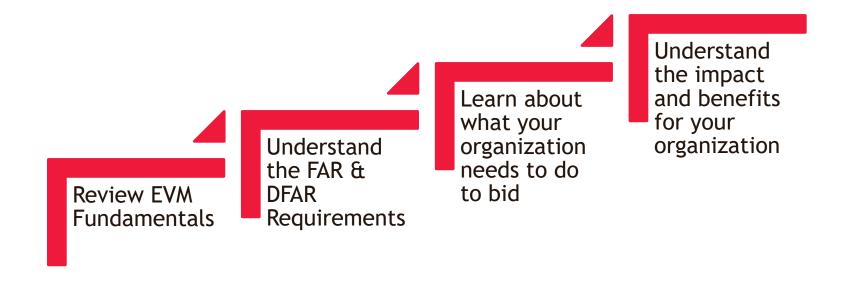


PPM-18:

We Don't Have an EVMS: How Do We Bid On A Contract With An EVMS Requirement?

Dave Scott, BDO, **Program Optimization and Project Controls**

Learning Objectives

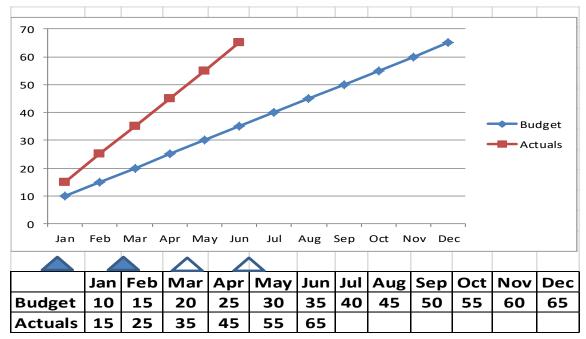




What is EVM and an EVMS?



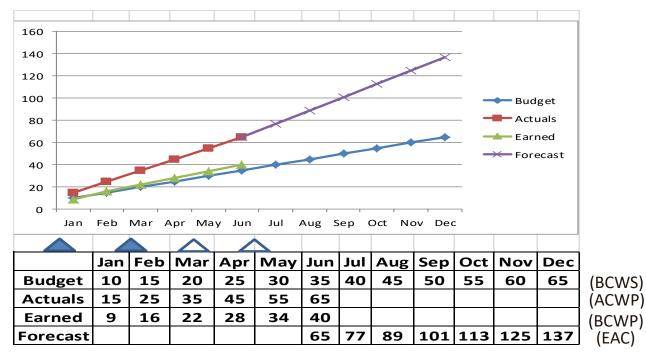
Traditional Project Management Approach Budget vs. Actual Costs



How do we know how much work was accomplished? Based on how much was spent?



Earned Value Management Approach Budget (Planned Value) vs. Actual Costs vs. Earned Value





How do we know how much work was

EV, EVM, and EVMS

Earned Value

A key project management metric that is based on a predetermined value assigned to work and earned when that work is performed

> It is compared with Planned Value and Actual Cost

Earned Value Management (EVM)

- Program/project management methodology and a performance measurement methodology that integrates scope (what) with schedule (how long) and budget (how much)
- > The use of EV and other related performance measurement metrics to:
 - ✓ Identify and resolve scope, cost, and schedule variances
 - ✓ Forecast completion dates and derive estimates of costs at completion

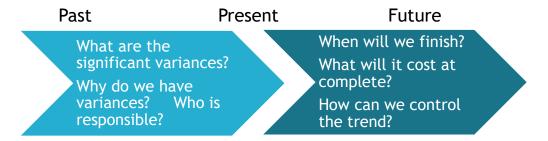
Earned Value Management System (EVMS)

> Integrated set of people, processes, policies, trainings and tools that comprise an overall system for planning and controlling a project's scope, cost, and schedule.



Why is EV useful?

We analyze the past performanceto help us control the future



Answer 2 key questions

- 1. Did we get what we wanted for what we spent?
- 2. At the end of the project, is it likely that the cost will be less than or equal to our original estimate?



EVM System Foundation

In order to ensure the EVMS is providing accurate performance management information you must have these foundational elements

Earned Value - Accurate & **Objective Monthly Status Actual Costs - Cost Accounting** & Accruals Aligned with the Period of Performance Plan Value - Accurate Time Phased Budget Integrated with the IMS



What does EVM Measure?

Performance Measures

- Cost Variance (CV)
 - The value of work performed actual costs of performing the work
 - CV = EV AC and CV% = CV / EV * 100
- Schedule Variance (SV)
 - The value of work performed the value of the work scheduled
 - SV = EV PV and SV% = SV / PV * 100
- Cost Performance Index (CPI)
 - A measure of cost efficiency, how much work was performed for each dollar spent
 - CPI = EV / AC
- Schedule Performance Index (SPI)
 - A measure of schedule efficiency, how much work was performed for each dollar planned
 - SPI = EV / PV



EVMS System Components

People

- Project Managers, Control Account Managers, Schedulers, Project Cost (EV) Analysts and Management
- Provide adequate training to understand roles and to gain buy in/ensure accountability for these roles

Processes

- Business processes should be updated to reflect implementation of earned value
- Processes should be documented and widely available

Tools

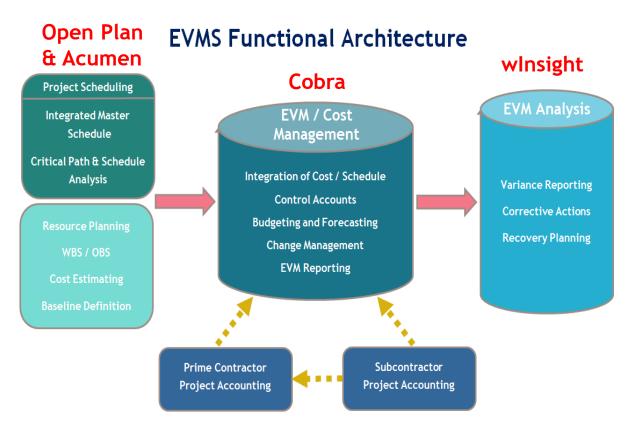
- Use proven and compliant tools that are right for your organization
- Spend time during the implementation to install and configure tools the right way



Tools

EVMS implementations typically follow traditional business system implementation process:

- 1. Requirements
 Definition
- 2. System Design
- 3. Implementation
- 4. Pilot Project (Testing)
- 5. Deployment of EVMS







Besides Compliance - why do EVM?

- EVM is a proven Project Management methodology which is accepted by the Project Management Institute (PMI), GAO, OMB, and DoD
- EVM re-enforces project management best practices such as planning and scheduling
- EVM accurately measures project performance and enables an 'early warning' system to identify potential project issues while there is still time to react
- Opens the door to new opportunities requiring the implementation of a compliant EVMS - i.e. multi-award contracts like the GSA Oasis Contract



What are the government requirements?



How is EVM Applied on Government Contracts?

OMB Circular A11 Part 7, Capital Programming Guide Supplement •All major acquisitions with development efforts require the use an EVMS compliant with EIA-748. The Agency must use EVM for their work and consolidate the contractors EVM reporting, Requires IBR) and sets 10% variance threshold



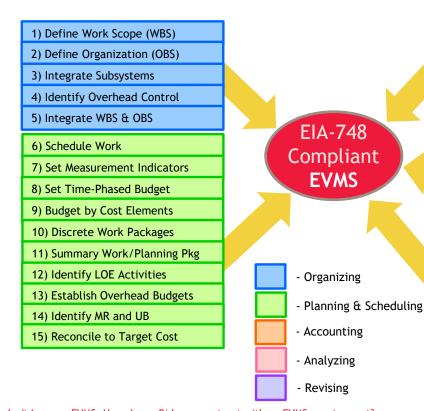
Federal Acquisition Regulations (FAR), 34.201 EVMS, 34.202 IBR



- IAW OMB Circular A-11 Part 7
- •EiA-748 compliant EVMS required for major acquisitions for development. EVMS approved by CFA.
- •if the contractor doesn't have a compliant system they must provide a plan.
- Requires monthly reporting and prime must flowdown to subcontractors.
 - Notice of EVM, Contract >\$20M EIA-748 compliant or plan to implement, >\$100M must certify
 - Provide for generation of timely, reliable, and verifiable information.
 IBR < 180 days



EIA-748 EVM Guidelines Overview



16) Record Direct Costs 17) Summarize into WBS 18) Summarize into OBS 19) Record Indirect Costs 20) Identify Unit & Lot Costs 21) Track & Report Material Costs 22) Calculate SV & CV 23) Identify Significant Variances 24) Analyze Indirect CV 25) Summarize Data & Variances 26) Implement Corrective Actions 27) Revise Estimate at Completion 28) Incorporate Change 29) Reconcile Budgets 30) Control Retroactive Changes 31) Prevent Unauthorized Change 32) Document PMB Changes



FAR EVM Requirements

FAR 34.201 Earned Value Management System a) is required for <u>major acquisitions for development</u>, in accordance with OMB Circular A-11,

- b) if EVMS is proposed to comply with an ANSI/EIA Standard -748 a comprehensive plan to comply with these standards is
- c) Monthly Reports,
- d) apply to subcontractors
- e) provide an EVMS plan as part of the proposal



DFAR EVM Requirements

DFARS 252.234-7001 Notice of Earned Value Management

- RFP clause states 1) Offeror shall provide documentation that Cognizant Federal Agency has determined the proposed EVMS complies with the ANSI/EIA-748 Guidelines
- If Offeror proposes to use an EVMS not validated- must submit plan for compliance
 - As prescribed in DoD 5000.2, compliance with ANSI/EIA-748 is required for <u>DoD cost or incentive contracts and agreements</u> valued at or greater than \$20M.
 - Contracts = or > \$100M require a formal validation of the contractor's EVMS



EVM Reporting Requirement

Agency	IPMR Formats	IBR	Certification	Surveillance
DOD < \$20M	Optional formats 1, 5, & 6	Yes	Optional	Optional
DOD > \$20M < \$50M Contracts	Formats 1, 5, 6 & 7	Yes	Optional	Optional
DOD >= \$50M Contracts	Formats 1 - 7	Yes	Optional	Optional
DOD >= \$100M Contracts	Formats 1 - 7	Yes	Yes	Yes
DOE > \$50M < \$100M Contracts	Formats 1 - 5	Yes	Yes	Yes
DOE >= \$100M Contracts	Formats 1 - 7	Yes	Yes	Yes
NASA >= \$20M	Formats 1 - 5	Yes	Yes	Yes

All Civilian agencies are required to establish EVM policies but they vary significantly



IPMR Format 1 Unclassified CLASSIFICATION (When Filled In) INTEGRATED PROGRAM MANAGEMENT REPORT PENDING UPDATE TO FORMAT 1 - WORK BREAKDOWN STRUCTURE OMB No. 0704-0188 DOLLARS IN DOLLARS 1. CONTRACTOR CONTRACT 3. PROGRAM 4. REPORT PERIOD Contract and a. FROM (>>>>>\M\CC) a. NAME . NAME a. NAME Space Research Allicance Titan II Orbiter Titan II Orbiter Project Contractor b. LOCATION (Address and ZIP Code) . NUMBER b. PHASE 2010 / 12 / 01 Information Houston, TX TX-4230-298345 . TYPE d. SHARE RATIO c. EYMS ACCEPTANCE NO YES /YYYYMMOO 2010 / 12 / 31 5. CONTRACT DATA THORIZED UNPRICED V 29.268.771 6. ESTIMATED COST AT COMPLETION 7. AUTHORIZED CONTRACTOR REPRESENTATIVE a. NAME (Last, First, Middle Initial) MANAGEMENT ESTIMAT CONTRACT BUDGET VARIANCE b. TITLE AT COMPLETION BASE (2) (3) Arthur Longerburger Program Director a. BEST CASE c. SIGNATURE d. DATE SIE / ////////// **EAC Cost Cases** VORST CASE C. MUST LIKELY 23,268,771 23,268,771 3. PERFORMANCE DATA CURRENT PERIOD CUMULATIVE TO DATE REPROGRAMMING AT COMPLETION **VBS (3) ADJUSTMENTS** BUDGETED ESTIMATED VARIANCE BUDGETED COST VARIANCE RUDGETED COST VARIANCE COST VORK **¥**0RK VORK COST VORK **VORK VORK** COST SCHEDULE ITEM CHEDULECPERFORMECPERFORMED SCHEDULE | COST CHEDULE PERFORMED PERFORMED SCHEDULE COST VARIANCE VARIANCE | BUDGET (2) (6) (7) (8) (10) (11) (12a) (12b) (13) (15) (16) 124,938 124,938 91,164 33,77 374,815 374,815 270,495 6,759,720 4,878,488 1.1Management 104.32 1,881,232 1.2.1Design 203,121 203,12 203,12 203,12 203.12 1.2.2 Build 485,444 -485,444 6.246.491 6,699,380 -452.890 Performance 1,832,265 1.832,265 123Test 1.2.4 Launch Preparation 1,033,779 1.033.779 Metrics 1.2.5 Launch 721,51 721,511 -31,890 1.2.6 Materials 851.506 819,616 665,030 154.58 1.935.382 1,173,503 1,292,426 -761,879 -118.92 10.303.827 6,837,302 3,466,525 b. COST OF MONEY GENERAL AND ADMINI: 178,655 174,877 141,402 -3,778 33,475 466,032 324,973 383,02 -141,059 -58,055 4,964,181 3,979,085 985,095 d. UNDISTRIBUTED BUDGE 1,751,439 22,002,725 5,097,989 e. SUBTOTAL 976,444 944,554 756,194 2,513,318 2,048,366 -761,879 -296,92 27,100,714 2.168.05 MANAGEMENT RESERVE a. TOTAL 976.444 944.554 756.194 -31.890 188.360 2.513.318 1.751.439 2.048.366 -761.879 -296.92 29.268.77 Insight PPM-15 We don't have an 9. RECONCILIATION TO CONTRACT BUDGET BASELINE Page 19 a. VARIANCE ADJUSTMENT -296,927 29,268,771 22,002,725 7,266,046 b. TOTAL CONTRACT VARIANCE -761,879

IMPR Format 5 Unclassified CLASSIFICATION (When Filled In) INTEGRATED PROGRAM MANAGEMENT REPORT PENDING UPDATE TO FORMAT 5 - Explanations and Problem Analysis OMB No. 0704-0188 1. CONTRACTOR 4. REPORT PERIOD 2. CONTRACT 3. PROGRAM Contract a. FROM (YYYYMMDD) a. NAME . NAME a. NAME Space Research Allicance Titan II Orbiter Titan II Orbiter Project and b. LOCATION (Address and ZIP Code) b. NUMBER b. PHASE 2010 / 12 / 01 Contractor b. TO (YYYYMMDD) Houston, TX TX-4230-298345 c. TYPE d. SHARE RATIO c. EVMS ACCEPTANCE Information NO YES (YYYYMMDD) 2010/12/31 5. Evaluation 1.1 Management Variance Budget Earned Actuals SV in \$ SV in % CV in \$ CV in % 124,938 1.00 Current: 124,938 91,164 33,774 27% 1.37 Details by Cumulative: 374,815 374,815 270,495 104,320 1.00 WBS VAC in \$ VAC in % TCPI to BAC TCPI to EAC At Complete: 6,759,720 4.878.488 1,881,232 Explanation of Variance/Description of Problem: Impact: **Variance** Explanation Corrective Action: Monthly Summary (to include technical causes of VARs, Impacts) and Corrective Action(s): Prepared by: Date: Approved by: Date:



New DOD Integrated Program Management Data Report (IPMDR)

- IPMDR New Data Item Description (DID) which will start being applied to contracts in early CY 2020 replaces IPMR DID #81861B
 - Electronic data delivery except variance narratives
 - Deliver no later than 16th working day after monthly close
 - · Discuss tailoring and incremental delivery with program office
 - Previously on ACAT 1 programs reported electronically by uploading to the EVM-CR but not all ACAT levels will report via the EVM-CR

Objectives

- Encourage dialog with the program office
- Relevant data faster
- Improved visibility into project controls CA, WP, EOC, Time Phased Forecast
- Improved cost and schedule integration
- Data for more comprehensive analysis like DCMA metrics



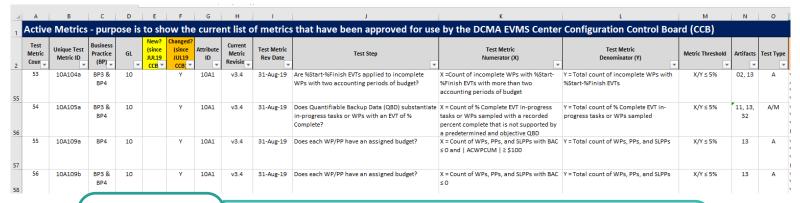
DCMA Business Processes

DCMA EVMS business practices (BP):

- BP1 Pre-Award EVM System Plan Review
- BP2 Post Award Earned Value Management System Description Initial and Changes
- BP3 Contract Initiation Support
- BP4 EVMS Surveillance
- BP5 EVMS Review for Cause
- BP6 Compliance Review Execution



Sample Automated Metrics



Guideline 10

- •To the extent it is practicable to identify the authorized work in discrete work packages, establish budgets for this work in terms of dollars, hours, or other measurable units.
- Where the entire control account is not subdivided into work packages, identify the far term effort in larger planning packages for budget and scheduling purposes.

Guideline 11

 Provide that the sum of all work package budgets plus planning package budgets within a control account equals the control account budget.



Test Metric Specification

EVMS Test Metric Specification												
1. Guideline No:	2. Unique Test Metric ID:	3. Test Type:	4. RESERVED									
10	10A102a	Automated										

5. Attribute:

10A1: Work packages have the following characteristics:

- Represent the scope of work at the level where work is performed or aggregated.
- Are distinguishable from all other work packages.
- Are assigned to a single organizational element.
- Include scheduled start and completion dates; and as applicable, interim milestones, all of which are representative of technical accomplishment.
- Have a time-phased budget or value expressed in terms of dollars, labor hours, or other measurable
 units that is substantiated in terms of supporting project plans.
- Have durations that are limited to a span of time that is practical for the work scope. Longer-duration
 work packages have interim objective measures, such as points of technical achievement, to enable
 accurate performance assessment.
- · Are identified within the Integrated Master Schedule (IMS) and other supporting schedules.

6. Test Step:

Are EVTs assigned to WPs?

7. Test Metric:

X = Count of incomplete WPs without an assigned EVT

8. Metric Threshold: X/Y < 5%

Y = Total count of incomplete WPs
9. UN/CEFACT Required DEI(s)

10. Data Elements Required:

13 EV Cost Tool Data 13AP EVT

13BA WP/PP/SLPP UIDs

11. Assumptions:

- If BAC and BCWPCUM are within \$100 (or 1 hour), then WP is complete.
- 2. PPs and SLPPs are not included.

12. Instructions:

- 1. Identify and count all incomplete WPs in the EV Cost tool; this is the denominator (Y) of the test metric.
- Identify and count any incomplete WPs without an assigned EVT; this is the numerator (X) of the test metric
- Calculate the test metric (Block 7): X divided by Y.
- If the result is within the threshold (Block 8), the metric passes.

13. Numerator Code

14. Denominator Code

Details of each test metric is published so that there is a common understanding of the test and associated thresholds



How can we bid on a contract requiring a compliant EVMS?



Proposal & Contract Pre-Award

DOD DFARS Clause 252.234-7001 - Notice of Earned Value Management System

Requires an EVMS certified by a cognizant federal agency

OR

- Gap analysis of current EVMS capabilities vs. the EIA-748 32 guidelines
- Description of the EVM System being implemented
- EVMS Implementation Plan



EVMS Implementation Steps

- 1. Identify a current contract to conduct an EVMS pilot. The pilot project should have a resource loaded project schedule and discrete contract deliverables
- 2. Identify program management personnel to support the pilot PM, Project Scheduler, Project Controls Analyst
- 3. Implement Cobra using standard integration with the project schedule and Costpoint
- 4. Use Cobra to produce 2 monthly periods of IPMR Report
- 5. Develop an EVM System Description document which describes the system, business processes, and responsibilities
- 6. Utilize Acumen DECM compliance metrics to demonstrate system compliance or support a gap analysis
- 7. Develop corrective actions and EVMS implementation plan to close any gaps



Metric Analysis in Acumen - Summary Report

		Ribbon Analysis Primary Formula Analysis																										
		03A101a CA PoP (IMS vs WAD) V3.2 (03A101a)	03A101c CA BAC (WAD vs EV Tool) V3.1 (03A101c)	03A101e WP EV %C (IMS vs EV Tool) V3.1 (03A101e)	03A101f WP POP (IMS vs EV Tool) V3.2 (03A101f)	03A101g CA PoP (WAD vs EV Tool) V3.2 (03A101g)	03A101h CA OBS (IMS vs EV Tool) V3.2 (03A101h)	03A101i CA WBS (IMS vs EV Tool) V3.2 (03A101i)	05A101a CA Single OBS V3.1 (05A101a)	05A102a CA Single CAM V3.1 (05A102a)	05A103a CA Single WBS V3.1 (05A103a)	06A101a CA SLPP Have Tasks V3.1 (06A101a CA)	06A101a WP/PP Have Tasks V3.1 (06A101a WP)	06A203a Act SF Predecessors V3.1 (06A203a)	06A204b Act Open Starts or Finishes V3.2 (06A204b)	06A205a Act Lags V3.1 (06A205a)	06A206a Act Leads V3.1 (06A206a)	06A208a Act Summary Logic V3.1 (06A208a)	06A209a Act Hard Constraints (OPP and P6) V3.1 (06A209a)	06A210a Act Driving LOE V3.2 (06A210a)	06A501a Act Baseline Dates V3.1 (06A501a)	08A101a SLPP PMB Alignment (IMS vs EV Tool) V3.1 (08A101a)	09A101a CA Start before WAD Start? V3.1 (09A101a)	09A102a CA Actuals before WAD Start? V3.1 (09A102a)	10A102a WP Are EVTs assigned? V3.1 (10A102a)	10A104a WP %Start-%Finish EVTs applied Correctly? V3.1 (10A104a)	10A109b WP/PP Have Budgets? V3.1 (10A109b WP)	10A303a PP All have duration? V3.1
Ribbon	Test Project 1 - Oct 2019	10%	10%	5%	200	40	0	0	0	0	0	0	5	0	43	70	0 ry Formula	2	1	81	0	65	49	29	0	78	677	61
2		03A101a CA PoP (IMS vs WAD) V3.2 (03A101a)	03A101c CA BAC (WAD vs EV Tool) V3.1 (03A101c)	03A101e WP EV %C (IMS vs EV Tool) V3.1 (03A101e)	03A101f WP POP (IMS vs EV Tool) V3.2 (03A101f)	03A101g CA PoP (WAD vs EV Tool) V3.2 (03A101g)	03A101h CA OBS (IMS vs EV Tool) V3.2 (03A101h)	03A101i CA WBS (IMS vs EV Tool) V3.2 (03A101i)	05A101a CA Single OBS V3.1 (05A101a)	05A102a CA Single CAM V3.1 (05A102a)	05A103a CA Single WBS V3.1 (05A103a)	56A101a CA SLPP Have Tasks 73.1 06A101a CA)	06A101a WP/PP Have Tasks V3.1 (06A101a WP)	06A203a Act SF Predecessors V3.1 (06A203a)	06A204b Act Open Starts or Finishes V3.2 (06A204b)	06A205a Act Lags V3.1 (06A205a)	06A206a Act Leads V3.1	06A208a Act Summary Logic V3.1 (06A208a)	06A209a Act Hard Constraints (OPP and P6) V3.1 (06A209a)	06A210a Act Driving LOE V3.2 (06A210a)	06A501a Act Baseline Dates V3.1 (06A501a)	08A101a SLPP PMB Alignment (IMS vs EV Tool) V3.1 (08A101a)	09A101a CA Start before WAD Start? V3.1 (09A101a)	09A102a CA Actuals before WAD Start? V3.1 (09A102a)	10A102a WP Are EVTs assigned? V3.1 (10A102a)	10A104a WP %Start-%Finish EVTs applied Correctly? V3.1 (10A104a)	10A109b WP/PP Have Budgets? V3.1 (10A109b WP)	10A303a PP All have duration? V3.1
Ribbons	Test Project 1 - Oct 2019		100%	0%	27%	34%	0%	0%	0%	0%	0%	0%	0%	0%	3%	3%	0%	0%	0%	15%	0%	41%	30%	21%	0%	26%	16%	28



Detailed Metrics Analysis -WAD Integration





Detailed Metrics Analysis

In each period, there are between 1-6 WPs/PPs that do not have corresponding tasks in the schedule



Review each WP/PP, starting with the near term:

- -Are the WPs/PPs in the EV tool or schedule correct?
- -Are tasks coded correctly in the schedule?
- -How can is be corrected going forward?



What is the impact on your organization?

- License Cobra and Acumen solutions
- Implementation requires management commitment and will require approximately 3 months to accomplish
- Support of existing Program project scheduling and financial management resources
- Resource who will focus on the implementation and use of Cobra



Sample Contract CDRL Requirements

	CONTRACT	Form Approved OMB No. 0704-0188											
The public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching exist data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or other aspect of this collection of information, including suggestions for reducing the burden, to the Department of Defense, 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 form to the above organization. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. listed in Block E.													
A. CONTRACT L	INE ITEM NO.	B. EXHIB	Τ	C. CATEGO	RY:		i i						
CLI	N 008		A	TDP	TM _	ОТНІ	ER						
D. SYSTEM/ITEN	VI		E. CONTRACT	/PR NO.		F. CONT	RACTOR						
1. DATA ITEM NO.	2. TITLE OF DATA ITEM			3. SUBTITLE									
A008	Integrated Progran	n Manager	nent Report										
4. AUTHORITY (Data	Acquisition Document No	.)	5. CONTRACT REF	ERENCE			6. REQUIRING OFFICE						
DI-M	GMT-81861A/T												
7. DD 250 REQ	9. DIST STATEMENT	10. FREQUE	NCY	12. DATE OF FIRST SUBMISSION			14. DISTRIBUTION						
	REQUIRED	MO	NTHLY	SEE BLK 16				b	;				
8. APP CODE		11. AS OF I	DATE	13. DATE OF S		ENT	a. ADDRESSE		Final				
			N/A	SUBMISSI SEE	BLK	16		Draft	Reg	Repro			



Sample Contract CDRL Requirements (cont.)

Block 4: DI-MGMT-81861A is tailored as follows:

- All formats shall be submitted electronically in accordance with the DoDapproved XML schemas and guidelines located in the EVM Central Repository (EVM-CR). http://dcarc.cade.osd.mil/EVM/Uncefact.aspx.
- Block 12 Date of First Submission- The first submission of Formats 1-6 are due 30 days after award of contract.
- Block 13 Date of Subsequent Submission: Subsequent submission containing Formats 1-6 shall be provided within 10 business days of the end of the previous month.



Sample Contract CDRL Requirements (cont.)

- Formats 1 through 4 instructions
- Format 5 instructions:
- The Variance analysis thresholds are:
 - \$50K and 10% for current period cost or schedule variances
 - \$100K and 10% for cumulative cost or schedule variances
 - \$250K and 5% for at-complete variances
- Format 6 instructions:
 - The IMS shall include all discrete work; subcontractors with EVM flow-down shall be incorporated with sufficient detail to develop a realistic critical path and provide insight into the scope of work being accomplished
- The Schedule Risk Assessment (SRA) shall be submitted in Format 5 and delivered 60 days prior to any IBR



Benefits of implementing an EVMS Pilot and using the DECM Metrics

- Demonstrates commitment by implementing an EVMS rather then just providing a plan
- Demonstrates an understanding of the DECM and the EIA-748 guideline requirements
- EVM System description and system implementation plan prove your organization is prepared for the contract EVM reporting requirements
- Shows commitment to provide accurate, reliable, and timely project performance information
- Project management process improvements and enhanced project performance



Deltek INSIGHT > 2019



Next Steps

- 1. Complete the session survey in the mobile app.
- 2. Utilize the Post-Event Toolkit to share what you've learned.
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- ➤ Online and mobile app access to this year's presentations expires on March 1, 2020.