PROJECT MANAGEMENT COST

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What is cost and project cost management

- Cost Refer the resources used to make a product expressed in monetary term.
- Project cost management includes the processes required to ensure that the project is completed within an approved budget.

Project cost management process

- Resource planning: determining what resources and quantities of them should be used.
- Cost estimating: developing an estimate of the costs and resources needed to complete a project.
- Cost budgeting: allocating the overall cost estimate to individual work items to establish a baseline for measuring performance.
- Cost control: controlling changes to the project budget.

Basic Principles of Cost Management

- Most CEOs and boards know a lot more about finance than IT, so IT project managers must speak their language
  - Profits are revenues minus expenses
  - Life cycle costing is estimating the cost of a project plus the maintenance costs of the products it produces
  - Cash flow analysis is determining the estimated annual costs and benefits for a project
  - Benefits and costs can be tangible or intangible, direct or indirect
  - Sunk cost should not be a criteria in project selection

Resources planning

- The nature of the project and the organization will affect resource planning
- **Some questions to consider:**
  - How difficult will it be to do specific tasks on the project?
  - Is there anything unique in this project's scope statement that will affect resources?
  - What is the organization's history in doing similar tasks?
  - Does the organization have or can they acquire the people, equipment, and materials that are capable and available for performing the work?

Cost Estimating

- It is important to develop a cost management plan that describes how cost variances will be managed on the project.
- An important output of project cost management is a cost estimate.
- There are several types of cost estimates, tools and techniques to help create them.

Types of Cost Estimates

Type of Estimate	When Done	Why Done	How Accurate
Rough Order of Magnitude (ROM)	Very early in the project life cycle, often 3–5 years before project completion	Provides rough ballpark of cost for selection decisions	–25%, +75%
Budgetary	Early, 1–2 years out	Puts dollars in the budget plans	–10%, +25%
Definitive	Later in the project, < 1 year out	Provides details for purchases, estimate actual costs	–5%, +10%

Cost Estimation Tools and Techniques

- **There are 3 basic tools and techniques for cost estimates:**
  - **analogous or top-down**: use the actual cost of a previous, similar project as the basis for the new estimate.
  - **bottom-up**: estimate individual work items and sum them to get a total estimate.
  - **parametric**: use project characteristics in a mathematical model to estimate costs. (e.g. Constructive Cost Model (COCOMO)).

Problem facing IT Cost Estimates

- Developing an estimate for a large software project is a complex task requiring a significant amount of effort. Remember that estimates are done at various stages of the project.
- Many people doing estimates have little experience doing them. Try to provide training and mentoring
- People have a bias toward underestimation. Review estimates and ask important questions to make sure estimates are not biased
- Management wants a number for a bid, not a real estimate. Project managers must negotiate with project sponsors to create realistic cost estimates

Cost Budgeting

- Cost budgeting involves allocating the project cost estimate to individual work items and providing a cost baseline.
- The WBS is required input to the cost budgeting process since it defines the work items.
- Important goal is to produce a cost baseline.

Surveyor Pro Project Cost Baseline

Surveyor Pro Project Cost Baseline Created October 10*

WBS Items	1	2	3	4	5	6	7	8	9	10	11	12	Totals
1. Project Management													
1.1 Project manager	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	96,000
1.2 Project team members	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	144,000
1.3 Contractors		6,027	6,027	6,027	6,027	6,027	6,027	6,027	6,027	6,027	6,027	6,027	66,300
2. Hardware													
2.1 Handheld devices				30,000	30,000								60,000
2.2 Servers				8,000	8,000								16,000
3. Software													
3.1 Licensed software				10,000	10,000								20,000
3.2 Software development		60,000	60,000	80,000	127,000	127,000	90,000	50,000					594,000
4. Testing			6,000	8,000	12,000	15,000	15,000	13,000					69,000
5. Training and Support													
5.1 Trainee cost									50,000				50,000
5.2 Travel cost									8,400				8,400
5.3 Project team members							24,000	24,000	24,000	24,000	24,000	24,000	144,000
6. Reserves				10,000	10,000	30,000	30,000	60,000	40,000	40,000	30,000	3,540	253,540
Totals	20,000	86,027	92,027	172,027	223,027	198,027	185,027	173,027	148,427	90,027	80,027	53,567	1,521,240

Cost control

- **Project cost control includes:**
  - monitoring cost performance.
  - ensuring that only appropriate project changes are included in a revised cost baseline.
  - informing project stakeholders of authorized changes to the project that will affect costs.
- Earned value management is an important tool for cost control.

Earning Value Management (EVM)

- The planned value (PV), formerly called the budgeted cost of work scheduled (BCWS), also called the budget, is that portion of the approved total cost estimate planned to be spent on an activity during a given period
- Actual cost (AC), formerly called actual cost of work performed (ACWP), is the total of direct and indirect costs incurred in accomplishing work on an activity during a given period
- The earned value (EV), formerly called the budgeted cost of work performed (BCWP), is an estimate of the value of the physical work actually completed

Earned Value Formulas

Table 7-8: Earned Value Formulas

TERM	FORMULA
Earned value	EV = PV to date X percent complete
Cost variance	CV = EV – AC
Schedule variance	SV = EV – PV
Cost performance index	CPI = EV/AC
Schedule performance index	SPI = EV/PV
Estimate at completion (EAC)	EAC = BAC/CPI
Estimated time to complete	Original time estimate/SPI

Earned Value Calculations for One Activity After Week One

Activity	Week 1
Earned Value (EV)	7,500
Planned Value (PV)	10,000
Actual Cost (AC)	15,000
Cost Variance (CV)	–7,500
Schedule Variance (SV)	–2,500
Cost Performance Index (CPI)	50%
Schedule Performance Index (SPI)	75%

- **CV = 7500-15000 = -7500**
- **SV = 7500-10000 = -2500**
- **CPI = 7500/15000 = 50%**
- **SPI = 7500/10000 = 75%**

Rules on Earned Value Numbers

- Negative numbers for cost and schedule variance indicate problems in those areas. Negative numbers mean the project is costing more than planned or taking longer than planned.

- CPI and SPI less than 100% indicate problems.

THANK YOU