On the subject of project schedule and completion forecasting¹

LETTER TO THE EDITOR

11 March 2023

Ref: Weaver, P. (2023). **Earned Schedule - the First 20 Years**; *PM World Journal*, Vol. XII, Issue III, March. Available online at https://pmworldjournal.com/wp-content/uploads/2023/03/pmwj127-Mar2023-Weaver-Earned-schedule-the-first-20-years.pdf

Dear Editor,

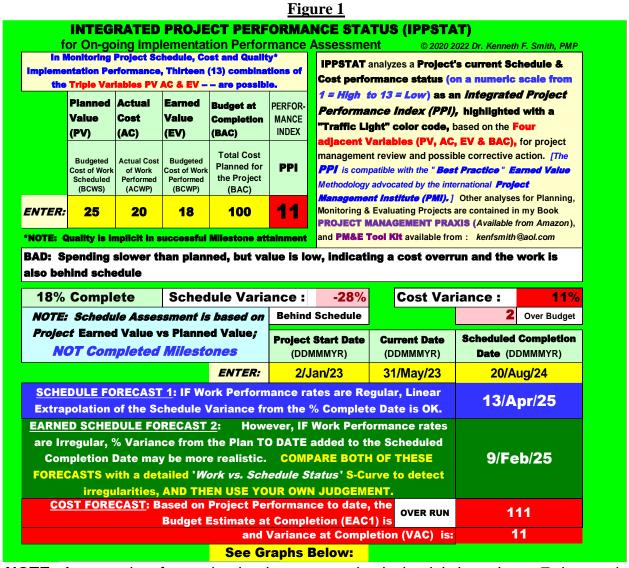
I really appreciated Patrick Weaver's detailed 20-year history of Earned Schedule (ES) and related footnote references in the March 2023 issue of the PMWJ.

However, while Patrick reaffirms the fact that before the advent of ES there was "no accepted methodology for adjusting future work durations or resource requirements based on performance to date," and "the assumption that all future work will go as planned tends to make the results from a CPM update process a very optimistic assessment of the likely project completion," nevertheless a range of Best Case, Most Likely & Worst Case projections could still be developed from Critical Path scheduling and Earned Value **schedule** data.

While my formulas may not be *pro forma* or *de rigueur ES*, for many years I have forecast project completion dates based on CPM & EVM data, using the *baseline* <u>calendar</u> <u>schedule</u> data – *i.e.* rather than the <u>monetary</u> value – of the project's reported PV & EV variance status. This is captured in my latest IPPSTAT template, illustrated in Figure 1.

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¹ How to cite this work: Smith, K. F. (2023). On the subject of project schedule and completion forecasting, Letter to the Editor, *PM World Journal*, Vol. XII, Issue IV, April.



NOTE: A constraint of my calendar day computation is that it is based on a 7-day week.

Moreover, to assist **Portfolio & Program managers --** as well as others who may perhaps not be so intimately familiar with the multitude of EVM acronyms, or the dirty details of the project -- fifteen years ago I created another template - illustrated in Figure 2 - (Part A & B) to analyze CPM & EVM data and assess the status and trends (Part C), as well as the verity of estimates by project managers who were reporting to them (Parts D, E & F).

Figure 2

EARNED VALUE TREND ANALYSIS [EVTRENDA]

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To Analyze Project Implementation Progress (based on reported data), and Assess the Relative Reliability of a Project Manager's Subjective Forecast

ENTER DATA in the Yellow Cells below. THEN Scroll down to read the results.

	PROJECT:	Demonstration Project
Α	REPORT by	PROJECT MANAGER: Ken Smith
1	31-May-23	"As of" Report Date
2	2-Jan-23	Project Start Date
3	\$25	BCWS PV Budgeted Cost of Work Scheduled / Planned Value / "Time Phased Budget"
4	\$20	ACWP AC Actual Cost of Work Performed to date
5	\$18	BCWP EV Budgeted Cost of Work Performed / Earned Value / i.e. Whether or not Scheduled
6	\$100	BAC Budgeted Cost At Completion / i.e. Total Life of Project Budget. or Planned Cost
7	20-Aug-24	SCD BASELINE Scheduled Completion Date calculated from above reported data
8	20	LOP Life of Project in Months calculated from above reported data
9	20%	%SP Percentage of Total "Life of Project" Budget Spent from above reported data
10	18%	%CS % Schedule Completed calculated from above reported data
11	\$5	PBR Planned Burn Rate i.e. Average Cost per Month

В	Performance Analysis to Date					
1	Cost Underrun	Apparent C	Cost Performance (comparing Actual Cost to Budget to Date i.e. AC: PV)			
2	-25%	App %CV	Apparent Cost Variance Percentage			
3	\$5	App \$CV	Apparent Cost Underrun or Overrun			
4	Cost Overrun	Actual Cost Performance (comparing Actual Cost to Earned Value i.e. AC: EV)				
5	10%	%CV	Current Cost Variance Percentage			
6	-\$2	\$CV	Current Cost Underrun or Overrun			
7	\$0.90	CPI	Cost Performance Index i.e. The amount earned for every \$1 spent.			
8	Behind Schedule	Actual Sch	edule Performance (comparing Scheduled to Performed Work [Earned Value]) i.e. PV: EV)			
9	-28%	%SV	Current Schedule Variance Percentage			
10	-0.2	SV	Months Ahead or Behind Schedule Now			
11	\$0.72	SPI	Schedule Performance Index i.e. The amount earned for every \$1 spent			

Continue with Part C:

С	Trend Analy	sis to Co	mplete the Project from Current Date				
		OST LIKELY i.e. Assuming continuance of current status variance					
1	Cost Overrun	MOST LIKEL	Cost at Completion				
2	11%	%VAC	Percentage of Cost Variance at Completion				
3	\$111	EAC1	Estimated Total Cost at Completion				
4	-\$11	VAC	Amount of Cost Variance at Completion i.e. Cost Overrun or Underrun				
5	\$4	PTD (avg)	Average Performance to Date Cost per month				
6	Behind Schedule	MOST LIKEL	Y Schedule Status at Completion [Assuming continuance of current status variance]				
7	8-Apr-25	ECD	Revised Estimated Completion Date [Assuming continuance of current status variance]				
8	-7.7	SV	Months Ahead or Behind Schedule				
9	-28%	%SV	Percentage of Schedule Variance at Completion i.e. Ahead or Behind Schedule				
င္၁	DEST CASE	io Aceu	ming NO Future Cost or Schedule Problems				
\vdash							
			Cost at Completion				
2		%VAC	Estimated Cost Variance Percentage				
3		EAC4	Estimated Total Cost at Completion				
4		VAC	Cost Variance at Completion i.e. Amount of Cost Overrun or Underrun				
\vdash			hedule Status at Completion				
6	30-Sep-24		Revised Estimated Completion Date [Assuming no future cost or schedule problems]]				
7	-1.4		Months Ahead or Behind Schedule				
8	-1%	%SV	Percentage of Schedule Variance at Completion i.e. Ahead or Behind Schedule				
C3	WORST CASE	- i.e. Ass	suming BOTH Future Cost and Schedule Problems				
1	Cost Overrun	WORST CAS	E Cost at Completion				
2	47%	%VAC	Estimated Cost Variance Percentage				
3	\$147	EAC3	Estimated Total Cost at Completion				
4	-\$47	VAC	Cost Variance at Completion i.e. Amount of Cost Overrun or Underrun				
5	Behind Schedule	Estimated Sc	hedule Status at Completion				
6	8-Apr-25	ECD	Revised Estimated Completion Date [Assuming no future cost or schedule problems]]				
7	-7.7	SV	Months Ahead or Behind Schedule				
8	-39%	%SV	Percentage of Schedule Variance at Completion i.e. Ahead or Behind Schedule				

And finally, Parts D, E & F:

	Project Manager's Forecast - If different from "C" above. [Rationale should be given							
D	D <i>separately.]</i>							
1	6-Aug-24	PM ECD	Estimated Completion Date					
2	\$111	PM EAC	Estimated Total Cost Estimate at Completion					
Ε	E ANALYSIS of Project Manager's Forecast Schedule & Cost Estimate							
	Cost Overrun		tal Cost at Completion					
1		VAC	Cost Variance at Completion i.e. Amount of Cost Overrun or Underrun					
2		VAC %	Estimated Cost Variance Percentage					
3			d or Behind Schedule					
4	2%	PM SV %	Schedule Variance Percentage					
5			Cost per Month Required to attain Project Manager's Forecast Schedule					
6		` '	Average Performance to Date Cost per month					
7	•	PBR	Baseline Planned Burn Rate i.e. Average Cost per Month					
8	1.13	RQD / PBR	Required Performance vs. Baseline Plan					
Š	0.72	PTD / PBR	Experience to Date vs Baseline Plan					
F	AUTO-ASSESS	SMENT of	Project Manager's Forecast Schedule & Cost Estimate					
1 Highly Unlikely that Future Performance will be Sufficient to Attain the Project Manager's Schedule Forecast as it would require considerably greater efficiency & effectiveness than either planned or experienced to date								
2	2 It is Likely that the Final Project Cost will be within the Project Manager's Cost Estimate as it is within the 'Best' and 'Worst' Case estimated range							

Thus, while my results were/are perhaps not in accord with those produced by authentic ES algorithms, it is feasible to make schedule estimates based on CPM & EVM schedule rather than monetary data, and they were/are not entirely optimistic. Other than that, my compliments to Patrick on his incisive research.

[NOTE: As usual, these, and many more templates for planning, monitoring and evaluating projects, programs and portfolios are available from kenfsmith@aol.com for free, on proof of purchase of my book **Project Management PRAXIS** (available from Amazon.)]

Best regards,

Dr. Kenneth Smith

Manila, The Philippines