10: Monitoring via EVM

Value	Formula
Schedule % Complete	$Schedule\ \%\ Complete = \frac{Data\ Date - Baseline\ Start}{Baseline\ Finish - Baseline\ Start}$
Planned value	$PV = Schedule\ \%\ Complete \times TV$ TV = Total Value = Budget At Completion = BAC
Earned Value	$EV = Performance\ \%\ Complete \times TV$
Schedule Variance	$SV(€) = EV - PV$
Schedule Performance Index	$SPI(€) = \frac{EV}{PV}$
Cost Variance	$CV\ (€) = EV - AV$
Cost Performance Index	$CPI(€) = \frac{EV}{AC}$
Schedule Variance (Time)	$SV(t) = ES - DD$ ES = Earned Schedule = the date that PV equals EV DD = Data Date
Schedule Performance Index (Time)	$SPI(t) = \frac{ES}{DD}$
Estimated To Complete (extrapolation of actuals)	$ETC\ (€) = \frac{TV - EV}{CPI}$
Estimate At Complete (general)	$EAC\ (€) = AC + ETC$
Variance At Complete	$VAC\ (€) = TV - EAC$
To Complete Performance Index $_{to\ BAC}$	$TCPI_{to\ BAC} = \frac{BAC - EV}{BAC - AC}$
To Complete Performance Index $_{to\ EAC}$	$TCPI_{to\ BAC} = \frac{BAC - EV}{EAC - AC}$
(Independent) Estimate At Complete (time)	$EAC(t) = PS + \frac{PD - PS}{SPI(t)}$ PS= Project Start date PD= Planned Project Finish date

Task ID	Activity	Pred.	Duration (months)	Budget (K$)	Progress	AC
1	Preparation	-	2	600	100%	600
2	Design	1	3	1200	100%	1400
3	Implementation	2	2	400	50%	200
4	Testing	2	3	1200	33.3%	500
5	Deployment	4	3	300	0%	0

Project overview

- Earned value : **10482.1$**
- Planned value : **18500$**
- Estimate to complete : **-1746.95$**
- Estimate at completion : **953.05$**
- Cost performance index : **3.88**
- Schedule performance index : **0.57**

Parameter	Value
Total Project Budget	3700$
Planned Value (PV)	Budget * (% completed Planned) = 3700 * 500/100 = 18500$
Actual Project Cost (AC)	2700$
Earned Value (EV)	Budget * (% completed Actual) = 3700 * 283.3/100 = 10482.1$
Cost Performance	
Parameter	**Value**
Cost performance index (CPI)	EV/AC = 10482.1 / 2700 = 3.88
Cost variance	((EV - costs) / EV) * 100 = ((10482.1 - 2700)/ 10482.1) * 100 = (7782.1/ 10482.1) * 100 = 74.24 %
Status	Under budget
Schedule Performance	
Parameter	**Value**
Schedule performance index (SPI)	EV/PV = 10482.1 / 18500 = 0.57
Schedule variance	((EV - PV) / PV) * 100 = ((10482.1 - 18500)/ 18500) * 100 = (-8017.9/ 18500) * 100 = -43.34 %
Status	Behind schedule
Predictions	
Parameter	**Value**
Estimate to complete (ETC)	(Budget - EV) / CPI = (3700 - 10482.1) / 3.8822592592592593 =-1746.95$
Estimate at completion (EAC)	AC + ETC AC + ((Budget - EV) / CPI)) = 2700 + -1746.9466996117192 =953.05$