COST ASSESSMENT DATA ENTERPRISE

Investigation of the Disconnect Between the Use of CSDRs Cost and Contracting Communities

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Authors

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Marc Stephenson is an analytical consultant at Technomics, Inc. with experience in data collection and validation. His experience at Technomics, Inc. includes supporting OSD Cost Assessment and Program Evaluation (CAPE) Defense Cost and Resource Center (DCARC). Mr. Stephenson's experience supporting this customer includes implementing the cost and software data reporting (CSDR) requirement, metric analysis, data validation, and direct on-site client support. Mr. Stephenson holds a B.S. in Economics from Penn State and is pursuing an M.A. in Economics from George Mason.

Brian Davis

Brian Davis is Senior Cost Analyst at Technomics, Inc. with experience in cost estimating, business case analysis, data collection and program analysis. His experience at Technomics, Inc. includes supporting the Office of the Secretary of Defense (OSD) Cost Assessment and Program Evaluation (CAPE) Defense Cost and Resource Center (DCARC). Mr. Davis has supported cost estimates for the Department of Defense and Civil organizations. Mr. Davis holds a B.S. in Economics, a Graduate Certificate in Business Analytics and is pursing an MBA from Indiana University Kelly Business School.

Agenda

- CCDRs – the status quo
- Where can we add value to current cost collection efforts?
- How is this new information collected?
- How does this new information fill existing voids?
- Observations and Conclusions
- Continuing the Evolution in Data Collection

The Big Picture

Decision-makers require confidence in the analysis and resulting estimates from the cost community

To establish trust and confidence the path from *data/facts* to *methods/models* to *estimates* must be clearly defined

- Clarity of this path is paramount
- Clarity breeds confidence and trust

Authoritative data is the foundation for estimate credibility and defensibility - estimates not grounded in data can be viewed as a guess or, at best, analyst opinion/judgement

The most authoritative data is the actual cost to the government at completion of a given contract

CCDRs – the status quo

Currently, the most readily available, authoritative source of contract actuals are **Contractor Cost Data Reports (CCDRs)**

- Required on ACAT I program contracts that are over $50M and optional between $20M and $50M
- Provides actual costs and hours

Used for the following:

- Acquisition/Life Cycle estimates for major milestone reviews
- Independent contract cost estimates
- Investigate the impact of MDAP and MAIS cancellation decisions on remaining DoD programs at a particular contractor site

How the data is reported and *what* is reported distinguish CCDRs from other data sources

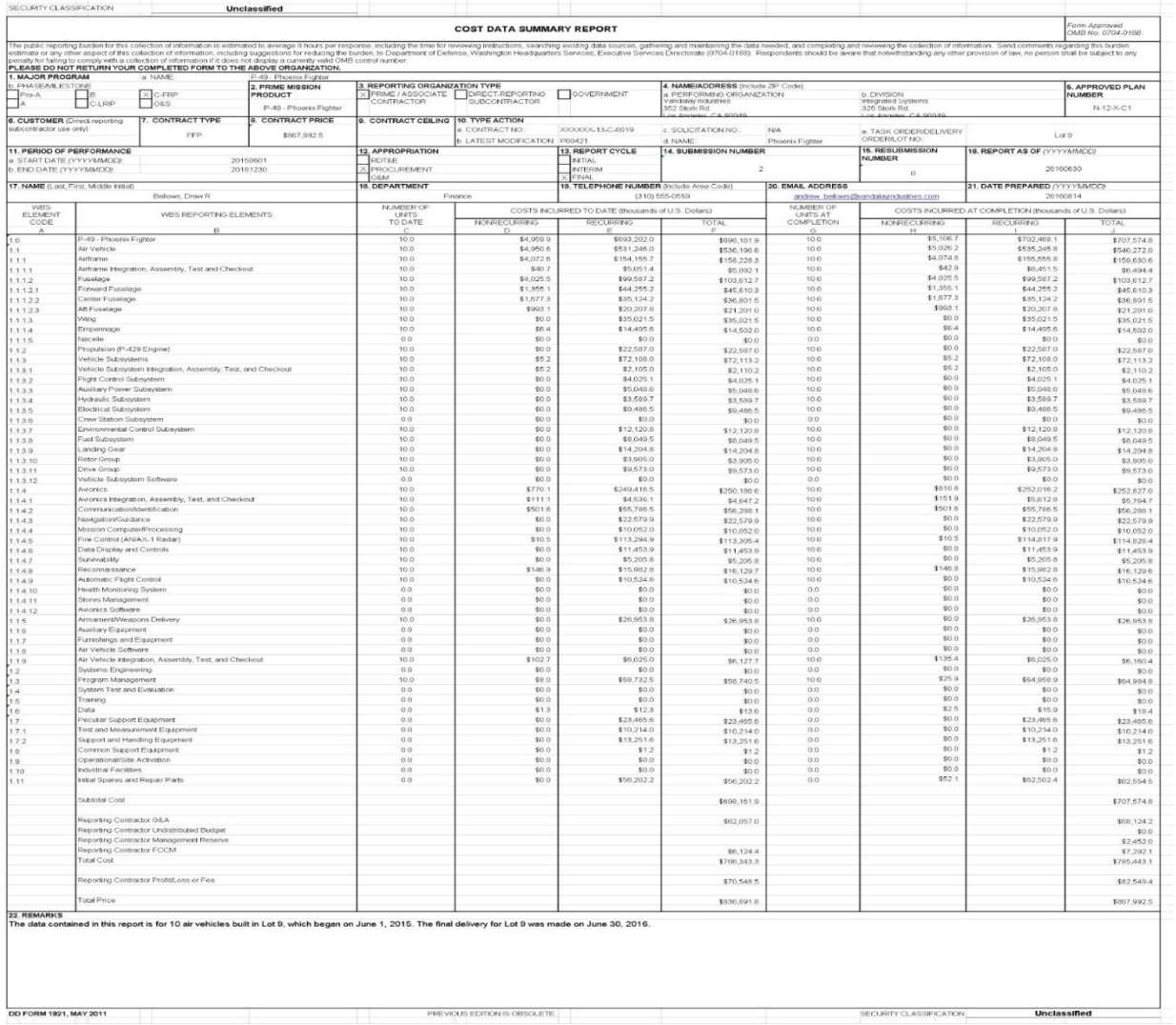
Reporting Structure (How)

- Hierarchical, product oriented work breakdown structure (WBS) per Mild-Std-881

Reporting Visibility (What)

- Nonrecurring/Recurring
- Labor vs. material cost
- Direct vs. indirect cost
- Standard Functional Categories
- Prime vs. subcontractor cost

"Collecting valid and useful historical data is a key step in developing a sound cost estimate. The challenge in doing this is obtaining the most applicable historical data to ensure that the new estimate is as accurate as possible" (GAO Cost Estimating and Assessment Handbook)



SECURITY CLASSIFICATION: Unclassified

COST DATA SUMMARY REPORT

Form Approved OMB No. 0704-0188

The public reporting burden for this collection of information is estimated to average 8 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 (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.

1. MAJOR PROGRAM a. NAME: P-49 - Phoenix Fighter; b. PHASE/MILESTONE: [ ] Pre-A [ ] A [ ] B [ ] C-LRIP [X] C-FRP [ ] O&S	**2. PRIME MISSION PRODUCT**: P-49 - Phoenix Fighter	**3. REPORTING ORGANIZATION TYPE**: [X] PRIME / ASSOCIATE CONTRACTOR [ ] DIRECT-REPORTING SUBCONTRACTOR [ ] GOVERNMENT	**4. NAME/ADDRESS** (Include ZIP Code): a. PERFORMING ORGANIZATION: Vandalay Industries, 352 Stork Rd, Los Angeles, CA 90049; b. DIVISION: Integrated Systems, 326 Stork Rd, Los Angeles, CA 90049	**5. APPROVED PLAN NUMBER**: N-12-X-C1
6. CUSTOMER (Direct-reporting subcontractor use only)	**7. CONTRACT TYPE**: FFP	**8. CONTRACT PRICE**: $867,992.5	**9. CONTRACT CEILING**	**10. TYPE ACTION**: a. CONTRACT NO.: XXXXXX-13-C-0019; b. LATEST MODIFICATION: P00421; c. SOLICITATION NO.: N/A; d. NAME: Phoenix Fighter; e. TASK ORDER/DELIVERY ORDER/LOT NO.: Lot 9
11. PERIOD OF PERFORMANCE: a. START DATE (YYYYMMDD): 20150601; b. END DATE (YYYYMMDD): 20181230	**12. APPROPRIATION**: [ ] RDT&E [X] PROCUREMENT [ ] O&M	**13. REPORT CYCLE**: [ ] INITIAL [ ] INTERIM [X] FINAL	**14. SUBMISSION NUMBER**: 2	**15. RESUBMISSION NUMBER**: 0	**16. REPORT AS OF** (YYYYMMDD): 20160630
17. NAME (Last, First, Middle Initial): Bellows, Drew R	**18. DEPARTMENT**: Finance	**19. TELEPHONE NUMBER** (Include Area Code): (310) 555-0559	**20. EMAIL ADDRESS**: andrew_bellows@vandalayindustries.com	**21. DATE PREPARED** (YYYYMMDD): 20160614

WBS ELEMENT CODE (A)	WBS REPORTING ELEMENTS (B)	NUMBER OF UNITS TO DATE (C)	COSTS INCURRED TO DATE (thousands of U.S. Dollars) NONRECURRING (D)	RECURRING (E)	TOTAL (F)	NUMBER OF UNITS AT COMPLETION (G)	COSTS INCURRED AT COMPLETION (thousands of U.S. Dollars) NONRECURRING (H)	RECURRING (I)	TOTAL (J)
1.0	P-49 - Phoenix Fighter	10.0	$4,959.9	$693,202.0	$698,161.9	10.0	$5,106.7	$702,468.1	$707,574.8
1.1	Air Vehicle	10.0	$4,950.6	$531,246.0	$536,196.6	10.0	$5,026.2	$535,245.8	$540,272.0
1.1.1	Airframe	10.0	$4,072.6	$154,155.7	$158,228.3	10.0	$4,074.8	$155,555.8	$159,630.6
1.1.1.1	Airframe Integration, Assembly, Test and Checkout	10.0	$40.7	$5,051.4	$5,092.1	10.0	$42.9	$6,451.5	$6,494.4
1.1.1.2	Fuselage	10.0	$4,025.5	$99,587.2	$103,612.7	10.0	$4,025.5	$99,587.2	$103,612.7
1.1.1.2.1	Forward Fuselage	10.0	$1,355.1	$44,255.2	$45,610.3	10.0	$1,355.1	$44,255.2	$45,610.3
1.1.1.2.2	Center Fuselage	10.0	$1,677.3	$35,124.2	$36,801.5	10.0	$1,677.3	$35,124.2	$36,801.5
1.1.1.2.3	Aft Fuselage	10.0	$993.1	$20,207.8	$21,201.0	10.0	$993.1	$20,207.8	$21,201.0
1.1.1.3	Wing	10.0	$0.0	$35,021.5	$35,021.5	10.0	$0.0	$35,021.5	$35,021.5
1.1.1.4	Empennage	10.0	$6.4	$14,495.6	$14,502.0	10.0	$6.4	$14,495.6	$14,502.0
1.1.1.5	Nacelle	0.0	$0.0	$0.0	$0.0	0.0	$0.0	$0.0	$0.0
1.1.2	Propulsion (P-429 Engine)	10.0	$0.0	$22,587.0	$22,587.0	10.0	$0.0	$22,587.0	$22,587.0
1.1.3	Vehicle Subsystems	10.0	$5.2	$72,108.0	$72,113.2	10.0	$5.2	$72,108.0	$72,113.2
1.1.3.1	Vehicle Subsystem Integration, Assembly, Test, and Checkout	10.0	$5.2	$2,105.0	$2,110.2	10.0	$5.2	$2,105.0	$2,110.2
1.1.3.2	Flight Control Subsystem	10.0	$0.0	$4,025.1	$4,025.1	10.0	$0.0	$4,025.1	$4,025.1
1.1.3.3	Auxiliary Power Subsystem	10.0	$0.0	$5,048.6	$5,048.6	10.0	$0.0	$5,048.6	$5,048.6
1.1.3.4	Hydraulic Subsystem	10.0	$0.0	$3,589.7	$3,589.7	10.0	$0.0	$3,589.7	$3,589.7
1.1.3.5	Electrical Subsystem	10.0	$0.0	$9,486.5	$9,486.5	10.0	$0.0	$9,486.5	$9,486.5
1.1.3.6	Crew Station Subsystem	0.0	$0.0	$0.0	$0.0	0.0	$0.0	$0.0	$0.0
1.1.3.7	Environmental Control Subsystem	10.0	$0.0	$12,120.8	$12,120.8	10.0	$0.0	$12,120.8	$12,120.8
1.1.3.8	Fuel Subsystem	10.0	$0.0	$8,049.5	$8,049.5	10.0	$0.0	$8,049.5	$8,049.5
1.1.3.9	Landing Gear	10.0	$0.0	$14,204.8	$14,204.8	10.0	$0.0	$14,204.8	$14,204.8
1.1.3.10	Rotor Group	10.0	$0.0	$3,905.0	$3,905.0	10.0	$0.0	$3,905.0	$3,905.0
1.1.3.11	Drive Group	10.0	$0.0	$9,573.0	$9,573.0	10.0	$0.0	$9,573.0	$9,573.0
1.1.3.12	Vehicle Subsystem Software	0.0	$0.0	$0.0	$0.0	0.0	$0.0	$0.0	$0.0
1.1.4	Avionics	10.0	$770.1	$249,416.5	$250,186.6	10.0	$810.8	$252,016.2	$252,827.0
1.1.4.1	Avionics Integration, Assembly, Test, and Checkout	10.0	$111.1	$4,536.1	$4,647.2	10.0	$151.9	$6,612.8	$6,764.7
1.1.4.2	Communication/Identification	10.0	$501.6	$55,786.5	$56,288.1	10.0	$501.6	$55,786.5	$56,288.1
1.1.4.3	Navigation/Guidance	10.0	$0.0	$22,579.9	$22,579.9	10.0	$0.0	$22,579.9	$22,579.9
1.1.4.4	Mission Computer/Processing	10.0	$0.0	$10,052.0	$10,052.0	10.0	$0.0	$10,052.0	$10,052.0
1.1.4.5	Fire Control (AN/A/C-1 Radar)	10.0	$10.5	$113,294.9	$113,305.4	10.0	$10.5	$114,817.9	$114,828.4
1.1.4.6	Data Display and Controls	10.0	$0.0	$11,453.9	$11,453.9	10.0	$0.0	$11,453.9	$11,453.9
1.1.4.7	Survivability	10.0	$0.0	$5,205.8	$5,205.8	10.0	$0.0	$5,205.8	$5,205.8
1.1.4.8	Reconnaissance	10.0	$146.9	$15,982.8	$16,129.7	10.0	$146.8	$15,982.8	$16,129.6
1.1.4.9	Automatic Flight Control	10.0	$0.0	$10,524.6	$10,524.6	10.0	$0.0	$10,524.6	$10,524.6
1.1.4.10	Health Monitoring System	0.0	$0.0	$0.0	$0.0	0.0	$0.0	$0.0	$0.0
1.1.4.11	Stores Management	0.0	$0.0	$0.0	$0.0	0.0	$0.0	$0.0	$0.0
1.1.4.12	Avionics Software	0.0	$0.0	$0.0	$0.0	0.0	$0.0	$0.0	$0.0
1.1.5	Armament/Weapons Delivery	10.0	$0.0	$26,953.8	$26,953.8	10.0	$0.0	$26,953.8	$26,953.8
1.1.6	Auxiliary Equipment	0.0	$0.0	$0.0	$0.0	0.0	$0.0	$0.0	$0.0
1.1.7	Furnishings and Equipment	0.0	$0.0	$0.0	$0.0	0.0	$0.0	$0.0	$0.0
1.1.8	Air Vehicle Software	0.0	$0.0	$0.0	$0.0	0.0	$0.0	$0.0	$0.0
1.1.9	Air Vehicle Integration, Assembly, Test, and Checkout	10.0	$102.7	$6,025.0	$6,127.7	10.0	$135.4	$6,025.0	$6,160.4
1.2	Systems Engineering	0.0	$0.0	$0.0	$0.0	0.0	$0.0	$0.0	$0.0
1.3	Program Management	10.0	$8.0	$58,732.5	$58,740.5	10.0	$25.9	$64,958.9	$64,984.8
1.4	System Test and Evaluation	0.0	$0.0	$0.0	$0.0	0.0	$0.0	$0.0	$0.0
1.5	Training	0.0	$0.0	$0.0	$0.0	0.0	$0.0	$0.0	$0.0
1.6	Data	0.0	$1.3	$12.3	$13.6	0.0	$2.5	$15.9	$18.4
1.7	Peculiar Support Equipment	0.0	$0.0	$23,465.6	$23,465.6	0.0	$0.0	$23,465.6	$23,465.6
1.7.1	Test and Measurement Equipment	0.0	$0.0	$10,214.0	$10,214.0	0.0	$0.0	$10,214.0	$10,214.0
1.7.2	Support and Handling Equipment	0.0	$0.0	$13,251.6	$13,251.6	0.0	$0.0	$13,251.6	$13,251.6
1.8	Common Support Equipment	0.0	$0.0	$1.2	$1.2	0.0	$0.0	$1.2	$1.2
1.9	Operational/Site Activation	0.0	$0.0	$0.0	$0.0	0.0	$0.0	$0.0	$0.0
1.10	Industrial Facilities	0.0	$0.0	$0.0	$0.0	0.0	$0.0	$0.0	$0.0
1.11	Initial Spares and Repair Parts	0.0	$0.0	$56,202.2	$56,202.2	0.0	$52.1	$62,502.4	$62,554.5
	Subtotal Cost				$698,161.9				$707,574.8
	Reporting Contractor G&A				$62,057.0				$68,124.2
	Reporting Contractor Undistributed Budget								$0.0
	Reporting Contractor Management Reserve								$2,452.0
	Reporting Contractor FCCM				$6,124.4				$7,292.1
	Total Cost				$766,343.3				$785,443.1
	Reporting Contractor Profit/Loss or Fee				$70,548.5				$82,549.4
	Total Price				$836,891.8				$867,992.5

22. REMARKS
The data contained in this report is for 10 air vehicles built in Lot 9, which began on June 1, 2015. The final delivery for Lot 9 was made on June 30, 2016.

DD FORM 1921, MAY 2011 — PREVIOUS EDITION IS OBSOLETE — SECURITY CLASSIFICATION: Unclassified

Cost Data Summary Report

- Metadata
- WBS Elements
- Nonrecurring/Recurring
- Units To Date/At Completion
- Costs to Date
- Costs at Completion
- Remarks

Cost Assessment Data Enterprise (CADE)

1921-1/1921-5

SECURITY CLASSIFICATION: Unclassified

FUNCTIONAL COST-HOUR REPORT

Form Approved
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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 (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.**

1. MAJOR PROGRAM	a. NAME:	P-49 - Phoenix Fighter
b. PHASE/MILESTONE		

Pre-A	B	X C-FRP
A	C-LRIP	O&S

2. PRIME MISSION PRODUCT	3. REPORTING ORGANIZATION TYPE		
P-49 - Phoenix Fighter	X PRIME / ASSOCIATE CONTRACTOR	DIRECT-REPORTING SUBCONTRACTOR	GOVERNMENT

4. NAME/ADDRESS (Include Zip Code)		5. APPROVED PLAN NUMBER
a. PERFORMING ORGANIZATION	b. DIVISION	
Vandalay Industries 352 Stork Rd. Los Angeles, CA 90049	Integrated Systems 325 Stork Rd. Los Angeles, CA 90049	N-12-X-C1

6. CUSTOMER (Direct-Reporting Subcontractor Use Only)	7. TYPE ACTION				
	a. CONTRACT NO.:	XXXXXX-13-C-0019	c. SOLICITATION NO.:	N/A	e. TASK ORDER/DELIVERY ORDER/LOT NO.: Lot 9
	b. LATEST MODIFICATION:	P00421	d. NAME:	Phoenix Fighter	

8. PERIOD OF PERFORMANCE		9. REPORT CYCLE	10. SUBMISSION NUMBER	11. RESUBMISSION NUMBER	12. REPORT AS OF (YYYYMMDD)
a. START DATE (YYYYMMDD):	20150601	INITIAL			
b. END DATE (YYYYMMDD):	20181230	INTERIM	2	0	20160630
		X FINAL			

13. NAME (Last, First, Middle Initial)	14. DEPARTMENT	15. TELEPHONE NO. (Include Area Code)	16. EMAIL ADDRESS	17. DATE PREPARED (YYYYMMDD)
Bellows, Drew R	Finance	(310) 555-0559	andrew_bellows@vandalayindustries.com	20160814

18. WBS ELEMENT CODE	19. WBS REPORTING ELEMENT	20. NUMBER OF UNITS		21. APPROPRIATION
		a. TO DATE	b. AT COMPLETION	RDT&E
1.0	P-49 - Phoenix Fighter	10.0	10.0	X PROCUREMENT
				O&M

FUNCTIONAL DATA ELEMENTS	COSTS AND HOURS INCURRED TO DATE (thousands of U.S. Dollars or thousands of hours)			COSTS AND HOURS INCURRED AT COMPLETION (thousands of U.S. Dollars or thousands of hours)		
	A. NONRECURRING	B. RECURRING	C. TOTAL	D. NONRECURRING	E. RECURRING	F.TOTAL
ENGINEERING						
(1) DIRECT ENGINEERING LABOR HOURS	7	1128.6	1135.6	7.4	1257.2	1264.6
(2) DIRECT ENGINEERING LABOR DOLLARS	$398.4	$70,403.0	$70,801.4	$400.5	$72,102.2	$72,502.7
(3) ENGINEERING OVERHEAD DOLLARS	$245.0	$51,267.7	$51,512.7	$251.2	$52,001.9	$52,253.1
(4) TOTAL ENGINEERING DOLLARS	$643.4	$121,670.7	$122,314.1	$651.7	$124,104.1	$124,755.8
MANUFACTURING OPERATIONS						
(5) DIRECT TOOLING LABOR HOURS	0	247.698	247.698	0.1	247.7	247.8
(6) DIRECT TOOLING LABOR DOLLARS	$1.7	$8,179.0	$8,180.7	$3.6	$8,179.0	$8,182.6
(7) DIRECT TOOLING & EQUIPMENT DOLLARS	$0.0	$4,020.8	$4,020.8	$0.0	$4,020.8	$4,020.8
(8) DIRECT QUALITY CONTROL LABOR HOURS	1.2	347.49	348.69	1.9	384.2	386.1
(9) DIRECT QUALITY CONTROL LABOR DOLLARS	$33.5	$10,838.4	$10,871.9	$36.9	$11,052.2	$11,089.1
(10) DIRECT MANUFACTURING LABOR HOURS	90.2	4124.5	4214.7	95.2	4168.2	4263.4
(11) DIRECT MANUFACTURING LABOR DOLLARS	$3,456.0	$155,518.4	$158,974.4	$3,478.8	$158,321.6	$161,800.4
(12) MANUFACTURING OPERATIONS OVERHEAD DOLLARS *(Including Tooling and Quality*	$325.2	$145,235.6	$145,560.8	$357.3	$146,521.5	$146,878.8
(13) TOTAL MANUFACTURING OPERATIONS DOLLARS *(Sum of rows 6, 7, 9, 11, and 12)*	$3,816.4	$323,792.3	$327,608.7	$3,876.6	$328,095.1	$331,971.7
MATERIALS						
(14) RAW MATERIAL DOLLARS	$24.2	$10,201.9	$10,226.1	$24.2	$10,201.9	$10,226.1
(15) PURCHASED PARTS DOLLARS	$45.2	$30,212.0	$30,257.2	$127.7	$30,952.2	$31,079.9
(16) PURCHASED EQUIPMENT DOLLARS	$102.5	$57,854.4	$57,956.9	$98.3	$58,156.5	$58,254.8
(17) MATERIAL HANDLING OVERHEAD DOLLARS	$0.0	$4,032.2	$4,032.2	$0.0	$4,032.2	$4,032.2
(18) TOTAL DIRECT-REPORTING SUBCONTRACTOR DOLLARS	$0.0	$100,426.5	$100,426.5	$0.0	$101,021.5	$101,021.5
(19) TOTAL MATERIAL DOLLARS	$171.9	$202,727.0	$202,898.9	$250.2	$204,364.3	$204,614.5
OTHER COSTS						
(20) OTHER COSTS NOT SHOWN ELSEWHERE *(Specify in Remarks)*	$328.2	$45,012.0	$45,340.2	$328.2	$45,904.6	$46,232.8
SUMMARY						
(21) TOTAL COST *(Direct and Overhead)*	$4,959.9	$693,202.0	$698,161.9	$5,106.7	$702,468.1	$707,574.8

22. REMARKS

Costs in Line 16 (Purchased Equipment Dollars) are greater to date than at completion due to a pending credit for overbilling on a purchase order.
Costs in Line 18 (Total Direct Reporting Subcontractor Dollars) are for The Aircraft Electronics Group (AEG), Akron, Ohio ($100,426,500 to date, $101,021,500 at completion)

DD FORM 1921-1, MAY 2011 — SECURITY CLASSIFICATION: Unclassified

Functional Cost-Hour Report

- Metadata
- Number of Units
- Standard Functional Categories
- Costs and Hours to Date
- Costs and Hours at Completion
- Remarks

Cost Assessment Data Enterprise (CADE)

1921-2

SECURITY CLASSIFICATION: Unclassified

PROGRESS CURVE REPORT

Form Approved OMB No. 0704-0188

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1. MAJOR PROGRAM	a. NAME:	2. PRIME MISSION PRODUCT	3. REPORTING ORGANIZATION TYPE	4. NAME/ADDRESS (Include ZIP Code)	
b. PHASE/MILESTONE	P-49 - Phoenix Fighter			a. PERFORMING ORGANIZATION	b. DIVISION
☐ Pre-A ☐ B ☒ C-FRP		P-49 - Phoenix Fighter	☒ PRIME / ASSOCIATE CONTRACTOR ☐ DIRECT-REPORTING SUBCONTRACTOR ☐ GOVERNMENT	Vandalay Industries 352 Stork Rd.	Integrated Systems 325 Stork Rd.
☐ A ☐ C-LRIP ☐ O&S					

5. APPROVED PLAN NUMBER	6. CUSTOMER (Direct-Reporting Subcontractor Use Only)	7. TYPE ACTION					
		a. CONTRACT NO.:	XXXXXX-13-C-0019	c. SOLICITATION NO.:	N/A	e. TASK ORDER/DELIVERY ORDER/LOT NO.:	
N-12-X-C1		b. LATEST MODIFICATION	P00421	d. NAME:	Phoenix Fighter		Lot 9

8. PERIOD OF PERFORMANCE		9. REPORT CYCLE	10. SUBMISSION NUMBER	11. RESUBMISSION NUMBER	12. REPORT AS OF (YYYYMMDD)
a. START DATE (YYYYMMDD):	20150601	☐ INITIAL			
b. END DATE (YYYYMMDD):	20181230	☐ INTERIM	2	0	20160630
		☒ FINAL			

13. NAME (Last, First, Middle Initial)	14. DEPARTMENT	15. TELEPHONE NO. (Include Area Code)	16. E-MAIL ADDRESS	17. DATE PREPARED (YYYYMMDD)
Bellows, Drew R	Finance	(310) 555-0559	andrew_bellows@vandalayindustries.com	20160814

18. WBS ELEMENT CODE	19. WBS REPORTING ELEMENT	20. UNITS/LOTS COMPLETED	21. APPROPRIATION
1.0	P-49 - Phoenix Fighter	☐ UNIT TOTAL ☒ LOT TOTAL	☐ RDT&E ☒ PROCUREMENT ☐ O&M

DATA ELEMENTS	A. COMPLETED UNITS/LOTS (thousands of U.S. Dollars or thousands of hours) A1	A2	A3	A4	B. WORK IN PROCESS (WIP) (thousands of U.S. Dollars or thousands of hours)	C. TOTAL DIRECT COSTS AND HOURS INCURRED TO DATE (thousands of U.S. Dollars or thousands of hours)
(1) MODEL AND SERIES						
(2) FIRST UNIT						
(3) LAST UNIT						
(4) CONCURRENT UNITS/LOTS						
CHARACTERISTICS						
(5a) Weight						
(5b) Speed						
(5c) Power						
ENGINEERING (RECURRING ONLY)						
(6) DIRECT ENGINEERING LABOR HOURS	1128.6					1128.6
(7) DIRECT ENGINEERING LABOR DOLLARS	$70,403.0					$70,403.0
MANUFACTURING OPERATIONS (RECURRING ONLY)						
(8) DIRECT TOOLING LABOR HOURS	247.7					247.7
(9) DIRECT TOOLING LABOR DOLLARS	$8,179.0					$8,179.0
(10) DIRECT TOOLING & EQUIPMENT DOLLARS	$4,020.8					$4,020.8
(11) DIRECT QUALITY CONTROL LABOR HOURS	347.5					347.5
(12) DIRECT QUALITY CONTROL LABOR DOLLARS	$10,838.4					$10,838.4
(13) DIRECT MANUFACTURING LABOR HOURS	$4,124.5					$4,124.5
(14) DIRECT MANUFACTURING LABOR DOLLARS	$155,518.4					$155,518.4
(15) TOTAL DIRECT MANUFACTURING OPERATIONS DOLLARS *(Sum of rows 9,10,12, a*	$178,556.6					$178,556.6
MATERIALS (RECURRING ONLY)						
(16) RAW MATERIALS DOLLARS	$10,201.9					$10,201.9
(17) PURCHASED PARTS DOLLARS	$30,212.0					$30,212.0
(18) PURCHASED EQUIPMENT DOLLARS	$57,854.4					$57,854.4
(19) TOTAL DIRECT-REPORTING SUBCONTRACTOR DOLLARS						
(20) TOTAL DIRECT MATERIAL DOLLARS	$98,268.3					$98,268.3
OTHER COSTS (RECURRING ONLY)						
(21) OTHER DIRECT COSTS NOT SHOWN ELSEWHERE *(Specify in Remarks)*	$25,012.0					$25,012.0
SUMMARY (RECURRING ONLY)						
(22) TOTAL DIRECT COST	$372,239.9					$372,239.9

22. REMARKS

DD FORM 1921-2, MAY 2011 — PREVIOUS EDITION IS OBSOLETE. — SECURITY CLASSIFICATION: Unclassified

Progress Curve Report

- Metadata
- Data Elements
- Completed Units/Lots
- Work in Process
- Total Direct Costs and Hours to Date
- Remarks

1921-3

SECURITY CLASSIFICATION _____

CONTRACTOR BUSINESS DATA REPORT - PAGE 2

SECTION C	PRODUCTION CAPACITY	Current Year	Method of Calculating "FPR unit % of Full Production Capacity"
	FPR Unit % of Full Production Capacity		
	Number of Shifts		

SECTION D		Current Year (Report hours in thousands)																Prior Year	Year:	Year:
		1st Quarter				2nd Quarter				3rd Quarter				4th Quarter						
	DIRECT LABOR RATES (FUNCTIONAL CATEGORIES)	Workers a	Hours b	Basic Rate$ c	Effective Rate$ d	Workers a	Hours b	Basic Rate$ c	Effective Rate$ d	Workers a	Hours b	Basic Rate$ c	Effective Rate$ d	Workers a	Hours b	Basic Rate$ c	Effective Rate$ d	Basic Rate$ c	Basic Rate$ c	Basic Rate$ c
	1. Engineering - Direct Labor																			
	2. Manufacturing Operations - Direct Labor																			
	a. Tooling - Direct Labor																			
	b. Quality Control - Direct Labor																			
	c. Manufacturing - Direct Labor																			

SECTION E		Prior Year	Current Year
	Total FPR Unit Revenue (Sales) (thousands of dollars)		

SECTION F	Organizational Changes (For Each Year Reported)	Accounting Changes (For Each Year Reported)

REMARKS

DD FORM 1921-3, MAY 2011 SECURITY CLASSIFICATION _____ Page 2 of 2

Contractor Business Data Report

- Metadata
- Direct Cost by Program
- Indirect Cost Categories

Page 2

- Facility-wide Specifics
- Direct Labor Rates
- Total Sales
- Organizational and Accounting Changes
- Remarks

CCDRs – the status quo

Contract proposal data are not generally analyzed in 1921-1 government standard reporting elements

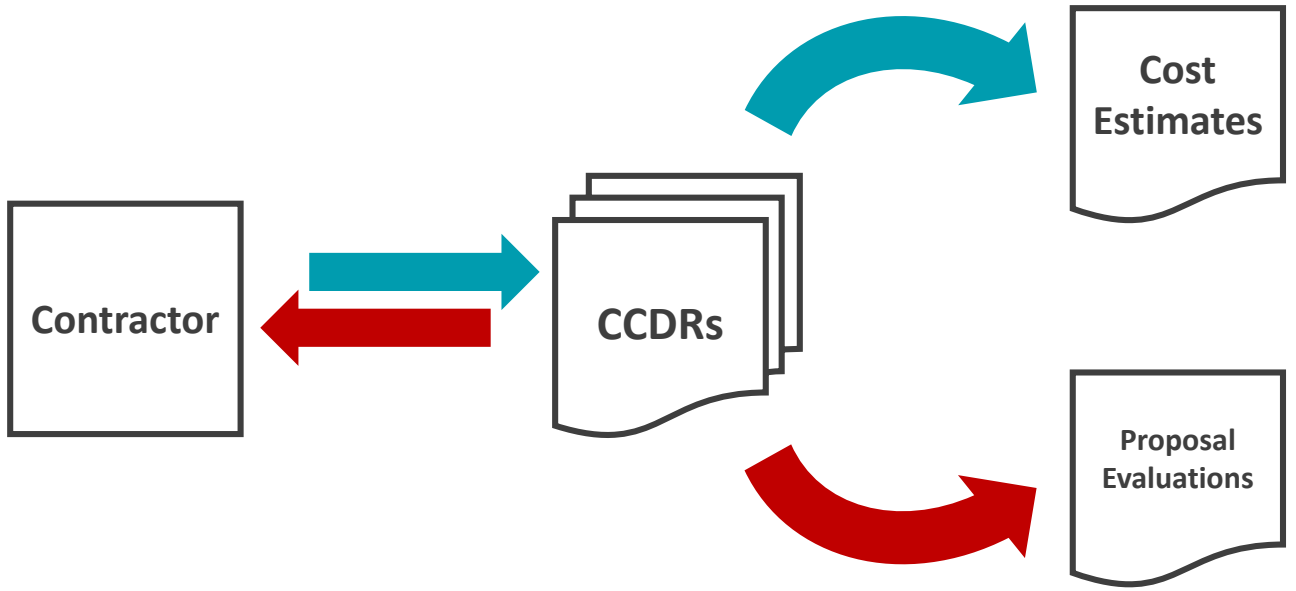
- Contracting Community analyzes proposals according to CLIN and Rates and Factors consistent with FPR
- CCDRs are only submitted against the standard government reporting elements
- *No consistent crosswalk exists between the two*

Furthermore, the methodology for building up CCDRs from the contractor's system not known

- No detail below the Standard Functional Category level
- Allocations are not transparent
- Not enough detail to understand/reevaluate industry normalization

Inconsistencies within contractors over time

- Different analyst, different interpretation
- Accounting and organizational changes



Given additional time and industry cooperation cost estimators will generally request more detailed data from industry

"One way of ensuring that the data are applicable is to perform checks of reasonableness to see if the results are similar. Different data sets converging toward one value provides a high degree of confidence in the data." (GAO Cost Estimating and Assessment Handbook)

Where can we add value to current cost collection efforts?

FlexFile initiative began as a way to provide analysts a ***single authoritative data*** source while providing efficiencies for both government and the contractors in the way cost data is both reported and collected

FlexFile aims to add value by…

- Maintain Legacy Reporting
- Improve Data Quality
- Increase Efficiency

Relating normalized cost data back to how the contractor's mange their systems benefits the analyst in different use cases, and provides the analyst a ***consistent*** and ***credible*** way to validate the data across programs, contracts, contractors, and throughout the acquisition lifecycle.

How is this new information collected?

Data Group A

Report Metadata (subset)

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

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

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 Rates/Factors

Data Group F/G

Allocation Methodology

Allocation Method Type ID
Allocation Method Name

Forecasts At Completion (FAC)

FAC (Dollars/Hours)

Maintain Legacy Reports (status quo)

First and foremost, the ability to recreate the legacy 1921 forms was a primary requirement in the development of the FlexFile

FlexFile requires that the dollars and hours reported are tagged to the legacy government reporting elements

- WBS (according to the Mil Std)
- Standard Functional Categories
- Nonrecurring/Recurring

How is this new information collected?

Data Group A

Report Metadata (subset)

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

Data Group B

DD Form 2794 Data Elements

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

Data Group C

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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

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 Rates/Factors

Data Group F/G

Allocation Methodology

Allocation Method Type ID
Allocation Method Name

Forecasts At Completion (FAC)

FAC (Dollars/Hours)

Improve Data Quality

FlexFile improves data quality through access to data on how the contractor's manage their systems

Removes the need for contractors to spend numerous hours manipulating their native data in order to fill out the legacy 1921 forms

Native data gives the analyst insight into contractor interpretations of standard government fields

Makes the FlexFile relevant to contract proposals, negotiations, forward pricing rates, and so forth, which are primarily performed in contractor format

Provides the analyst a **consistent** and **credible** way to validate the data across programs, contracts, contractors, and throughout the acquisition lifecycle

How is this new information collected?

Data Group A

Report Metadata (subset)

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

Data Group B

DD Form 2794 Data Elements

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

Data Group C

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Remarks by WBS element
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General and Administrative
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Management Reserve
Facilities Capital Cost of Money
Contract Fee

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 Rates/Factors

Data Group F/G

Allocation Methodology

Allocation Method Type ID
Allocation Method Name

Forecasts At Completion (FAC)

FAC (Dollars/Hours)

Increase Efficiency

FlexFile increases efficiency through seamless data integration

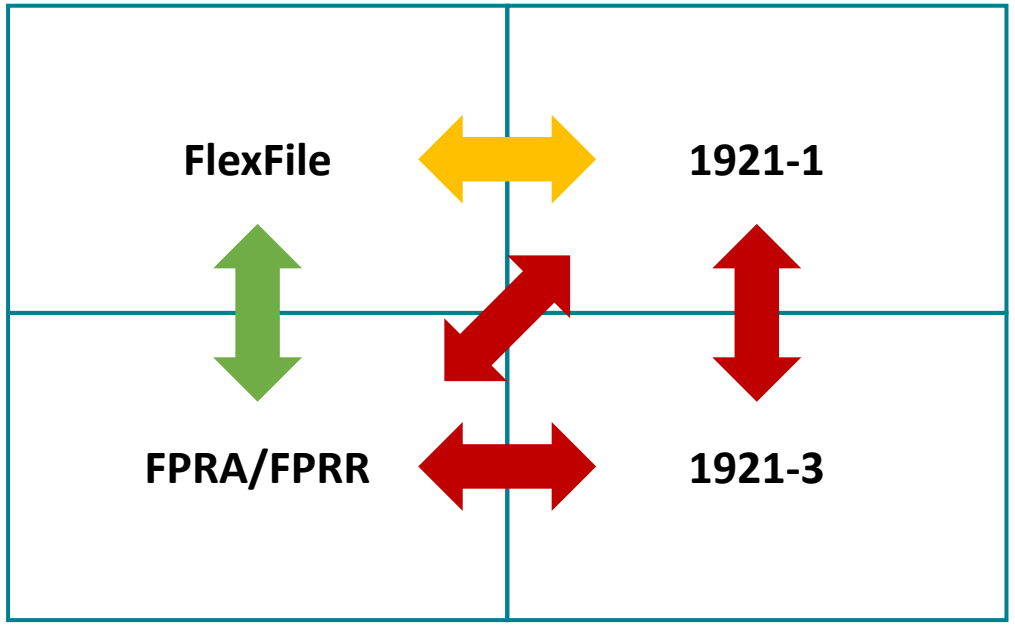
Many aspects of the legacy reporting structure made it ineffective to capture costs by discrete variant, purchase order, or CLIN

Allowing these data elements to be discrete tags in the FlexFile means

- Analysts don't have to sort through through numerous hanging files or unstructured metadata
- Contractors don't have to submit numerous reports in on calendar year

How does this new information fill existing voids?

- Inconsistencies may result from relating contract or business unit information using the government standard reporting elements
- The FlexFile provides **both** contractor and government functional categories, providing constant elements that can be used for multiple analyses and comparisons back to historical 1921 reports
- The FlexFile provides **both** contractor and government functional categories, allowing updates to the 1921-3 to contractor format without losing the cross-walk with detailed FlexFile contract data



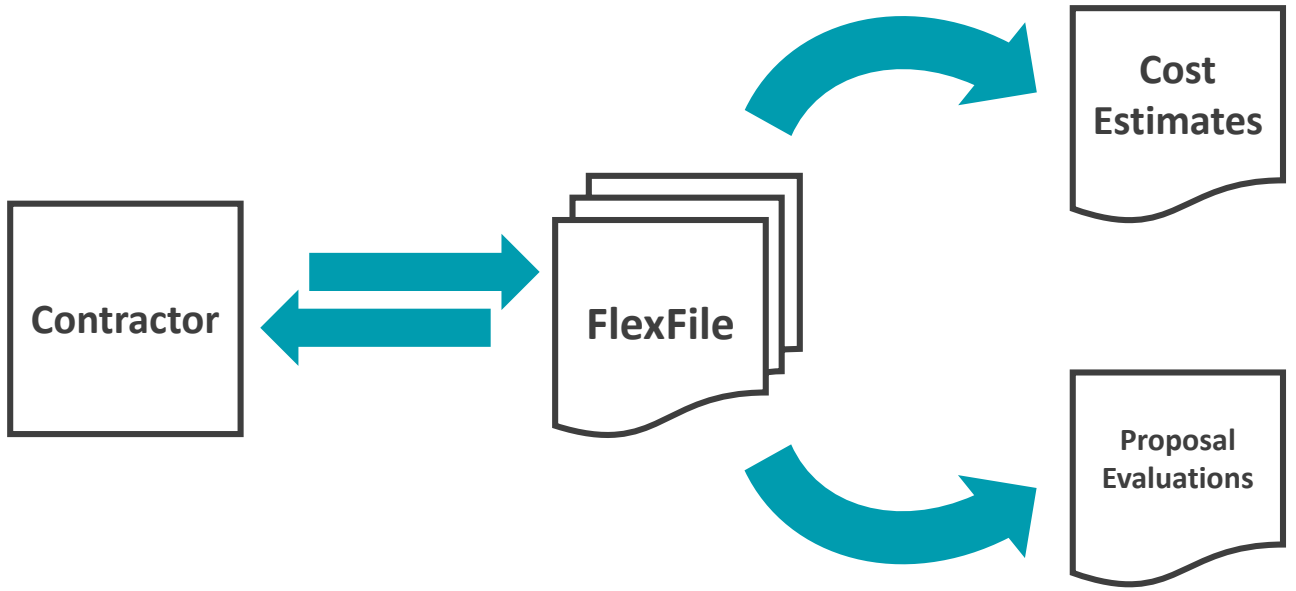
How does this new information fill existing voids?

The FlexFile and proposed updates to the 1921-3 will tie the standardized categories found in the CSDR back to the tags used in the contracting process

- FlexFile (for direct cost analysis) will include CLIN and Rates and Factors consistent with FPR
- 1921-3 (for overhead cost analysis) will include same rate structures consistent with the FPR

Other added value

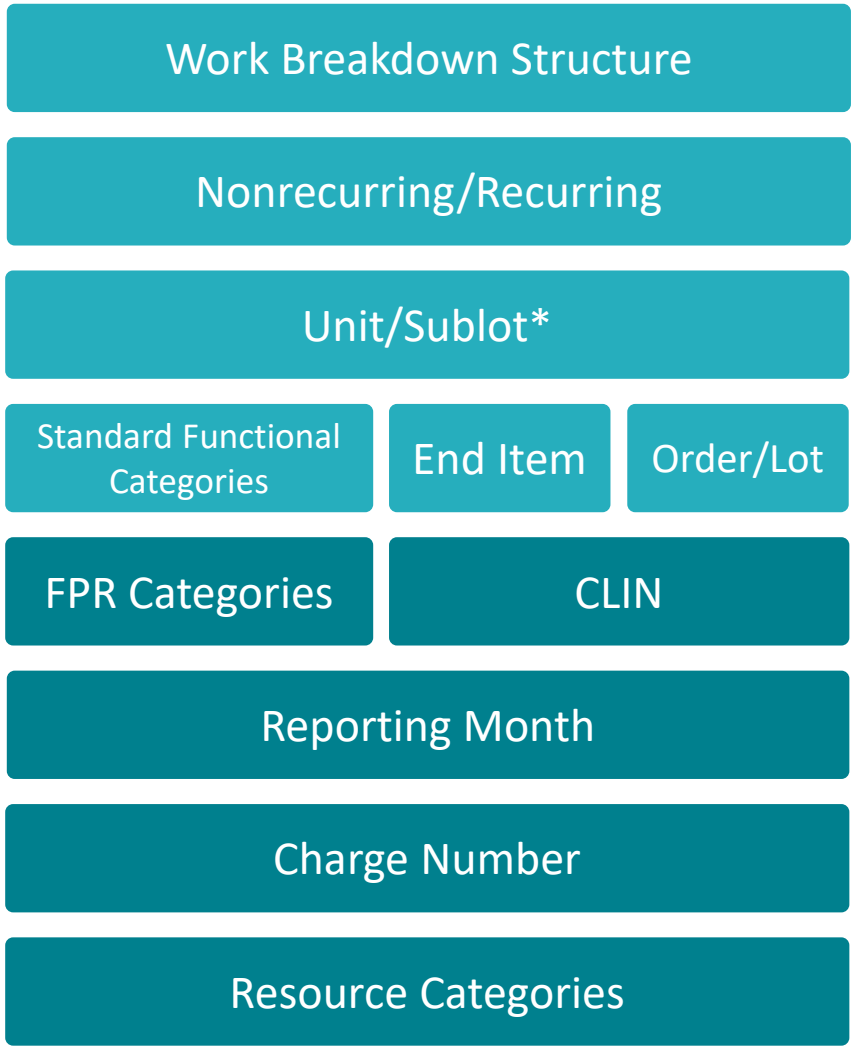
- Lower insight in the form of control accounts, work packages, etc.
- Order/Lot and End Item provided as discrete data tags
- Time phased and other data fields explicitly outlined in the data requirement document



The FlexFile is a single authoritative data source for potential use in many different analyses

Cost Assessment Data Enterprise (CADE)

Observations and Conclusions



* As Required by the CSDR Plan

CCDRs – status quo

- Provides foundation of contractor inputs required to build estimates
- Requires actual cost/hours data by standard reporting elements
- Provides information regarding how the data is reported (WBS) and what data is being reported (nonrecurring/recurring, standard functional categories, prime vs. subcontractor costs)
- Order/Lot and End Items are provided based on discrete submissions

FlexFile – Value Add

- Consistent costs elements from contract proposal through execution provides analysts from both the contracting and costs community to "speak the same language"
- Lower insight in the form of control accounts and internal resource categories add a level of credibility to cost reporting, and ultimately cost analysis
- Order/Lot, End Item, Time phased and other discrete data fields explicitly outlined in the data requirement document create efficiencies for both contractors and analysts

Continuing the Evolution in Data Collection

FlexFiles

November 2017

- Data Item Description (DID) Approved

December 2017 – December 2018

- Look for early adapters to place requirement on contract.
- Plan is to relax the reporting schema to give CADE time to train and educate
- Contractors have the option to submit report in any format (so long as it is in CSV or Excel)

Government will assess initiative at the end of CY18 for any updates needed to policy, processes, and IT. Assessment will be based on information collected during the implementation period.

1921-3

Draft DID and sample format available under the Emerging Guidance section on CADE.OSD.mil

Looking for contractors to pilot the draft requirement and format. DCARC allowing contractors to extend their usual submission date if willing to participate in pilot.

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
12 Sep	DMV Area
3 Oct	North (Boston, MA)

References

1. DoDM 5000.04-M-1
2. GAO Cost Estimating and Assessment Handbook
3. DI-FNCL-82162, Cost and Hour Report (FlexFile)
4. DI-FNCL-81565C, Cost Data Summary Report
5. DI-FNCL-81566C, Functional Cost-Hour Report
6. DI-FNCL-81567C, Progress Curve Report
7. DI-FNCL-81765B, Contractor Business Data Report
8. CADE.osd.mil (Emerging Guidance)
9. 1921-3 Business Base Report Cost and Contracting Community Collaboration (28 November 2017)

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