Schedule Forecasts

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Masters of Science Project Management Capstone

PMGT 690

January 2016

Best Practices

The main purpose of earned value analysis is to measure continuous project performance and predict the final cost and schedule results. The earned value analysis displays the performance trends on the project. It allows calculations to occur at the project level as well as the detail level and can display different categories of performance (Dow & Taylor, 2008). The key to accomplishing the analysis is to measure the actual effort of work versus the baseline. This will give you a snapshot of current performance and show any possible future trends.

One of the primary best practices is to conduct an earned value analysis. The earned value analysis tool can generate earned value S-curves, which are great for presenting the true performance of your project (Dow & Taylor, 2008). Earned value management (EVM) delivers three distinct values for those who fully understand how to use it: The first and primary benefit is the ability to predict project success or failure early enough in the project to implement successful corrective actions. The second value is permitting simplified reporting. The third benefit is the capability to forecast cash flow requirements (Fostel, 2011).

Earned value reporting can be delivered in various ways. Some of these reports include, cost variance report, cost performance index report, schedule variance report, schedule performance index report, s-curve report, schedule and cost forecasting report. These reports should be used and distributed based on your stakeholder/project communication plan. However, before sending out your reports you should consider the data that is being presented before you. Since you will have the earned value data before anyone else, you should take the time to make any corrective actions that are necessary in order to mitigate the need to report discrepancies. The earlier the corrective action is taken, the less it costs (Fostel, 2011).

In order to master the earned value analysis process you must be able to complete the following steps. First, ensure there is a project schedule created and maintained on the project. Second, ensure you cost load the original project schedule. Third, create a baseline schedule from the original schedule. Fourth, create a list of performance planning questions to help you focus your earned value reporting. Finally, ensure you understand the required earned value calculations and what the data is reporting. Once you have completed these step you can create your earned value analysis tool that will help you with project success. Below is an example of a forecast from a Case Study I completed in MGMT 524 Management Science.

The Glass Slipper restaurant

Forecasting Multiplicative decomposition

12 seasons

This spreadsheet was created by either POM, QM or POM-QM for Windows, V4.

Data										Error analysis			
Period	Demand (y)	Time (x)		Average	Ratio	Seasonal	Smoothed	Unadjusted	Adjusted	Error	|Error|	Error^2	|% Error| or
January	438	1				1.444452	303.2292	295.3847	426.6689	11.3311	11.3311	128.3939	0.02587
February	420	2				1.390529	302.0433	296.2451	411.9375	8.062548	8.062548	65.00468	0.019197
March	414	3				1.37712	300.6274	297.1056	409.1501	4.849903	4.849903	23.52156	0.011715
April	318	4				1.071907	296.6676	297.966	319.3918	-1.39181	1.39181	1.937136	0.004377
May	306	5				1.037152	295.0388	298.8265	309.9285	-3.92845	3.928453	15.43274	0.012838
June	240	6				0.795405	301.733	299.687	238.3726	1.627396	1.627396	2.648417	0.006781
July	240	7	300	300.25	0.799334	0.812066	295.5425	300.5474	244.0643	-4.06431	4.064313	16.51864	0.016935
August	216	8	300.5	300.7083	0.718304	0.718878	300.4683	301.4079	216.6754	-0.67544	0.675438	0.456216	0.003127
September	198	9	300.9167	301.2917	0.657171	0.666251	297.1853	302.2684	201.3866	-3.38662	3.38662	11.4692	0.017104
October	225	10	301.6667	302.2083	0.74452	0.746007	301.6059	303.1288	226.1361	-1.1361	1.136096	1.290715	0.005049
November	270	11	302.75	303.25	0.890354	0.889918	303.3988	303.9893	270.5255	-0.52552	0.525521	0.276172	0.001946
December	315	12	303.75	303.9583	1.036326	1.031788	305.2953	304.8497	314.5403	0.459686	0.459686	0.211311	0.001459
January	444	13	304.1667	304.7917	1.456733	1.444452	307.3831	305.7102	441.5837	2.416346	2.416346	5.838726	0.005442
February	425	14	305.4167	305.7083	1.390214	1.390529	305.6391	306.5707	426.2954	-1.29543	1.29543	1.678139	0.003048
March	423	15	306	306.5	1.380098	1.37712	307.1627	307.4311	423.3696	-0.36962	0.36962	0.136619	0.000874
April	331	16	307	307.3333	1.077007	1.071907	308.7955	308.2916	330.4598	0.540163	0.540163	0.291776	0.001632
May	318	17	307.6667	308	1.032468	1.037152	306.6089	309.1521	320.6376	-2.63762	2.637616	6.957016	0.008294
June	245	18	308.3333	308.625	0.793844	0.795405	308.0191	310.0125	246.5856	-1.5856	1.585601	2.514132	0.006472
July	255	19	308.9167	309.1667	0.824798	0.812066	314.0139	310.873	252.4493	2.55066	2.55066	6.505866	0.010003
August	223	20	309.4167	309.9583	0.719452	0.718878	310.2057	311.7334	224.0982	-1.09825	1.098246	1.206145	0.004925

September	210	21	310.5	310.9583	0.675332	0.666251	315.1965	312.5939	208.266	1.733971	1.733971	3.006655	0.008257
October	233	22	311.4167	311.7083	0.747494	0.746007	312.3297	313.4544	233.839	-0.83902	0.839025	0.703962	0.003601
November	278	23	312	312.5417	0.889481	0.889918	312.3884	314.3148	279.7144	-1.71441	1.714413	2.939213	0.006167
December	322	24	313.0833	313.4583	1.02725	1.031788	312.0796	315.1753	325.1941	-3.19409	3.194093	10.20223	0.00992
January	450	25	313.8333	314.2083	1.432171	1.444452	311.5369	316.0358	456.4984	-6.49841	6.498414	42.22938	0.014441
February	438	26	314.5833	314.9167	1.390844	1.390529	314.988	316.8962	440.6534	-2.65341	2.653407	7.040571	0.006058
March	434	27	315.25	315.8333	1.374142	1.37712	315.1504	317.7567	437.5891	-3.58914	3.589144	12.88195	0.00827
April	338	28	316.4167	316.8333	1.066807	1.071907	315.3259	318.6171	341.5279	-3.52786	3.527864	12.44582	0.010437
May	331	29	317.25	317.7083	1.041836	1.037152	319.1433	319.4776	331.3468	-0.34678	0.346779	0.120255	0.001048
June	254	30	318.1667	318.7083	0.796967	0.795405	319.3341	320.3381	254.7986	-0.7986	0.798599	0.63776	0.003144
July	264	31	319.25			0.812066	325.0968	321.1985	260.8344	3.165633	3.165633	10.02123	0.011991
August	231	32				0.718878	321.3342	322.059	231.5211	-0.52105	0.521055	0.271498	0.002256
September	224	33				0.666251	336.2096	322.9195	215.1454	8.854562	8.854562	78.40327	0.039529
October	243	34				0.746007	325.7344	323.7799	241.542	1.458047	1.458047	2.125901	0.006
November	289	35				0.889918	324.749	324.6404	288.9033	0.096694	0.096694	0.00935	0.000335
December	335	36				1.031788	324.6791	325.5008	335.8479	-0.84787	0.847872	0.718887	0.002531
									Total	0.521283	93.77214	476.0471	0.301072
				Average		Intercept	294.5242			0.01448	2.604782	13.22353	0.008363
						Slope	0.860463			Bias	MAD	MSE	MAPE
											SE	4.651721	

Ratios

	Season 1	Season 2	Season 3	Season 4	Season 5	Season 6	Season 7	Season 8	Season 9	Season 10	Season 11	Season 12
							0.799334	0.718304	0.657171	0.74452	0.890354	1.036326
	1.45673274	1.390214	1.380098	1.077007	1.032468	0.793844	0.824798	0.719452	0.675332	0.747494	0.889481	1.02725
	1.4321708	1.390844	1.374142	1.066807	1.041836	0.796967						
Average	1.44445177	1.390529	1.37712	1.071907	1.037152	0.795405	0.812066	0.718878	0.666251	0.746007	0.889918	1.031788

Forecasts

Period	Unadjusted	Seasonal	Adjusted
37	326.361311	1.444452	471.4132
38	327.221773	1.390529	455.0114
39	328.082236	1.37712	451.8087
40	328.942698	1.071907	352.5959
41	329.803161	1.037152	342.0559
42	330.663623	0.795405	263.0116
43	331.524086	0.812066	269.2194
44	332.384548	0.718878	238.9439
45	333.245011	0.666251	222.0248
46	334.105473	0.746007	249.2449
47	334.965936	0.889918	298.0922
48	335.826398	1.031788	346.5017

References

A guide to the Project Management Body of Knowledge (PMBOK guide), fifth edition (5th ed.). (2013). Newtown Square, PA.: Project Management Institute.

Chris Fostel. (2011). *The Value of Earned Value Management.* Dallas, TX.: PMI Global Congress Proceedings.

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