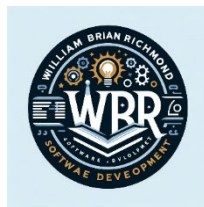




Applying Earned Value Management to Global Green Books Publishing

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Applying Earned Value Management at Global Green Books Publishing

Global Green Books Publishing, a young and growing company, has faced significant challenges in managing costs, meeting deadlines, and handling change requests. As demand for customized eBooks has increased, the company has had to refine its project management processes. One method that could help them improve cost estimation and project tracking is Earned Value Management (EVM). By integrating EVM into their project management framework, Global Green Books can better assess project performance, control costs, and manage scope creep (Darnall & Preston, 2010). This essay explores the applicability of EVM at Global Green Books and the additional processes needed to make it effective.

Breakdown of Project Cost Calculation:

Phase	Task	Staff	Category	Rate (\$)	Hours
Receive Order	Receive Order	Customer Service Representative	CSR	12.00	.25 *
Receive Order	Check Order	Customer Service Representative	CSR	12.00	.50 *
Receive Order	Verify Order	Customer Service Representative	CSR-1	16.00	1.0 *
Plan Order	Plan Work	Supervisor	Senior-1	28.00	1.0
Plan Order	Assign Work	Supervisor	Senior-1	28.00	1.0
Plan Order	Estimation	Supervisor	Senior-1	28.00	1.0
Plan Order	Reserve Equipment	Supervisor	Senior-1	28.00	.50
Production	Acquire Permissions	Publishers Liaison	PL	22.00	0
Production	Desktop Publishing (DTP)	DTP Specialist	DTP-2	18.00	12.5
Production	Content Conversion	DTP Specialist	DTP-1	12.50	4.0
Production	Produce eBook (Proof and Final)	DTP Specialist	DTP-2	18.00	5.0
Production	Quality Checks	Quality Technician	QC	16.00	3.0
		Customer Service Representative	CSR-1	16.00	1.0
Manage Production	Track Production	Supervisor	Senior-1	28.00	3.0

1. Direct Labor Costs:

- The total direct labor costs are calculated based on the project's planned labor hours and rates. For this project, the total direct labor costs were \$1,257.00.

2. Direct Costs:

- Material Costs (Permissions):
Adjusted price for permissions = \$500.00 per permission (we will assume 3 permissions).
 $\$500 \times 3 = \$1,500.00$.

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3. Indirect Costs:

- Computer Support Costs: \$600.00
- Sales Commission:
The sales commission is calculated as 20% of the total direct costs (labor, permissions, and other direct costs). It will be added later in the breakdown.

4. Total Direct Costs:

- Direct Labor = \$1,257.00
- Permissions = \$1,500.00
- Total Direct Costs = \$1,257.00 + \$1,500.00 = \$2,757.00

5. Total Before Contingencies and Profit:

- Total = \$2,757.00 (Direct Costs) + \$600.00 (Computer Support)
= \$3,357.00

6. Applying Contingencies:

- Labor Contingency (10% of direct labor):
10% of \$1,257.00 = \$125.70
- Total After Contingency = \$3,357.00 + \$125.70 = \$3,482.70

7. Applying Profit Margin:

- Profit Margin (25% of the total after contingency):
25% of \$3,482.70 = \$870.68

8. Final Total:

- \$3,482.70 + \$870.68 = \$4,353.38

This \$4,353.38 represents the total estimated project cost as a baseline, factoring in direct and indirect costs, contingencies, and profit margin before any custom changes.

EVM Metrics and Their Application

Earned Value Management relies on key performance indicators such as Planned Value (PV), Actual Cost (AC), Earned Value (EV), and Estimate at Completion (EAC) (Darnall & Preston, n.d.). Based on the information provided in the case studies, Global Green Books can produce these metrics with reasonable accuracy.

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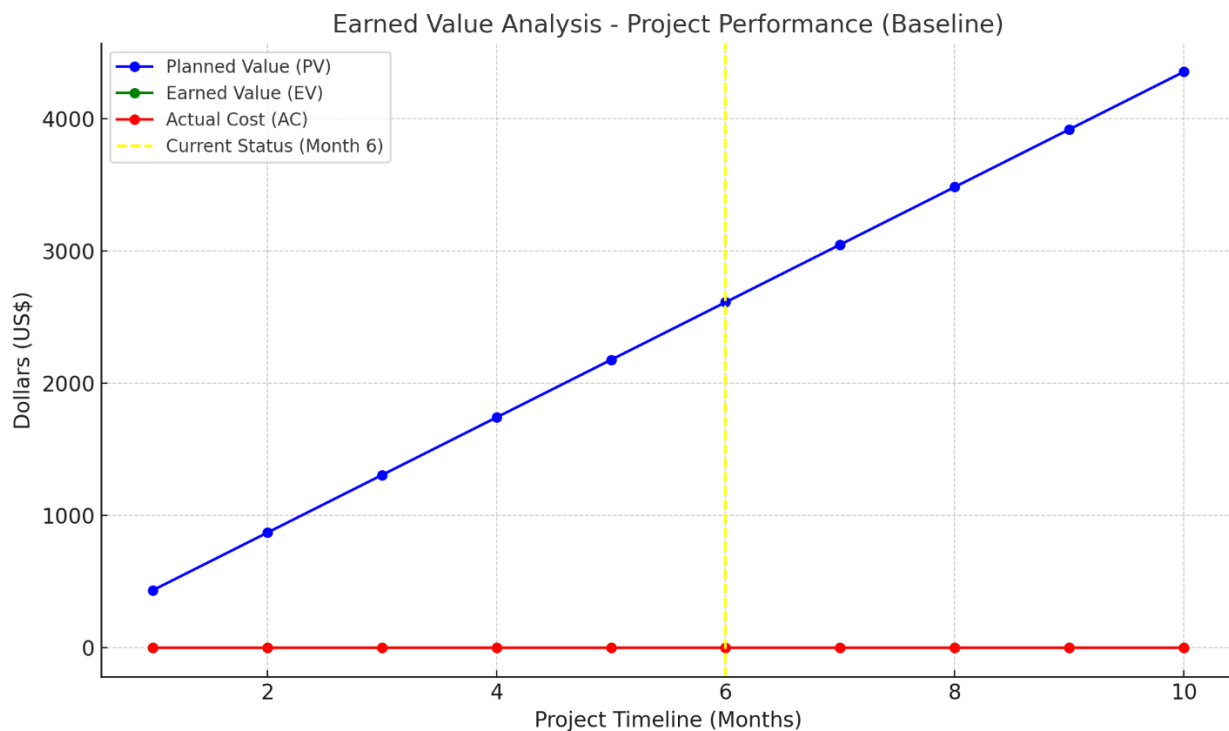
1. **Planned Value (PV):** PV represents the budgeted cost of work scheduled at a given time. The structured job orders and estimation processes described in *Mini-Case 4* provide a foundation for determining PV (Lukas, 2012).
2. Each eBook project has clearly defined phases, such as receiving orders, planning, production, and quality checks, making it possible to establish a baseline budget.
3. **Actual Cost (AC):** AC tracks real expenditures on the project. The case study notes challenges in tracking costs, particularly in the Accounting department, suggesting that AC data may not always be available in real time (Aubry et al., 2018). However, by properly documenting direct and indirect costs—including labor, equipment, and permissions—Global Green Books can improve its AC tracking.
4. **Earned Value (EV):** EV measures the value of work actually performed. Since the company follows a structured workflow for each eBook, they can assess progress based on completed tasks and their associated budgeted costs.
5. **Estimate at Completion (EAC):** EAC projects the total cost of the project based on current performance. Given that Global Green Books already estimates additional costs for change requests (as seen in *Mini-Case 5*), they can use EVM to refine their forecasts and determine whether the project remains within budget (Project Management Institute [PMI], 2017).

To establish a baseline for the project, the following EVM metrics have been defined:

Metric	Formula	Calculation	Interpretation
Planned Value (PV)	Total planned cost of the project	\$4,353.38	The total planned cost represents the budgeted value for the entire project.
Actual Cost (AC)	Total actual cost to date	\$0 (since the project has not started yet)	Since the project has not begun, no expenses have been incurred.

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Metric	Formula	Calculation	Interpretation
Earned Value (EV)	Planned value of the work completed to date	\$0 (since the project has not started yet)	No work has been completed yet, so EV is also \$0.
Estimate at Completion (EAC)	$AC + (BAC - EV)$	\$4,353.38 (same as BAC since no work has started)	Since the project is on track and budget, EAC equals the planned budget (BAC).
Cost Performance Index (CPI)	EV / AC	N/A (not applicable yet, since AC and EV are both 0)	It is not yet applicable, as no work or costs have occurred.
Schedule Performance Index (SPI)	EV / PV	N/A (not applicable yet, since EV is 0)	Not applicable yet, since no work has been completed.



These baseline metrics provide a starting point for the project's cost and schedule management. As the project progresses, these values will be

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updated to reflect actual costs and work completed, allowing for ongoing performance evaluation and adjustments.

Using EVM to Assess Change Requests

Global Green Books receives frequent change requests, particularly from professors looking to add new content to their eBooks. As seen in *Mini-Case 5*, these requests often lead to increased costs and extended schedules. EVM can be a valuable tool in vetting these changes by:

- **Assessing Cost Impact:** The company can evaluate whether a change request will cause cost overruns using EVM metrics. For example, each additional permission costs \$500, plus associated labor and sales commissions. If a request significantly exceeds the project's planned budget, it may need to be renegotiated.
- **Measuring Schedule Impact:** The Schedule Performance Index (SPI) can help determine whether a change request will delay the eBook delivery. Additional requests should be carefully considered if SPI is below 1.0, indicating delays.
- **Managing Scope Creep:** EVM provides a structured way to measure project performance against the original scope, preventing uncontrolled modifications that impact profitability.

Using EVM to Evaluate Change Requests

Global Green Books Publishing receives frequent change requests, particularly from professors requesting additional content or modifications to existing eBooks. While these changes are necessary for customer satisfaction, they often increase costs and extended schedules. The following EVM analysis demonstrates how the company can evaluate the impact of these changes on the overall project.

Assuming the change request involves 5 new permissions, and the production schedule runs without any delays for additional content in this scenario. The cost projection for the Publishers Liaison effort is based on the assumption of 5 new permissions. The costs associated with these changes include:

1. **Permissions:** \$500 per permission $\times$ 5 = \$2,500
2. **Publishers Liaison Effort:** 2 hours per permission at a loaded cost of \$55 per hour = \$550
3. **Supervisor Time:** 1 hour per change at a loaded cost of \$70 per hour = \$350

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4. **Sales Commission:** 20% of the additional costs.

After incorporating these costs, the total actual cost (AC) is updated as follows:

- **AC** (before change request): \$2,757.00
- **New Costs Due to Change Request:**
 - Permissions: \$2,500
 - Publishers Liaison: \$550
 - Supervisor Time: \$350
 - Sales Commission (20% of new costs): \$1,131.40

- **Total AC After Change Request** = \$5,657.00

After factoring in these additional costs, the total Estimate at Completion (EAC) is now calculated as \$7,398.39, reflecting the increase in price and schedule.

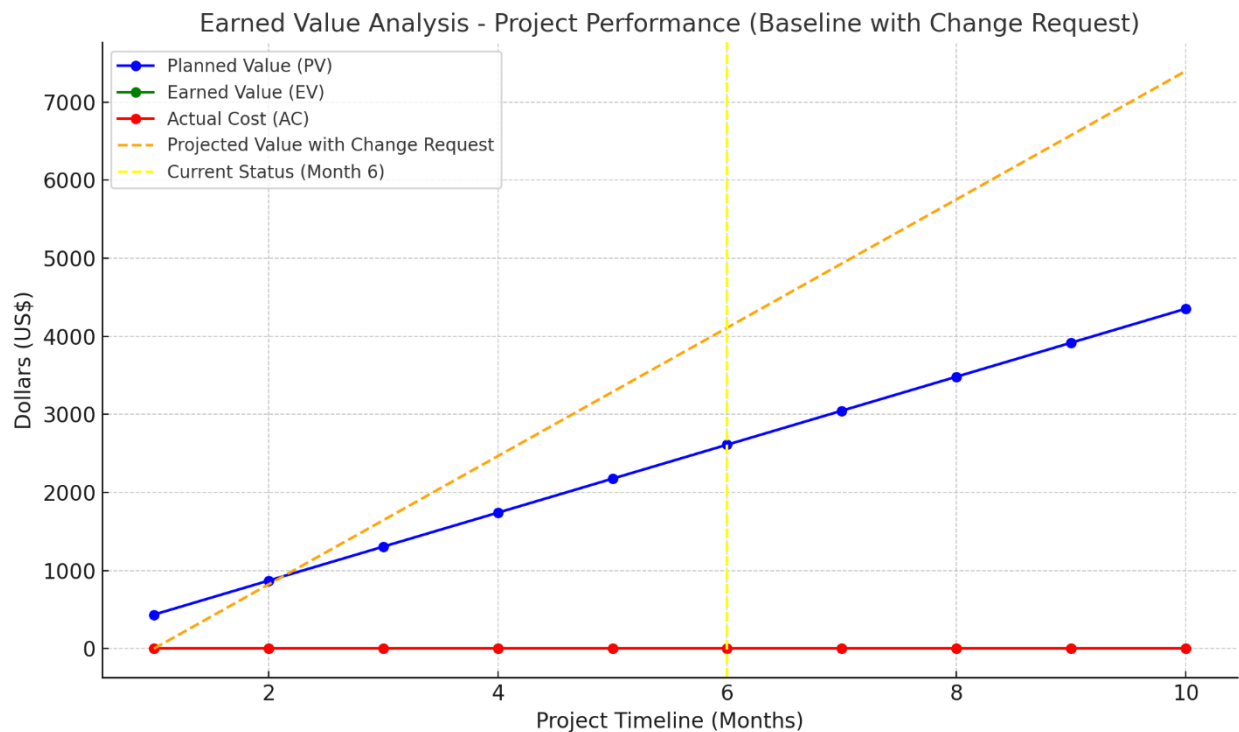
Updated EVM Metrics:

The table below summarizes the updated EVM metrics after the change request:

Metric	Formula	Calculation	Interpretation
Planned Value (PV)	Total planned cost of the project	\$4,353.38	The planned cost of the project at the baseline.
Actual Cost (AC)	Total actual cost to date	\$5,657.00	The actual cost after the change request.
Earned Value (EV)	Planned value of the work completed to date	\$2,611.99 (60% of PV)	The value of work completed to date.
Estimate at Completion (EAC)	$AC + (BAC - EV)$	\$7,398.39	The updated estimate includes the cost of the change request.

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Metric	Formula	Calculation	Interpretation
Cost Performance Index (CPI)	EV / AC	0.46	The project is over budget, as the CPI is less than 1.
Schedule Performance Index (SPI)	EV / PV	0.60	The project is behind schedule, as the SPI is less than 1.



Impact of the Change Request:

- Cost Variance (CV) = EV - AC = \$2,611.99 - \$5,657.00 = -\$3,045.01
This indicates that the project is over budget by \$3,045.01 due to the additional permissions and supervisor time.
- Schedule Variance (SV) = EV - PV = \$2,611.99 - \$4,353.38 = -\$1,741.39
The project is also \$1,741.39 behind schedule, as additional tasks have delayed progress.
- CPI and SPI below 1 suggest that the project struggles with cost overruns and schedule delays, primarily due to the ongoing changes.

Applicability of EVM to the eBook Production Project

EVM can be successfully applied to Global Green Books' eBook production projects, but specific improvements are necessary. The company already has structured job-order and cost-estimation processes that align well with EVM principles. However, challenges such as incomplete cost tracking, unpredictable workloads, and inconsistent scheduling must be addressed (Aubry et al., 2018).

Currently, Global Green Books relies on traditional cost tracking without a structured EVM approach. This method makes it difficult to predict cost overruns or measure schedule efficiency. Project performance is often evaluated reactively rather than proactively, identifying risks and inefficiencies. Implementing EVM would introduce a more data-driven approach to project tracking, allowing the company to anticipate budget deviations and schedule delays before they become critical issues.

To fully implement EVM, Global Green Books should:

- **Improve Cost Tracking:** Implement real-time cost tracking for labor, equipment, and materials. The accounting department must maintain updated records of actual expenditures.
- **Formalize Change Management:** Establish a structured approval process for change requests, using EVM metrics to determine feasibility.
- **Enhance Scheduling Accuracy:** Develop a more precise scheduling system to track task progress and completion dates more effectively.
- **Use Historical Data for Forecasting:** Analyze past project performance to refine cost and schedule estimates for future eBooks.

Conclusion

Earned Value Management (EVM) provides a systematic method to evaluate the effects of change requests on project performance. In this case, introducing additional permissions and supervisor hours has considerably increased costs and scheduling delays. By applying EVM metrics like the Cost Performance Index (CPI) and Schedule Performance Index (SPI), Global Green Books can assess whether upcoming changes will fit within the project's defined scope, budget, and timeline (Lukas, 2012).

EVM is a valuable tool for managing project costs, performance, and scope. While Global Green Books faces hurdles in tracking costs and adhering to schedules, EVM can bolster its financial oversight and increase project

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predictability. By improving their data collection methods and adopting EVM principles, they can make better-informed decisions about project viability and change management. Ultimately, implementing EVM will lead to more effective eBook production, greater customer satisfaction, and enhanced profitability.

References

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