Cost management

Tools + techniques used: Project budgets, net present value, return on investment, payback

analysis, earned value management, project portfolio management,

cost estimates, cost management plans, cost baselines

What is cost? A resource sacrificed or foregone to achieve a specific objective.

Four processes for project cost management

1. Planning cost management: involves the policies procedures and documentation that will be used for planning executing and controlling project cost. Main output is a cost management plan
2. Estimating costs: involves developing an approximation or estimate of the costs of the resources needed to complete the project. Main outputs are activity cost estimates, basis of estimates, and project documents updates.
3. Determining the budget: involves allocating the overall cost estimate to individual work items to establish a baseline for measuring performance. Main outputs are cost baseline, project funding requirements, project documents updates
4. Controlling costs: involves controlling changes to the project budget. Main outputs are work performance information, cost forecasts, change requests, project management plan updates, project documents updates, organizational process assets updates.

IT managers need to be able to discuss and present project information in both financial and technical terms because most members of the executive board have a better understanding of the financial terms.

Cash flow analysis is a method for determining the estimated annual costs and benefits for a project and the resulting annual cash flow. Used to determine net present value.

Tangible costs, easy to measure, often monetary values

Intangible costs, difficult to measure, time,

Direct costs, directly related to the creation of the product, salaries, hardware software purchased specifically for the project.

Indirect costs, not directly related to the project, cost of electricity, paper towels, and project managers have little control over these.

Sunk cost is money that has already been spent on a project, not to be considered when deciding to invest in project (talk about sunk cost fallacy?)

Learning Curve theory: when many items are produced repetitively, the unit cost of those items decreases in a regular pattern as more units are produced. Help in estimating costs on projects that involve the production of large quantities of items. Also applies to time required to complete a task. 1st time might take longer than the 10th time.

Planning cost management includes:

* Level of accuracy: rounding to nearest dollar
* Units of measure: each unit used in cost estimates (labor hours/days)
* Organisational procedures links: understand the codes used for control accounts
* Control thresholds: costs have specified amount of variation from the baseline before action should be taken
* Rules of performance measurement: measurement rules for EVM, e.g. how often costs will be tracked and level of detail.
* Reporting formats: describe the format and frequency of cost reports required for the project
* Process descriptions: describe how to perform all the cost management processes

Earned value management: a measurement technique that integrates scope, time, and cost data.

Given the cost performance baseline, project teams can determine how well the project is meeting scope, time, and cost goals by entering actual information and comparing it to the baseline.

Baseline is the figure detailed in the original project plan plus approved changes.

Actual information includes whether or not a wbs item was completed, how much work was completed, when the work started and completed, how much the completed work cost.

Involves calculating three values for each activity/summary activity from a project wbs:

1. The planned value (PV): also called budget, the portion of the approved total cost estimate planned to be spent on an activity during a given period. (“Do this thing for $1000 in one week”)
2. The actual cost (AC: the total direct and indirect costs incurred in accomplishing work on an activity during a given period. (“This thing cost us $1500 to make and it took 2 weeks”)
3. The earned value (EV) is an estimate of the value of the physical work actually completed. Based on the original planned costs and the rate at which the team is completing the project to date.   
   Rate of performance (RP) is the ratio of actual work completed to the percentage of work planned to have been completed at any given time. (“At the end of week 1 we were 70% completed, so EV is only $700”)

(Earned value calc from week 1)

|  |  |
| --- | --- |
| Activity | Week 1 |
| Earned Value (EV) | 700 |
| Planned Value (PV) | 1000 |
| Actual Cost (AC) | 800 |
| Cost variance (CV) | (EV – AC) -100 |
| Schedule Variance (SV) | (EV – PV) -300 |
| Cost Performance Index (CPI) | (EV/AC) 87.5% |
| Schedule Performance Index (SPI) | (EV/PV) 70% |

Cost variance: the earned value minus the actual cost. If negative, work cost more than planned, positive, less than planned.

Schedule variance: earned value minus planned value. Negative means took longer, positive means took less time than planned

Cost Performance Index: ratio of earned value to actual cost; used to estimate the projected cost of completing the project. If 100% then costs are exactly as budgeted, less, over budget, over, under budget.

Schedule Performance Index: ratio of earned value to planned value. Can be used to estimate the project time to complete, same key as CPI.

CPI can be used to calculate the Estimate At Completion (EAC).

EAV chart includes:   
PV, cumulative planned amounts for all activities. Extends for the length of the project, ends at budget at completion (BAC) point.   
AC, cumulative amounts for all activities.   
EV, cumulative earned value amounts for all activities  
BAC, budget at completion, original total budget for the project. Plot at original time.   
EAC, Estimate at completion, Take the BAC, divide by CPI for vertical axis. Take BAC, divide by SPI for horizontal axis