



Version 6.1 Updated for the 2021
Project Management Professional (PMP)[®] Exam



Crosswind Success Series: PMP[®] Exam Bootcamp Manual

www.crosswindpm.com

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Version 6.1 aligned with the Project Management Institute, *A Guide to the Project Management Body of Knowledge, (PMBOK[®] Guide)* - Sixth Edition, Project Management Institute Inc., 2017

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12.13.2. Code of Accounts

A code of accounts is a numbering system that is applied to identify individual pieces of work in the work breakdown structure.

For example, 2.3.2.5.17.4 could represent a piece of work six layers deep in a WBS.

The source for the above text is the Project Management Institute, *A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) – Sixth Edition*, Project Management Institute Inc., 2017, Pages 248-256

12.14. Control Costs (Monitoring and Controlling Process Group)

Control Costs focuses on how to control any project budget changes and can involve influencing and managing changes related to cost, managing cost levels compared to the baseline, analyzing and managing cost variance, documenting cost records, and communicating with stakeholders regarding cost issues. Tools used during Control Costs typically include a cost change control system, earned value management (EVM), and computerized tools.

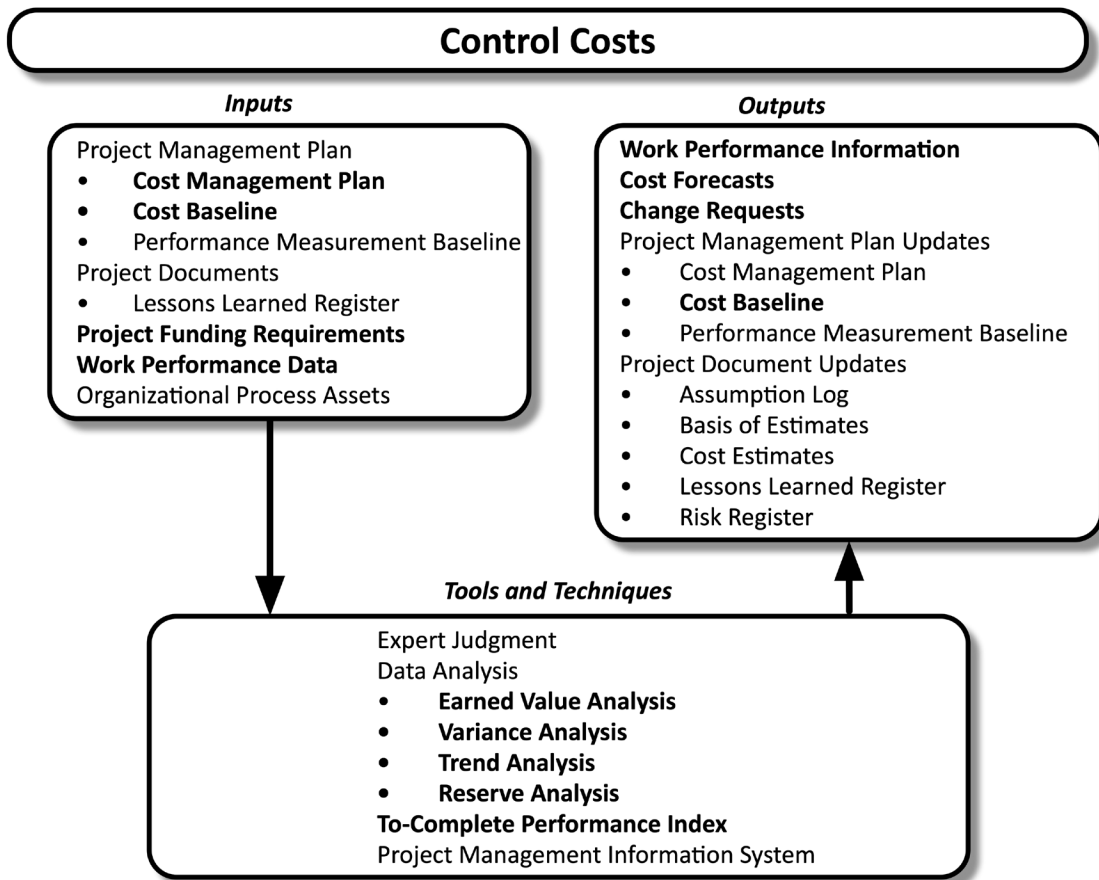
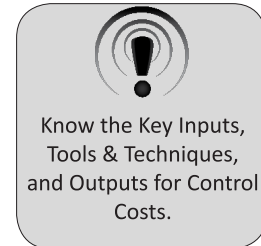


Figure 12-6: Control Costs Data Flow Diagram

The source for the above figure is the Project Management Institute, *A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) – Sixth Edition*, Project Management Institute Inc., 2017, Figure 7-10, Page 257

Control Costs (Monitoring and Controlling)

Key Inputs	Cost Management Plan	The cost management plan is a component of the project management plan that details the manner in which project costs are planned, configured, and controlled. It documents the processes and tools that will be used to manage project costs. Typically, it addresses metrics, the establishment of earned value management techniques, the junctures in the work breakdown structure (WBS) used to measure control accounts, acceptable cost performance variances, reporting configurations, satisfactory levels of accuracy (range) and precision (rounding), and the unique codes that associate the control accounts to the organization's accounting system.
	Cost Baseline	The cost baseline is the authorized version of the time-phased budget for the project, excluding management reserves, and is subject to change control. It is compared to actual results to determine the necessity of a modification, corrective measure, or preventative measure. It is evolved from a summation of approved budgets for specific schedule activities. Cost estimates are aggregated by work packages, then into higher components of the work breakdown structure (WBS), and then for the entire project. Because the cost estimates included in the cost baseline are linked to schedule activities, a time-phased view of the cost baseline is enabled. It is usually depicted as an S-curve. If the project uses earned value management (EVM), the cost baseline is known as the performance measurement baseline . The budget consists of the cost baseline plus the management reserves.
	Project Funding Requirements	Project funding requirements, both total and periodic, are extrapolated from the cost baseline (forecasted costs plus expected liabilities). Funding sources may also be documented. Total funds required are determined by adding the funds included in the cost baseline to the management reserves.
	Work Performance Data	Work performance data represents the raw metrics and observations identified during the performance of project work activities. It includes facts related to project status, specifically costs that have been sanctioned, incurred, billed, and paid.

Control Costs (Continued)		
Key Tools & Techniques	Earned Value Analysis	Earned value analysis (EVA) is used to compare the performance management baseline to the actual schedule and cost performance. Earned value management (EVM) integrates the scope baseline with the cost baseline and schedule baseline to produce the performance measurement baseline. It also evolves and observes planned value (PV), earned value (EV), and actual cost (AC) for each work package and control account. PV, sometimes known as the performance measurement baseline, is the authorized budget for scheduled work. EV is a metric describing work performed in terms of the authorized budget for that work. To measure work in progress, progress measurement criteria for each WBS component should be determined. The EV for a component cannot be greater than its PV. EV is checked incrementally to determine current status and cumulatively to determine long-term performance trends. AC is the cost incurred for work performed on an activity over a specific period of time: the total cost of the work defined by the EV. The earned value analysis provides a numerical evaluation of the state of the project. Cost performance measurements are used to determine the significance of variance from the original cost baseline. Cost variance (CV) is the difference between earned value and actual value. At the end of the project, it is the difference between budget at completion (BAC) and the actual amount spent.
	Variance Analysis	Variance analysis is used to compare the proposed project results to the actual project results . Cost variance (CV) is the difference between earned value and actual value. At the end of the project, it is the difference between budget at completion (BAC) and the actual amount spent.
	Trend Analysis	Trend analysis is used to project the future state of the project based on the present state of the project, in other words, to determine future results based on past results. The analysis can be used to predict issues, such as cost variances, to determine and effect corrective action. Trend analysis typically relates to the schedule, budget, or deliverables.

Control Costs (Continued)		
Key Tools & Techniques (Cont.)	Reserve Analysis	Reserve analysis is used to determine the status of contingency and management reserves for the project. Contingency reserves account for budget uncertainties and are included in the cost baseline and project funding requirements. Management reserves are budget reserves set aside to account for unknown unknowns (unforeseen work within the scope of the project). They are part of the overall project budget and are considered in the funding requirements. Funds in the management reserve are not included in the cost baseline until they are used for unforeseen work.
	To-complete Performance Index	The to-complete performance index (TCPI) measures the cost performance required to meet a defined management objective with the remaining resources. It is expressed as the ratio of the remaining work to the remaining budget and is calculated as budget at completion (BAC) minus earned value (EV) divided by the budget at completion (BAC) minus the actual cost (AC): $TCPI = (BAC - EV) / (BAC - AC)$.
Key Outputs	Work Performance Information	Work performance information includes supplemental and contextualized information regarding the performance of the project scope in comparison to the scope baseline. The information can contain important facets of scope control such as scope variances and their causes, how those variances impact cost and schedule, and a prognosis for future scope performance. The information is used to check the EVM components: planned value (PV), earned value (EV), and actual costs (AC). It is also utilized to depict trends graphically and to forecast a range of alternative project results.

Control Costs (Continued)

Key Outputs (Cont.)	Cost Forecasts	Cost forecasts, such as estimate at completion (EAC) and a bottom-up EAC, are documented and conveyed to stakeholders.
	Change Requests	Change requests are requests for modification that have not been formally approved through the change control process. Modifications to the cost baseline may be requested based on analysis or severe changes to the scope, resources, or cost estimates.
	Cost Baseline	The cost baseline is the authorized version of the time-phased budget for the project, excluding management reserves, and is subject to change control. It is evolved from a summation of approved budgets for specific schedule activities. Cost estimates are aggregated by work packages, then into higher components of the work breakdown structure (WBS), and then for the entire project. Because the cost estimates included in the cost baseline are linked to schedule activities, a time-phased view of the cost baseline is enabled. It is usually depicted as an S-curve. If the project uses earned value management (EVM), the cost baseline is known as the performance measurement baseline. Changes to the scope, resources, or cost estimates, if severe, can result in a revised cost baseline.

Situational Question and Real World Application

Failure to effectively perform the Control Costs process could result in delays that arise from efforts to determine the most effective approach for the elimination of cost overruns.