



**Earned Value Management Tutorial
Module 8: Reporting**

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Module 8: Government Required Reports

Welcome to Module 8. The objective of this module is to introduce you to Government required reports.

The Topics that will be addressed in this Module include:

- Define Cost Performance Report (CPR)
- Define Cost/Schedule Status Report (C/SSR)



Review of Previous Modules

In the previous seven modules, we discussed the framework needed to perform Earned Value and develop an Earned Value Management System (EVMS).

- In Module 1 we introduced you to earned value and the requirements for properly implementing an earned value management system (EVMS)
- In Module 2 we discussed the development of the work breakdown structure (WBS), organizational breakdown structure (OBS) and the integration of WBS and OBS in creating the responsibility assignment matrix (RAM)
- In Module 3 we discussed the development of the project schedule and the schedule baseline
- In Module 4 we discussed the development of the project budget and the cost baseline



Review of Previous Modules

- In Module 5 we discussed EVMS criteria and the three key components to earned value: Planned Value (PV) , Earned Value (EV) and Actual Cost (AC).
- In Module 6 we discussed Earned value metrics and performance measurements (CV, SV, SPI, CPI,etc.)
- In Module 7 we discussed the Integrated Baseline Review (IBR), rebaselining of a project and proper baseline control or change control

Now let's look at the Government reporting requirements for earned value.



Government Reporting Requirements

There are several reports which may be used for Earned Value Management Reporting and Analysis.

The most commonly used reports are:

- Cost Performance Report (CPR)
- Cost/Schedule Status Report (C/SSR)

Let's take a look at each type of report on the next page.



Cost Performance Report (CPR)

The Cost Performance Report (CPR) is the most comprehensive of the EVMS reports. It is normally a monthly report and has five different formats.

- Format 1 Work Breakdown Structure (WBS)
- Format 2 Organizational Categories (OBS)
- Format 3 Baseline
- Format 4 Staffing (Manpower)
- Format 5 Variance Analysis Report

Generally, all five formats are applied to a contract requiring EVMS. However, the customer may not require all the reports and may delete one or more.

Most customers will require at least the CPR Format 1 (WBS) and Format 5 (Variance Analysis Report).



Cost Performance Report (CPR)

All Performance Measurement data reported in the CPR are derived from the formal Earned Value Management System (EVMS).

All reported changes to the project baseline, management reserve (MR) and contingency should be traceable through the formal Earned Value Management System (EVMS) and CPR reports.

On the following pages, we will look at examples of the five CPR reports using the ACME House Building Project.



Cost Performance Report (CPR) - Example

First let's quickly review the projects current status that will be used in the example reports.

ACME Home Building Project

Project Start date: January 15th

Status Date: January 31th

as of 1/31	PV	EV	AC	SV	CV	SPI	CPI
Foundation	\$15,394	\$15,394	\$15,850	0	-456	1.00	0.97
Patio	\$8,166	\$8,166	\$7,200	0	966	1.00	1.13
Exterior Walls	\$8,748	\$6,608	\$6,250	-2,140	358	0.76	1.06
Stairway	\$5,961	\$2,981	\$3,100	-2,980	-119	0.50	0.96
Project Total	\$38,269	\$33,149	\$32,400	-5,120	749	0.87	1.02

EAC calculations used for the example will be based on the assumptions discussed on Page 35 and 36 of Module 6. See the charts to the right for an overview.

Now let's take a look at the Cost Performance Reports (CPR) on the next page.

Activity	ACTUALS		ETC		EAC
	January	February	March	April	Total
1.1.1.1 Pour foundation	\$15,850				\$15,850
1.1.1.2 Install Patio	\$7,200				\$7,200
1.1.1.3 Pour stairway	\$3,100	\$8,942			\$12,042
1.1.2.1 Frame exterior walls	\$6,250	\$9,913			\$16,163
1.1.2.2 Frame interior walls		\$11,025			\$11,025
1.1.2.3 Install roofing trusse		\$15,887			\$15,887
1.1.3.1 Install waterlines		\$6,194			\$6,194
1.1.3.2 Install gas lines		\$6,255			\$6,255
1.1.3.3 Install B/K fixtures			\$6,317		\$6,317
1.1.4.1 Install wiring		\$18,483			\$18,483
1.1.4.2 Install outlets/switches			\$9,265		\$9,265
1.1.4.3 Install fixtures			\$13,969	\$4,656	\$18,625
1.1.5.1 Install drywall			\$6,984		\$6,984
1.1.5.2 Install Carpeting			\$3,100		\$3,100
1.1.5.3 Painting			\$6,477		\$6,477
1.1.6.1 Install felt		\$1,834	\$611		\$2,445
1.1.6.2 Install shingles			\$2,445		\$2,445
1.1.6.3 Install vents			\$812		\$812
	\$32,400	\$78,533	\$49,980	\$4,656	\$165,569



Cost Performance Report (CPR) Format 1 - WBS

The Cost Performance Report (CPR) Format 1 includes current period, cumulative, and at complete values for each WBS element. It also contains header data showing quantity, targets, ceilings, and Management Estimate At Completion (MEAC) calculations.

This report also contains data about budget, price, Management Reserve (MR), Undistributed Budget (UB), and MEAC cases.

A copy of the CPR Format 1 for the ACME Home Building project is on the following page. Please review the entire report but pay close attention to the lower section (highlighted red) of the report. This is the Performance data section that contains the current and cumulative cost and schedule information for the project.



Cost Performance Report (CPR) Format 1 - WBS

COST PERFORMANCE REPORT												Form Approved	
FORMAT 1 - WORK BREAKDOWN STRUCTURE												OMB No. 0704-0188	
1. CONTRACTOR a. NAME: ACME Construction b. LOCATION: Denver, CO				2. CONTRACT a. NAME: ACME Housing b. NUMBER: ACME - 1000 c. TYPE: FFP d. SHARE RATIO:				3. PROGRAM a. NAME: ACME Housing b. PHASE (X one) [] RDT&E [X] PRODUCTION				4. REPORT PERIOD a. FROM: 01-JAN-02 b. TO: 31-JAN-02	
5. CONTRACT DATA													
a. QTY 0	b. NEG COST \$183,852	c. EST COST AUTH UNPR \$0	d. TGT PROFIT/FEE \$36,147 / 20.00%	e. TGT PRICE 219,999	f. EST PRICE 219,999	g. CONT CEILING 0	h. EST CEILING 0						
6. EST COST AT COMPLETION		MGMT EST AT COMPL (1)		CONT BUDGET BASE (2)		VARIANCE (3)		7. AUTHORIZED CONTRACTOR REPRESENTATIVE					
a. BEST CASE		\$227,009						a. NAME (Last, First, Middle Initial) Ted Smith			b. TITLE Manager		
b. WORST CASE		\$165,467						c. SIGNATURE			d. DATE SIGNED 31-JAN-02		
c. MOST LIKELY		\$226,158		\$183,852		-\$42,306							
8. PERFORMANCE DATA		CURRENT PERIOD				CUMULATIVE TO DATE					AT COMPLETION		
ITEM (1)	BUDGETED COST		ACTUAL COST WORK PERF (4)	VARIANCE		BUDGETED COST		ACTUAL COST WORK PERF (9)	VARIANCE		BUDGET (12)	EST (13)	VAR (14)
	WORK SCHED (2)	WORK PERF (3)		SCHED (5)	COST (6)	WORK SCHED (7)	WORK PERF (8)		SCHED (10)	COST (11)			
1.1.1 Concrete	9,670	8,757	26,150	-912	-17,393	9,670	8,757	26,150	-912	-17,393	11,485	28,873	-17,388
1.1.2 Framing	7,089	5,355	6,250	-1,734	-895	7,089	5,355	6,250	-1,734	-895	27,147	28,041	-893
1.1.3 Plumbing	0	0	0	0	0	0	0	0	0	0	5,704	5,704	0
1.1.4 Electrical	0	0	0	0	0	0	0	0	0	0	14,070	14,070	0
1.1.5 Interior	0	0	0	0	0	0	0	0	0	0	6,328	7,178	-850
1.1.6 Roofing	0	0	0	0	0	0	0	0	0	0	1,730	1,730	0
OVERHEAD	16,062	14,317	0	-1,745	14,317	16,062	14,317	0	-1,745	14,317	75,684	61,371	14,313
b. COST OF MONEY	19	17	0	-3	17	19	17	0	-3	17	82	65	17
c. GEN & ADMIN	5,429	4,702	0	-726	4,702	5,429	4,702	0	-726	4,702	23,237	18,537	4,700
d. UNDISTRIBUTED BUDGET											0	0	0
e. SUBTOTAL (PM Baseline)	38,269	33,149	32,400	-5,120	749	38,269	33,149	32,400	-5,120	749	165,467	165,569	-102
f. MANAGEMENT RESERVE											18,385		
g. TOTAL	38,269	33,149	32,400	-5,120	749	38,269	33,149	32,400	-5,120	749	183,852		



Cost Performance Report (CPR) Format 2 – Organizational Categories

The Cost Performance Report (CPR) Format 2 includes current period, cumulative, and at complete values for each Organization (Performing or Responsible), It also contains header data showing quantity, targets, ceilings, and MEAC cases.

This report also contains data about budget, price, Management Reserve (MR), Undistributed Budget (UB), and MEAC cases.

The reporting details in CPR Format 2 are the same as on the CPR Format 1 accept that it is structured by organization.

A copy of the CPR Format 2 for the ACME Home Building project is on following page. Please review the entire report but pay close attention to the lower section (highlighted red) of the report. This is the Performance data section that contains the current and cumulative cost and schedule information for the project.



Cost Performance Report (CPR) Format 2 – Organizational Categories

COST PERFORMANCE REPORT FORMAT 2 - ORGANIZATIONAL CATEGORIES												Form Approved OMB No. 0704-0188	
1. CONTRACTOR a. NAME: ACME Construction b. LOCATION: Denver, CO			2. CONTRACT a. NAME: ACME Housing b. NUMBER: ACME - 1000 c. TYPE: FFP d. SHARE RATIO:				3. PROGRAM a. NAME: ACME Housing b. PHASE (X one) [] RDT&E [X] PRODUCTION			4. REPORT PERIOD a. FROM: 01-JAN-02 b. TO: 31-JAN-02			
5. PERFORMANCE DATA		CURRENT PERIOD				CUMULATIVE TO DATE				AT COMPLETION			
ITEM (1)	BUDGETED COST		ACTUAL COST WORK PERF (4)	VARIANCE		BUDGETED COST		ACTUAL COST WORK PERF (9)	VARIANCE		BUDGET (12)	EST (13)	VAR (14)
	WORK SCHED (2)	WORK PERF (3)		SCHED (5)	COST (6)	WORK SCHED (7)	WORK PERF (8)		SCHED (10)	COST (11)			
Construction													
Construction	12,116	9,560	10,300	-2,556	-740	12,116	9,560	10,300	-2,556	-740	17,226	17,965	-739
Management													
Project Management	7,503	5,668	6,250	-1,835	-582	7,503	5,668	6,250	-1,835	-582	19,475	20,057	-582
SubCont													
Subcontractor Mgmt	13,203	13,203	15,850	0	-2,647	13,203	13,203	15,850	0	-2,647	36,272	38,919	-2,647
SUBTOTAL	32,821	28,430	32,400	-4,391	-3,970	32,821	28,430	32,400	-4,391	-3,970	72,973	76,941	-3,969
b. COST OF MONEY	19	17	0	-3	17	19	17	0	-3	17	82	65	17
c. GEN & ADMIN	5,429	4,702	0	-726	4,702	5,429	4,702	0	-726	4,702	23,237	18,537	4,700
d. UNDISTRIBUTED BUDGET											0	0	0
e. SUBTOTAL (PM Baseline)	38,269	33,149	32,400	-5,120	749	38,269	33,149	32,400	-5,120	749	165,467	165,569	-102
f. MANAGEMENT RESERVE											18385		
g. TOTAL	38,269	33,149	32,400	-5,120	749	38,269	33,149	32,400	-5,120	749	183,852		
6. RECONCILIATION TO CONTRACT BUDGET BASE													
a. VARIANCE ADJUSTMENT									0	0			
b. TOTAL CONTR VARIANCE									0	0	0	0	0



Cost Performance Report (CPR) Format 3 – Baseline

Cost Performance Report (CPR) Format 3 displays a forecast of monthly changes to the Baseline, Management Reserve, and Undistributed Budget for the entire project, and contains header data showing schedule dates for the contract and the project.

COST PERFORMANCE REPORT													Form Approved		
FORMAT 3 - BASELINE										DOLLARS IN THOUSANDS			OMB No. 0704-0188		
1. CONTRACTOR a. NAME: ACME Construction b. LOCATION: Denver, CO			2. CONTRACT a. NAME: ACME Housing b. NUMBER: ACME - 1000 c. TYPE: FFP d. SHARE RATIO:				3. PROGRAM a. NAME: ACME Housing b. PHASE (X one) <input type="checkbox"/> RDT&E <input checked="" type="checkbox"/> PRODUCTION			4. REPORT PERIOD a. FROM: 01-JAN-02 b. TO: 31-JAN-02					
5. CONTRACT DATA															
a. ORIGINAL NEGOTIATED COST \$0			b. NEGOTIATED CONTRACT CHANGE \$0		c. CURRENT NEGOTIATED COST (A + B) \$0		d. ESTIMATED COST AUTH UNPRICED WORK \$0		e. CONTRACT BUDGET BASE (C + D) \$0		f. TOTAL ALLOCATED BUDGET \$0		g. DIFFERENCE (E - F) \$0		
h. CONTRACT START DATE 01-JAN-01			i. DEFINITIZATION DATE			j. PLANNED COMPL DATE			k. CONT COMPLETION DATE 31-DEC-01			l. EST COMPLETION DATE			
6. PERFORMANCE DATA															
ITEM (1)	BCWS CUM TO DATE (2)	BCWS FOR REPORT PERIOD (3)	SIX MONTH FORECAST						AUG02 (10)	SEP02 (11)	OCT02 (12)	NOV02 (13)	DEC02 (14)	UNDISTRIB BUDGET (15)	TOTAL BUDGET (16)
			+1 FEB02 (4)	+2 MAR02 (5)	+3 APR02 (6)	+4 MAY02 (7)	+5 JUN02 (8)	+6 JUL02 (9)							
a. PM BASELINE (BEGIN OF PERIOD)	165	0	0	0	0	0	0	0	0	0	0	0	0	165	
b. BASELINE CHANGES AUTH DURING REPORT PERIOD															
c. PM BASELINE (END OF PERIOD)	38		73	49	5	0	0	0	0	0	0	0	0	165	
7. MANAGEMENT RESERVE														18	
8. TOTAL														184	



Cost Performance Report (CPR) Format 4 – Staffing

The Cost Performance Report (CPR) Format 4 displays a forecast of hours and person-months by Organization (Performing/Responsible), and contains header data showing schedule dates for the contract and the project. This report also contains program variance thresholds for month, cumulative, and at-complete percents and values.

COST PERFORMANCE REPORT FORMAT 4 - STAFFING										Form Approved OMB No. 0704-0188					
1. CONTRACTOR a. NAME: ACME Construction b. LOCATION: Denver, CO			2. CONTRACT a. NAME: ACME Housing b. NUMBER: ACME - 1000 c. TYPE: FFP d. SHARE RATIO:				3. PROGRAM a. NAME: ACME Housing b. PHASE (X one) [] RDT&E [X] PRODUCTION			4. REPORT PERIOD a. FROM: 01-JAN-02 b. TO: 31-JAN-02					
5. PERFORMANCE DATA			FORECAST (NON - CUMULATIVE)												
ORGANIZATIONAL CATEGORY (1)	ACTUAL CURRENT PERIOD (2)	ACTUAL END OF CURRENT PERIOD (CUM) (3)	SIX MONTH FORECAST BY MONTH						AUG02 (10)	SEP02 (11)	OCT02 (12)	NOV02 (13)	DEC02 (14)	AT COMPL (15)	
			+1 FEB02 (4)	+2 MAR02 (5)	+3 APR02 (6)	+4 MAY02 (7)	+5 JUN02 (8)	+6 JUL02 (9)							
Construction	Hours	0	0	121	0	0	0	0	0	0	0	0	0	0	343
	Man Months	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Project Management	Hours	0	0	134	0	0	0	0	0	0	0	0	0	0	134
	Man Months	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Subcontractor Mgmt	Hours	0	0	138	0	0	0	0	0	0	0	0	0	0	305
	Man Months	0	0	1	0	0	0	0	0	0	0	0	0	0	2
6. TOTAL DIRECT		Hours	0	0	393	0	0	0	0	0	0	0	0	0	781
		Man Months	0	0	2	0	0	0	0	0	0	0	0	0	5



Cost Performance Report (CPR) Format 5 – Variance Analyses Report

The Cost Performance Report (CPR) Format 5 provides narrative explanation of cost, schedule, and other problems related to total contract, undistributed budget (UB), management reserve (MR), PMB, and manpower.

The variance reporting thresholds are pre-determined prior to the start of the program. Explanations and problem analysis reporting is only required for those variances that breach the pre-set threshold(s). The report will indicate those variances needing explanation.

A copy of the Variance Analyses Report is on the following page. The variance report uses the ACME Home Building project information.



Cost Performance Report (CPR) Format 5 – Variance Analyses Report

WBS: 1.1		Manager: Phillips					
Desc: House Building Project		Charge #:					
(EAC - Actuals thru JAN-02 + ETC)							
TOTAL \$\$	BCWS	BCWP	ACWP	SCHED-VAR	%	COST-VAR	%
Mon Hours	389	328	0	-61	-16	328	100
Cum Hours	389	328	0	-61	-16	328	100
Mon Dollars	38,269	33,149	32,400	-5,120 *	-13	749 *	2
Cum Dollars	38,269	33,149	32,400	-5,120 *	-13	749 *	2
BAC Hours	1,732	EAC:	1,404	VAC:	328	19	
BAC Dollars	165,467	EAC:	165,569	VAC:	-103 *	0	
PROBLEM ANALYSIS:				(* = requires explanation)			
The schedule variance is due to delays in completing the framing of the exterior walls. This delay is caused by both material shortages and availability of qualified resources.							
The cost variance is due to increased productivity in installing the patio. The concrete subcontractor developed a faster way to form the stairway.							
TASK/PROJECT IMPACT:							
Framing the exterior walls will be completed on schedule and no delay will occur to the project complete.							
CORRECTIVE ACTION PLAN:							
The current skill mix will be adjusted to complete this activity as scheduled. The ACME project management team is conducting a review of all future work to determine if resource availability will be an issues.							
Preparer:	Dept:	Initials:	Date:				
Approval:	Dept:	Initials:	Date:				

Header information includes quantified cost and schedule variances and indicates out of tolerance items. Explanations may be required for monthly, cumulative, and at complete variances.

Problem Analysis:

This section is used to explain the variance drivers, abnormal conditions and factors creating variances, and other issues, problems, and concerns.

Task/Project Impact:

This section is used to explain the impact to the Control Account and overall Project.

Corrective Action Plan:

This section provides the recovery and risk mitigation plan.



Cost/Schedule Summary Report (C/SSR)

The final standard EVMS report we will review is the Cost/Schedule Summary Report (C/SSR).

The C/SSR (Cost/Schedule Summary Report) is used primarily for reporting cost and schedule summary data to the government or contractors on specific procurements.

This report includes cumulative and at complete summaries for each WBS element, and contains header data showing contractor and contract information, and MEAC calculations.

This report also contains data about contract price, budget, Management Reserve (MR), Undistributed Budget (UB), and MEAC cases.

It is very similar to the CPR Format 1 except that the C/SSR has only cumulative information.

A copy of the C/SSR for the ACME Home Building project is on the following page.



Cost/Schedule Summary Report (C/SSR)

COST/SCHEDULE STATUS REPORT							Form Approved OMB No. 0704-0188		
1. CONTRACTOR a. NAME: ACME Construction b. LOCATION: Denver, CO		2. CONTRACT a. NAME: ACME Housing b. NUMBER: ACME - 1000 c. TYPE: FFP d. SHARE RATIO:			3. PROGRAM a. NAME: ACME Housing b. PHASE (X one) <input type="checkbox"/> RDT&E <input checked="" type="checkbox"/> PRODUCTION		4. REPORT PERIOD a. FROM: 01-JAN-02 b. TO: 31-JAN-02		
5. AUTHORIZED CONTRACTOR REPRESENTATIVE a. NAME (Last, First, Middle Initial) Ted Smith				b. TITLE Manager		c. SIGNATURE		d. DATE SIGNED 31-JAN-02	
6. CONTRACT DATA									
a. ORIGINAL CONTRACT TARGET COST \$0			b. NEGOTIATED CONTRACT CHANGES \$0		c. CURRENT TARGET COST (A + B) \$0		d. EST COST OF AUTH UNPR WORK \$0		
e. CONTRACT BUDGET BASE (C + D) \$0			f. MGMT ESTIMATE AT COMPLETION \$0		g. VARIANCE AT COMPLETE (E - F) \$0		h. OVER TARGET BASELINE DATE 01-JAN-02		
7. PERFORMANCE DATA		CUMULATIVE TO DATE					AT COMPLETION		
ITEM (1)	BUDGETED COST		ACTUAL COST WORK PERFORMED (4)	VARIANCE		BUDGET (7)	ESTIMATE (8)	VARIANCE (9)	
	WORK SCHEDULED (2)	WORK PERFORMED (3)		SCHEDULED (5)	COST (6)				
1.1.1 Concrete	9,670	8,757	26,150	-912	-17,393	11,485	28,873	-17,388	
1.1.2 Framing	7,089	5,355	6,250	-1,734	-895	27,147	28,041	-893	
1.1.3 Plumbing	0	0	0	0	0	5,704	5,704	0	
1.1.4 Electrical	0	0	0	0	0	14,070	14,070	0	
1.1.5 Interior	0	0	0	0	0	6,328	7,178	-850	
1.1.6 Roofing	0	0	0	0	0	1,730	1,730	0	
OVERHEAD	16,062	14,317	0	-1,745	14,317	75,684	61,371	14,313	
b. COST OF MONEY	19	17	0	-3	17	82	65	17	
c. GEN & ADMIN	5,429	4,702	0	-726	4,702	23,237	18,537	4,700	
d. UNDISTRIBUTED BUDGET						0	0	0	
e. SUBTOTAL (PM Baseline)	38,269	33,149	32,400	-5,120	749	165,467	165,569	-102	
f. MANAGEMENT RESERVE						18,385			
g. TOTAL	38,269	33,149	32,400	-5,120	749	183,852			



Review Module 8

At this point, you have covered all of the content in Module 8. Take some time now to review the major items:

- There are two major formats for EVMS reports
 - Cost Performance Reports (CPR)
 - Cost/Schedule Summary Report (C/SSR)
- The Cost Performance Report (CPR) has five formats:
 - Format 1 Work Breakdown Structure (WBS)
 - Format 2 Organizational Categories (OBS)
 - Format 3 Baseline
 - Format 4 Staffing (Manpower)
 - Format 5 Variance Analysis Report
- CPR Format 1 and 5 are the most widely used
- The Cost/Schedule Summary Report (C/SSR) is similar to CPR Format 1



Summary of Module 8

At this point we have examined the basic reporting formats of EVMS.

If you have a firm grasp of the concepts covered in this module, along with all provide modules, you have completed the EVMS tutorial. Otherwise, review this or any other module to ensure you have a solid understanding of the Earned Value Management.

Congratulations, you have completed Module 8 and the EVMS tutorial.