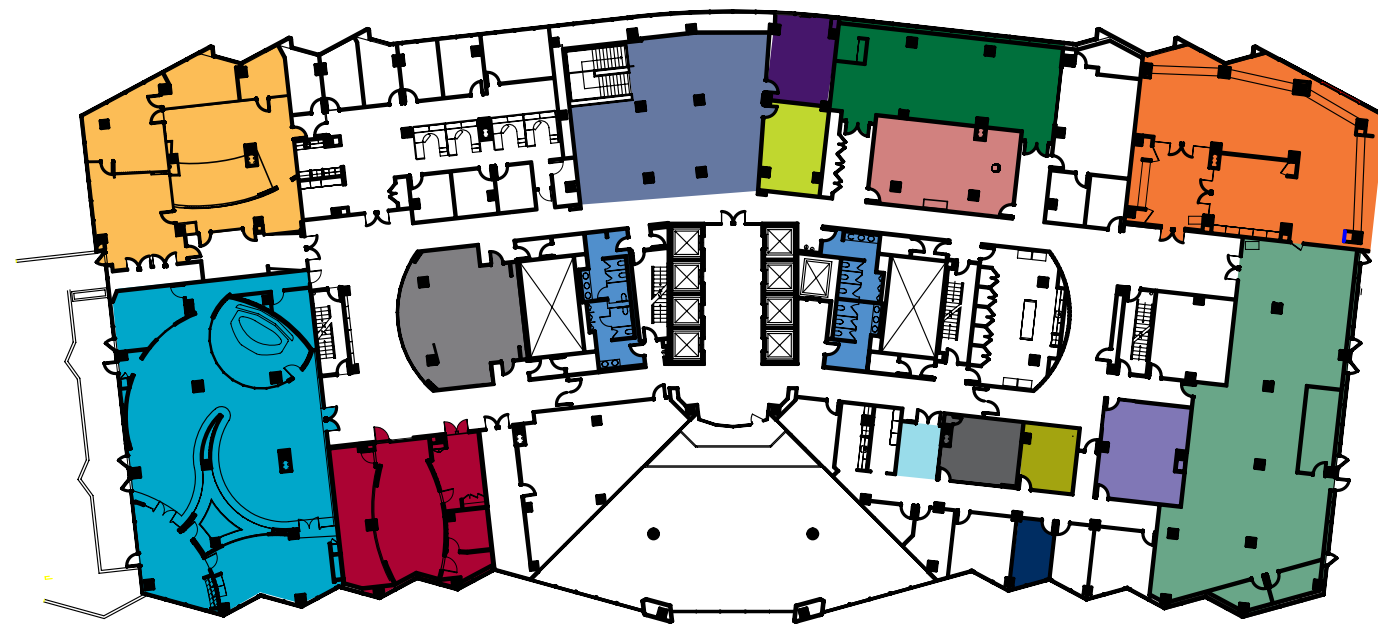


- SURF V&V Process
- Cost of an SRDR



1ST FLOOR

Atlas Conference Room	GVC Business Center	Security Visitor Registration
Fighter Demonstration Center (FDC)	Multipurpose Room	Space Experience Center (SEC)
GVC Auditorium	Restrooms	Titan Conference Room

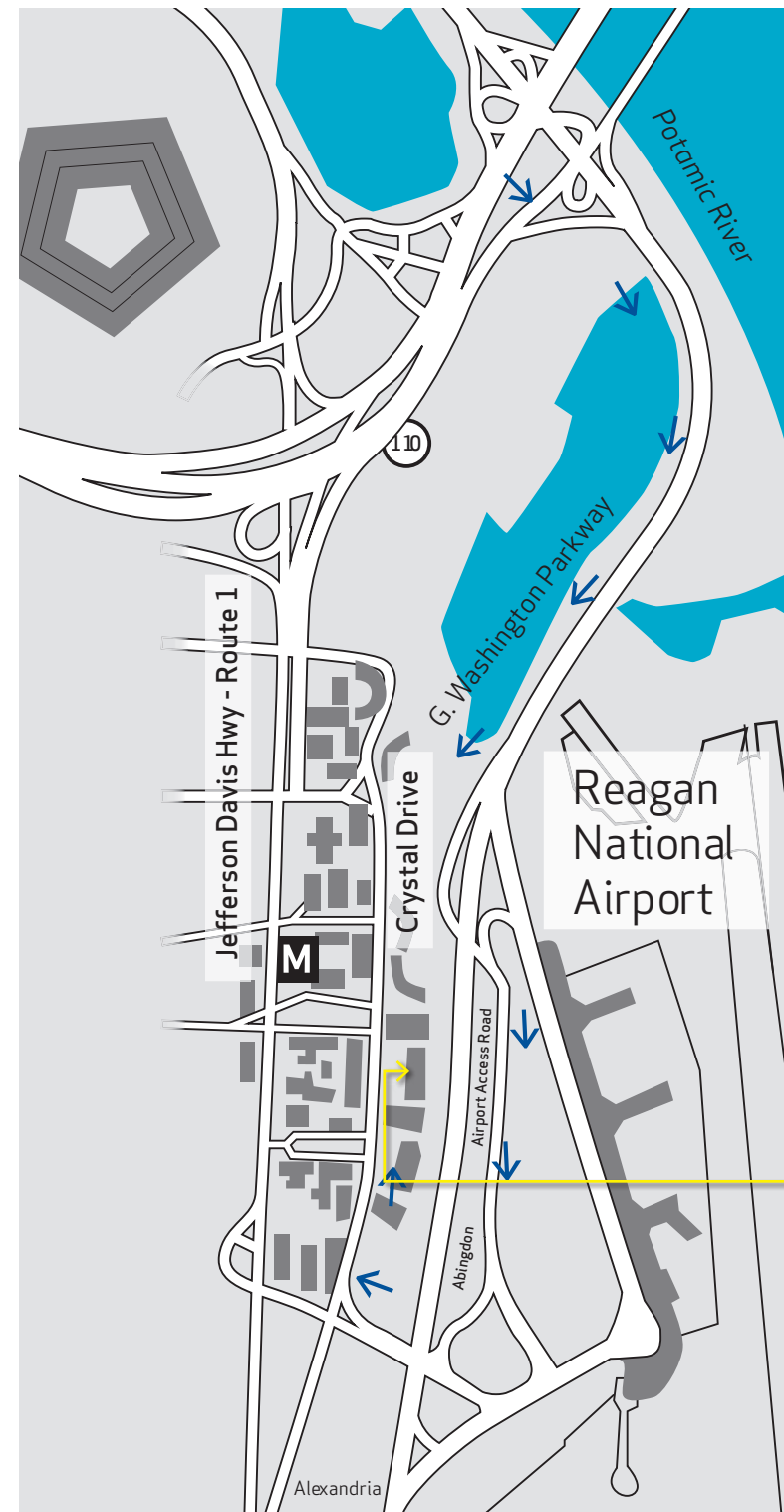


2ND FLOOR

Aeronautics Conference Room	Ft. Worth Conference	Poseidon Conference Room
Annex Touchdown Space	GVC-A Conference Room	Potomac Demonstration Center (PDC)
Corporate Legacy Experience Area	GVC-B Conference Room	Restrooms
Energy Solutions Center (ESC)	Milwaukee Meeting Room	Trident Conference Room
Foyer Touchdown Space	Mission Systems and Training Solutions Center (MST)	Viking Conference Room
Freedom Conference Room	NexGen i3 Demonstration Center	

© 2014 Lockheed Martin Corporation. All Rights Reserved.

Metro and Driving Directions to
THE LOCKHEED MARTIN GLOBAL VISION CENTER (GVC)
 2121 Crystal Drive ■ Arlington, VA 22202



- FROM CRYSTAL CITY METRO STATION**
 (0.3 mi / approx 5 min) Blue/Yellow Line
 → Exit the Metro Station and walk east on 18th St S
 → Turn right on Crystal Drive
 → Cross the Street to 2121 and proceed through glass doors to 1st floor Visitor Desk (Lockheed Martin lobby)
- FROM REAGAN NATIONAL AIRPORT**
 → Stay left and take "Airport Exit/Rte. 1 Crystal City/Alexandria" exit
 → Stay right and take "Rte. 1 Crystal City/Economy Parking/General Aviation/South Airport Services" exit onto Abingdon Rd
 → Stay to the right and make a right at the stop sign following 395 North signs
 → Make right onto Crystal Drive exit ramp
 → At intersection of S 23rd St TURN RIGHT into parking garage
 → Follow signs to gold/yellow columns labeled 2121, park your vehicle and proceed to 1st floor Visitor Desk (Lockheed Martin lobby) via elevator
- FROM DULLES AIRPORT**
 → Leaving terminal, follow signs for Washington
 → Take exit onto I-66 E
 → Take exit 75 to merge onto Jefferson Davis Hwy/VA-110 toward Alexandria
 → Follow Jefferson Davis Hwy
 → Turn left on 20th St S
 → Turn right at Crystal Drive
 → At intersection of S 23rd St, TURN LEFT into parking garage
 → Follow signs to gold/yellow columns labeled 2121, park your vehicle and proceed to 1st floor Visitor Desk (Lockheed Martin lobby) via elevator



Security Information
 All guests must register at the Lockheed Martin Security Desk located near the large globe on the first floor Lobby Level.
 Paid parking is available in the building during regular business hours.



© 2014 Lockheed Martin Corporation. All Rights Reserved.



© 2014 Lockheed Martin Corporation. All Rights Reserved.

LOCKHEED MARTIN
 We never forget who we're working for®

THE GLOBAL VISION CENTER

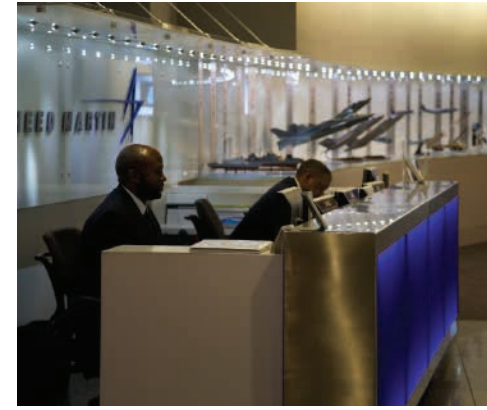
The Lockheed Martin Global Vision Center (GVC) is a state of the art meeting and collaboration facility located in Arlington, VA. The Lockheed Martin GVC showcases the remarkable innovations that continue to serve our customers throughout the world. From global security, to commercial markets, to scientific discovery, The Lockheed Martin GVC highlights how we're helping the future arrive. The Lockheed Martin GVC stands as an impressive 86,000 square foot customer engagement space. In addition to a 160-seat auditorium, the center offers 9 meeting rooms and 6 Demonstration Centers. The facility is available for meetings with Lockheed Martin customers, partners, community organizations, among other groups. For more information, contact The Lockheed Martin GVC at 703.413.5900 or via email at Globalvision.corp@lmco.com.



Corporate Legacy Experience Area



Artifacts - Corporate Legacy Experience



GLOBAL VISION CENTER MEETING TYPES

- Customer engagement from all services and agencies, as well as international customers and partners
- Hosting internal Lockheed Martin meetings - from normal business rhythms to large events and off-site activities
- Internal strategy and association meetings
- Non-profit and community events
- Student groups
- Most visits include facility tours and briefings as well as interactive simulations
- Customers also visit the GVC for programmatic meetings and ceremonial occasions



Corporate overview presentation



Legacy Center lounge



FAST FACTS

- 86,000 square feet of meeting and demonstration space
- Opened September 2009
- Hosted over 100,000 visitors
- Showcasing the full breadth of LMCO corporate expertise
- 6 demonstration centers representing each business area, as well as Corporate Engineering, Technology, and Operations
- 9 meeting rooms
- Corporate Legacy Experience area highlighting LMCO heritage
- 100 Moments display commemorating Lockheed Martin's centennial
- Large multipurpose room (configurable to a variety of purposes)
- 160-seat auditorium



Main floor lounge adjacent business center



Product Models



100 Moments corporate highlights experience



CUSTOMER ENGAGEMENT FACILITIES



ATLAS

- Location: **1st Floor**
- Table Seating: **12**
- Recommended Table Seating: **10**
- Maximum Capacity: **20**
- Features: **Polycom, Projector, DVD Player, Laptop Connectivity, Internet Connection, Hi-WAE**



AUDITORIUM

- Location: **1st Floor**
- Seating: **160**
- Maximum Capacity: **181**
- Features: **Desktop, VTC Capability, Projector, DVD Player, Laptop Connectivity, Internet Connection, Hi-WAE**



FORT WORTH

- Location: **2nd Floor**
- Table Seating: **10**
- Recommended Table Seating: **8**
- Maximum Capacity: **12**
- Features: **Polycom, Projector, Laptop Connectivity, Internet Connection**



FREEDOM

- Location: **2nd Floor**
- Table Seating: **12**
- Recommended Table Seating: **10**
- Maximum Capacity: **16**
- Features: **Polycom, Projector, Laptop Connectivity, Internet Connection**



GVC A

- Location: **2nd Floor**
- Table Seating: **34**
- Recommended Table Seating: **33**
- Maximum Capacity: **38**
- Features: **Desktop, VTC Capability, Projector, DVD Player, Laptop Connectivity, Internet Connection, Hi-WAE**



GVC B

- Location: **2nd Floor**
- Table Seating: **16**
- Recommended Table Seating: **15**
- Maximum Capacity: **20**
- Features: **Desktop, VTC Capability, Projector, DVD Player, Laptop Connectivity, Internet Connection, Hi-WAE**

CUSTOMER ENGAGEMENT FACILITIES



MILWAUKEE

- Location: **2nd Floor**
- Table Seating: **4**
- Recommended Table Seating: **4**
- Maximum Capacity: **4**
- Features: **Phone, Internet Connection**



POSEIDON

- Location: **2nd Floor**
- Table Seating: **13**
- Recommended Table Seating: **13**
- Maximum Capacity: **20**
- Features: **Desktop, Projector, DVD Player, Laptop Connectivity, VTC Capability, Internet Connection, Hi-WAE**



TITAN

- Location: **1st Floor**
- Table Seating: **8**
- Recommended Table Seating: **8**
- Maximum Capacity: **12**
- Features: **Polycom, Projector, Laptop Connectivity, Internet Connection, Hi-WAE**



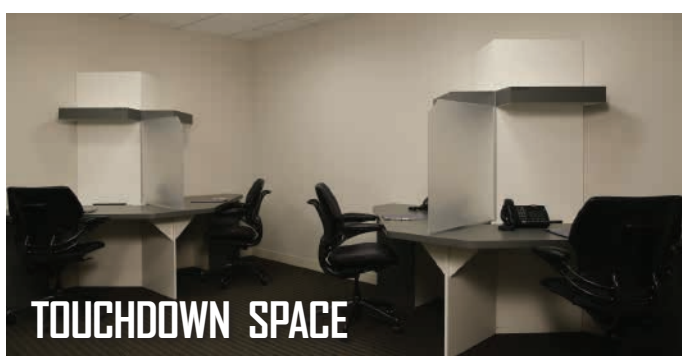
TRIDENT

- Location: **2nd Floor**
- Table Seating: **10**
- Recommended Table Seating: **9**
- Maximum Capacity: **12**
- Features: **Polycom, Projector, Laptop Connectivity, Internet Connection, Hi-WAE**



VIKING

- Location: **2nd Floor**
- Table Seating: **10**
- Recommended Table Seating: **9**
- Maximum Capacity: **12**
- Features: **Polycom, Projector, Laptop Connectivity, Internet Connection, Hi-WAE**



TOUCHDOWN SPACE

- Location: **2nd Floor**
- Seating and Dedicated phone lines for **4**
- Individual lockers for personal items
- Internet Connection

CUSTOMER ENGAGEMENT FACILITIES



BUSINESS CENTER

- Location: **Main Floor Lobby**
- Business Center is available to all guests for small printing needs
- Vending machine and coat and luggage storage area



MULTIPURPOSE ROOM

Located on the 1st floor and adjacent to the Auditorium, the Multipurpose Room can accommodate up to 200 people for standing events and 100 guests for seated meetings.



MULTIPURPOSE FOYER

Located on the 1st floor, the GVC Multipurpose Foyer features models of industry-leading Lockheed Martin products including the USS Freedom, the Aegis Ballistic Missile Defense, the F22 Raptor and the F35B Lightning II.



GVC ATRIUM

Located on the 1st floor and adjacent the Fighter Demonstration and Space Experience Centers, the Atrium can accommodate up to 80 people for standing events and 65 guests for seated meetings. Wireless Connectivity is available.

Room	Atlas	Auditorium	GVC A	GVC B	Poseidon	Titan	Trident	Viking	Freedom	Milwaukee	Fort Worth
Location	1st Floor	1st Floor	2nd Floor	2nd Floor	2nd Floor	1st Floor	2nd Floor	2nd Floor	2nd Floor	2nd Floor	2nd Floor
Capacity Limit	20	181	38	20	20	10	12	12	16	4	12
Table Seating	12	160	34	16	15	8	10	10	12	4	10
Recommended Table Seating	10	160	33	15	13	8	8	8	10	4	8
Desktop		✓	✓	✓	✓						
VTC Capability		✓	✓	✓	✓						
Polycom	✓				✓	✓	✓	✓	✓	Phone	✓
Projector	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
DVD Player	✓	✓	✓	✓	✓						
Laptop Connection	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
Internet Connection	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Hi-WAE	✓	✓	✓	✓	✓	✓	✓	✓			

DEMONSTRATION CENTERS

Demonstration Tours are available with advanced scheduling. During general tours, Demonstration Leaders take guests through an overview of our latest innovative products and services developed by various Lockheed Martin business units. Demonstration center tours may last 15-20 minutes and vary according to availability. **To schedule a tour, please contact the GVC Scheduler or work directly with your assigned GVC Project Manager.**



FIGHTER DEMONSTRATION CENTER

The **Fighter Demonstration Center (FDC)** is designed and equipped to educate visitors about Lockheed Martin's two 5th generation fighter aircraft, the F-35 Lightning II (Joint Strike Fighter) and the F-22 Raptor. Briefings and discussions about the aircraft take place in our large conference room. The FDC's F-35 and F-22 cockpit demonstrators, an F-35 helmet mounted display system, and multiple touch-screen displays are used to further emphasize capabilities and other unique aspects of each aircraft. Industry partners, Northrup Grumman and Pratt & Whitney, have offices onsite to easily provide more in-depth explanations of the advanced systems they produce for both programs. Visits to the FDC should be coordinated in advance through your Lockheed Martin point of contact. **Direct your questions to the Fighter Demonstration Center at: (703) 413-5800.**



SPACE EXPERIENCE CENTER

In the **Space Experience Center (SEC)**, visitors explore the critical role space plays in their everyday lives and understand the scope of Lockheed Martin's legacy of innovation in helping customers apply advanced space and missile technology to connect, protect and explore. Multimedia displays and interactive demonstrations showcase the capabilities and resilience of critical civil and military applications in space science and exploration, national defense and global security missions. A multipurpose theater features high-definition video presentations and demonstrations on specific space technology and program topics. Unique interactive displays, such as the Orion Multipurpose Crew Vehicle cockpit simulator, a missile defense simulator, and the GPS Value Station provide visitors with a visceral experience of actual space technology in action. **Direct your questions to the Space Experience Center at: (703) 413-5932.**



POTOMAC DEMONSTRATION CENTER

The **Potomac Demonstration Center (PDC)** welcomes Lockheed Martin partners and stakeholders to an intimate and immersive environment that highlights challenges in complex mission areas. The PDC serves as a networked portal, fostering seamless collaboration with customers, academia as well as Lockheed Martin partner demonstration centers worldwide – all without the need for travel. To maximize prior investments, the PDC leverages existing infrastructure and is designed to accommodate interchangeable network interfaces, including classified connections. **Direct your questions to the Potomac Demonstration Center at: (703) 506-9396.**

DEMONSTRATION CENTERS



ENERGY SOLUTIONS CENTER

Lockheed Martin helps tackle global energy and climate challenges, delivering innovative solutions for generating utility-grade renewable power, maximizing grid efficiency, and securing energy infrastructures. The Energy Solutions Center (ESC) showcases the Corporation's existing and emerging programs and technologies in these areas and highlights our systems integration and modeling and simulation expertise.

Direct your question to the Energy Solutions Center at: (703) 413-5913.



MISSION SYSTEMS AND TRAINING SOLUTIONS CENTER

The **Mission Systems and Training Solutions Center** showcases the capabilities of Lockheed Martin's Mission Systems and Training (MST) organization. This diverse business area executes more than 1,000 programs for the U.S. Navy, Coast Guard, Air Force, Army and Marine Corps, as well as allied military, industrial, research and medical customers in 40 domestic and international locations. The detailed models and interactive displays featured in MST's Solutions Center, such as the MH-60R cockpit demonstrator, the Multi-Function Training Aid and the Littoral Combat Ship bridge simulator, demonstrate how MST is partnering with our customers to create tomorrow's mission capabilities, today.

Direct your question to the Mission Systems and Training Solutions Center at: (703) 416-2190.



IS & GS NEXGEN i3 CENTER

The Lockheed Martin **Information Systems & Global Solutions NexGen i3 Center** extends the capabilities of the LM NexGen Cyber Innovation and Technology Center, located in Gaithersburg, Maryland. The center enables customer and partner collaboration and innovation through its global network, in addition to providing a venue for live demonstrations to solve our customers' most difficult challenges. Ensuring mission success for our customers is our goal and we accomplish this through:

- Imagination: Creating and accelerating cyber innovations to help our customers;
- Innovation: Leading IS&GS global cyber technology development;
- Impact: Assisting customers by providing IS&GS technologies that address their critical challenges.

Direct your questions to the NexGen i3 Center at: (703) 413-3721.

GVC 100 MOMENTS & CORPORATE LEGACY EXPERIENCE

Here at Lockheed Martin, we solve complex challenges, advance scientific discovery and deliver innovative solutions to help our customers keep people safe and utilize essential services. As demonstrated by our first 100 years of performance and determination, Lockheed Martin is committed to pioneering innovation that meets our customers' needs, worldwide. In an effort to bring these innovations to life, The Lockheed Martin GVC launched The Lockheed Martin Corporate Legacy Experience and 100 Moments exhibits.

Guided and self-guided tours of The Corporate Legacy Experience and 100 Moments exhibits are offered to all GVC visitors. **For more information or to host an event, please contact The Lockheed Martin GVC at 703.413.5900 or via email at Globalvision.corp@lmco.com.**



THE LOCKHEED MARTIN CORPORATE LEGACY EXPERIENCE

The Lockheed Martin GVC's Corporate Legacy Experience is an interactive exhibit that celebrates Lockheed Martin's industry advancements achieved over 100 years. The exhibit features an extensive archive of more than 100 corporate artifacts as well as virtual touchscreen tours that offer visitors unique information about featured artifacts and innovations driven by Lockheed Martin. The Corporate Legacy Experience exhibit can accommodate up to 80 guests for networking and 65 people for seated events.



LOCKHEED MARTIN 100 MOMENTS

In 2012, Lockheed Martin Corporation celebrated 100 years of innovation. The GVC Corporate Legacy Experience and 100 Moments exhibits chronicles the 100 Moments of breakthroughs that have helped Lockheed Martin customers worldwide defend freedom, serve citizens and explore space. From the beginning, Lockheed Martin believed in the promise of a better tomorrow through innovative technology and dedicated service. It is a belief that has and will continue to carry the organization forward as we embark on the next 100 years.





Metro and Driving Directions to Lockheed Martin's Global Vision Center (GVC) 2121 Crystal Drive • Arlington, VA 22202



From Crystal City Metro Station (0.3 mi / approx 5 min) Blue/Yellow Line

- ▶ Exit the Metro Station and walk east on 18th St S
- ▶ Turn right on Crystal Drive
- ▶ Cross the street to 2121 and proceed through glass doors to 1st floor Visitor Desk (Lockheed Martin lobby)

- ▶ Follow signs to gold/yellow columns labeled 2121, park your vehicle and proceed to 1st floor Visitor Desk (Lockheed Martin lobby) via elevator

From Dulles Airport

- ▶ Leaving terminal, follow signs for Washington
- ▶ Take exit onto I-66 E
- ▶ Take exit 75 to merge onto Jefferson Davis Hwy/VA-110 toward Alexandria
- ▶ Follow Jefferson Davis Hwy
- ▶ Turn left on 20th St S
- ▶ Turn right at Crystal Drive
- ▶ At intersection of S 23rd St, TURN LEFT into parking garage
- ▶ Follow signs to gold/yellow columns labeled 2121, park your vehicle and proceed to 1st floor Visitor Desk (Lockheed Martin lobby) via elevator

From Reagan National Airport

- ▶ Stay left and take "Airport Exit/Rt.1 Crystal City/Alexandria" exit
- ▶ Stay right and take "Rt.1 Crystal City/Economy Parking/General Aviation/South Airport Services" exit onto Abingdon Rd
- ▶ Stay to the right and make a right at the stop sign following 395 North signs
- ▶ Make right onto Crystal Drive exit ramp
- ▶ At intersection of S 23rd St TURN RIGHT into parking garage

Security Information

All guests must register at the Lockheed Martin Security Desk located near the large globe on the first floor Lobby Level.



Around the Lockheed Martin Global Vision Center

The Lockheed Martin Global Vision Center is conveniently located in Crystal City, Arlington, VA. Crystal City - a vibrant business and shopping district - offers visitors, convenient and quick access to the Metro area and close proximity to Ronald Reagan Washington National Airport. Crystal City also offers an extensive integration of office buildings, shopping and residential high-rise buildings using underground corridors.

Also, featured within these underground corridors is Crystal City's premiere Art Underground - a vibrant arts and cultural destination with galleries, studios, interactive exhibits and activities, performance and classroom spaces.



The GVC is also located 5 miles outside of Washington, DC. A diverse and beautiful world capital, DC invites you to explore charming neighborhoods like historic Georgetown and trendy U Street, where you'll find hip shops, inviting restaurants, vibrant nightlife and peaceful parks and gardens. Discover fascinating free attractions like the Smithsonian Institution, National Gallery of Art, National Archives and the Library of Congress. World-famous museums, inspiring monuments and powerful moments await you in Washington, DC.



Lockheed Martin Global Vision Center

Preferred Caterers

Atrium Catering and Design

www.atriumcateringanddesign.com

(703) 481-3030

Email: anastasia@atriumcateringanddesign.com

263 Sunset Park Drive

Herndon, VA 20170

Bittersweet Catering

<http://www.bittersweetcatering.com/index.php>

(703) 549-2708

Email:

823 King Street

Alexandria, VA 22314

French Connections Catering

<http://www.frenchconnections catering.com/breakfast.html>

(703) 707-8304

Email: orders@frenchconnections catering.com

1114 Herndon Pkwy

Herndon, VA 20170

Root & Stem Catering & Events

<http://www.rootandstemdc.com/>

(703) 289 1281

Email: info@rootandstemdc.com

2941 Fairview Park Dr. #110

Falls Church, VA 22042

Saint Germain Catering

<http://www.saintgermaincatering.com/>

(703) 506-9396

8455 K Tyco Road

Vienna, VA 22182

Sinplivity Catering

<http://www.sinplivitycatering.com/>

(703) 892-1400

Email: info@sinplivitycatering.com

6402 Arlington Boulevard

Suite #B150

Falls Church, VA 22042

Please feel free to contact your GVC Event Planner if you have any questions.



Lockheed Martin Global Vision Center

Crystal City, Arlington VA Hotels

Courtyard by Marriott ([Link](#))

Capacity: 268 Rooms
703-549-3434 | 1-800-321-2211

Crowne Plaza ([Link](#))

Capacity: 308 Rooms
703-416-1600 | 1-800-227-6963

Crystal City Gateway Marriott ([Link](#))

Capacity: 700 Rooms
703-413-5500 | 1-800-228-9290

Crystal City Marriott ([Link](#))

Capacity: 345 Rooms
703-413-5500 | 1-800-228-9290

Doubletree Hotel ([Link](#))

Capacity: 630 Rooms
703-416-4100 | 1-800-222-8733

Embassy Suites ([Link](#))

Capacity: 267 Rooms
703-979-9799 | 1-800-362-2779

Hampton Inn ([Link](#))

Capacity: 161 Rooms
703-521-5901 | 1-800-426-7866

Hilton ([Link](#))

Capacity: 386 Rooms
703-418-6800 | 1-800-445-8667

Holiday Inn ([Link](#))

Capacity: 280 Rooms
703-684-7200 | 1-800-465-4329

Hyatt Regency ([Link](#))

Capacity: 685 rooms
703-418-1234 | 1-800-233-1234

Ronald Reagan Radisson ([Link](#))

Capacity: 247 rooms
703-920-8600 | 1-866-688-5072

Sheraton Crystal City Hotel ([Link](#))

Capacity: 408 Rooms
703-486-1111 | 1-800-325-3535

Please feel free to contact your GVC Event Planner if you have any questions.



Lockheed Martin Global Vision Center

Local Restaurants

Higher End

Ruth's Chris Steak House
2231 Crystal Drive

McCormick & Schmick's
2010 Crystal Drive

Morton's Steakhouse
1750 Crystal Drive

Casual Dining

Athena Pallas
556 22nd St South

Bistro 7107
513 23rd St South

Black Lime
2450 Crystal Drive

Cafe 59
2341 Jefferson Davis Hwy

Cafe Crystal
2805 Jefferson Davis Hwy

Cafe Italia
519 23rd St South

Cantina Mexicana
515 23rd St South

Cedar Deli
2341 Jefferson Davis Hwy

Green Leaf Cafe
1235 S Clark Street

Harar Mesob Ethiopian Restaurant
542 23rd St South

Hearthstone
507 23rd St South

Jaleo Spanish Tapas & Bar
2250 Crystal Drive

Kabob Palace
2315 S Eads Street

Kora
2250 B Crystal Drive

Legal Sea Foods
2301 Jefferson Davis Hwy

Neramitra Thai
2200 Crystal Drive

Casual Dining continued:

Century Cafe
2450 Crystal Drive

Cesar's Diner
539 23rd St South

Charlie Chiang's
320 23rd St South

Chili's
320 23rd Street

Crystal Bonsai Sushi
553 23rd St South

Freddie's Beach Bar
555 23rd St South

Portofino
526 23rd St South

Restaurant Mez
1700 Jefferson Davis Hwy

Taj of India
509 23rd St South

Ted's Montana Grill
2200 Crystal Drive

Top Thai
523 23rd St South

Tortoise & Hare
567 23rd St South

Urban Thai
561 23rd St South

Bar and Lounge

Bar Louie
320 23rd St South

Buffalo Wild Wings
2450 Crystal Drive

Chili's
320 23rd St South

Clark Street Grill
2711 Jefferson Davis Hwy

Crystal City Sports Pub
529 23rd St South

Hamlet Restaurant and Bar
1601 Crystal Square Arcade

Potomac Bar and Grille
1489 Jefferson Davis Hwy

San Antonio Bar and Grill
1664-A Crystal Square Arcade

Fast Food

Anna's Gateway Deli
1225 Jefferson Davis Hwy

Aroma Coffee
2450 Crystal Drive

Au Bon Pain
2102 Crystal Drive

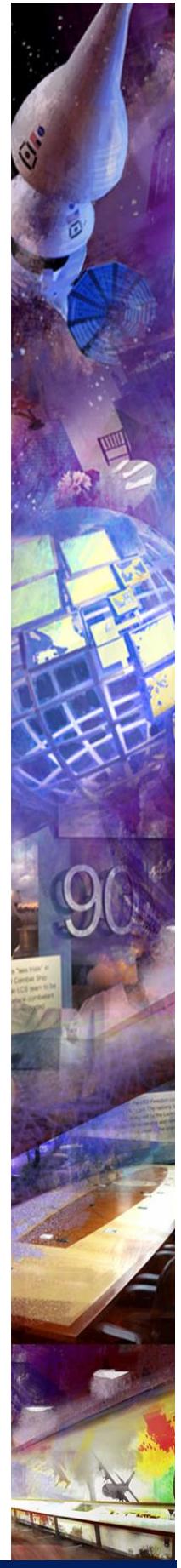
Chick-Fil-A
2100 Crystal Drive

Jimmy John's Gourmet Sandwiches
2450 Crystal Drive

New York Deli
2461 S Clark Street

The Perfect Pita
1681 Crystal Square Arcade

Philadelphia Mike's
1668 Crystal Square Arcade



Fast Food continued:

Chipotle Mexican Grille
2231 Crystal Drive

Cold Stone Creamery
Shops at 2100 Crystal Drive

Corner Bakery Cafe
Shops at 2100 Crystal Drive

Cosi
2011 Crystal Drive

California Tortilla
2450 Crystal Drive

Deli Works
Shops at 2100 Crystal Drive

Dickey's Frozen Custard
2345 Crystal Drive

Dunkin Donuts
1687 Crystal Square Arcade

Einstein Bagels
1700 Jefferson Davis Hwy

Fro-Zen-Yo
2231 Crystal Drive

Good Stuff Eatery
2100 Crystal Drive

Pizza Autentica
2450 Crystal Drive

Noodles & Company
2011 Crystal Drive

The Perfect Pita
2345 Crystal Drive

Starbucks Coffee
2231 Crystal Drive

Starbucks Coffee
1649 Crystal Square Arcade

Starbucks Coffee
2600 Crystal Drive

Subway
2154 Crystal Plaza Arcade

Subway
2461 S Clark Street

Sbarro Italian Buffet
1688 Crystal Square Arcade

Potbelly Sandwich Works
1615 Crystal Square Arcade

Punjab Kabob
2325 S Eads Street

Quizno's
1225 S Clark Street

*Please feel free to contact your GVC Event Planner
if you have any questions*

