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PROJECT COST MANAGEMENT

Instructor: Dr. Ali Rammal

Cost is typically the expense incurred for making a product or service that is sold by a company.

LIFE CYCLE COSTING

This concept involves looking at costs over the entire life of the product, not just the cost of the project to create the product.

Value Analysis

This concept focus on finding a less costly way to do the same work.

PROJECT COST MANAGEMENT

Knowledge Area	INTIATING	PLANNING	EXECTUING	MONITORING & CONTROLING	CLOSE OUT
COST MANAGEMENT		- Plan Cost Management - Estimate Cost - Determine Budget		Control Cost	

OBJECTIVE OF PROJECT COST MANAGEMENT

Identify how to plan the cost including estimation and budgeting of the project

Payment terms to the suppliers and contractors etc...

Planning in how to monitor & control the cost

Includes the way how to finance the project. (Loan, Equity, existing fund)

Potential revenue to be earned from specific project work.

❖ COST MANAGEMENT PLAN:

It is the output of the plan cost management or can be called Budget plan thorough you will plan, manage, monitor and control project cost.

This document can include the following:

- The levels of accuracy and precision needed for estimates
- Reporting formats to be used
- Rules for measuring cost performance
- Cost change control procedures
- Funding decision

ESTIMATE COST

- Estimate Costs is the process of developing an approximation of the cost of resources needed to complete project work. The key benefit of this process is that it determines the monetary resources required for the project.
- The accuracy of a project estimate will increase as the project progresses through the project life cycle

❖ TYPE OF COST

- **VARIABLE COST**: this is the cost that change with the amount of product or work. Such materials, supply, Labors, cost of contractors etc...
- **FIXED COST :** This is the cost that doesn't change when the product cost change. Such as telephone bill, electricity, office renting. Etc.…
- **DIRECT COST:** These costs are attributed directly to the project work and cannot be shared among projects (Wages, Material, Equipment etc.).
- **INDIRECT COST:** Overhead costs that incurred for the benefit of more than one project (Taxes, Training, project management software license

➢ Analogous Estimating

- uses the values such as scope, cost, budget, and duration or measures of scale such as size, weight, and complexity from a previous, similar project as the basis for estimating the same parameter or measurement for a current project.
- It is less costly and time consuming than other techniques and less accurate.

➢ Parametric Estimating

- uses statistical relationship between historical data and other variables.

➢Bottom-up Estimating

- It is a method of estimating a component of work then rolling up the costs to higher levels.
- This method is more expensive, **it is also one of the most accurate.**

- **Three-Point Estimates (PERT)**

➢ Triangular Distribution.

$$CE = (CO + CM + CP) / 3$$

- **Cost Aggregation:** Cost estimates are aggregated by work packages in accordance with the WBS. The work package cost estimates are then aggregated for the higher component levels of the WBS (such as control accounts) and ultimately for the entire project.

Task ID	Name	Durations	Cost
110	Excavation	6 days	$5,850
120	Pour Foundation	10 days	$4,700
210	Wood work	20 days	$60,850
310	Electrical & Plumbing	10 days	$20,260
320	Flooring	8 days	$18,760
330	Finishing	12 days	$16,760
410	Landscaping	14 days	$7,620
	Total	**80 days**	**$134,800**

❖ Contingency reserve

This is the reserve that the project manager uses to cover the cost of the identified risks. The project manager has the authority to use the amount of reserve when the identified risks occurs. The contingency reserve is not random but it is an estimate reserve based on various risk management plan. The contingency reserve is considered during the risk management plan. Contingency reserve is part of the baseline of the project which means:

Cost Baseline = project estimate + contingency reserve

❖ Management reserve

The management reserve is defined as the cost or time reserve that is used to manage the unidentified risks or "unknown-unknown. It is not an estimated reserve. It can be 5% of the total project cost or duration of the project or it may be as high 10%. The management reserve is usually estimated based on the uncertainty of the project. For example, if you are doing a project in which your organization has the expertise and experience, the management reserve will be less. In this case, there is less uncertainty. The management reserve is a part of the project budget but not the cost baseline.

Cost budget = cost baseline + management reserve

❑ DETERMINE BUDGET

Determine Budget is the process of aggregating the estimated costs of individual activities or work packages to establish an authorized cost baseline.

8. Cost budget

7. Management reserves

6. Cost baseline

5. Contingency reserves

+

3. Project estimates

2. Work package estimates

1. Activity estimate

Contingency reserve can be added @ the activity estimate level.

EXERCIES

The project manager and his team has completed the cost estimation of Project A with an amount 600,000 $.
The PM has decided to consider a contingency reserve with 10% from the estimated cost. The Policy of the organization dictate that the management reserve should be always taken into consideration as 10 % from the cost baseline.

1- Calculate the estimated cost budget of the Project.

ANSWER

Project estimate: 600,000 $
Contingency reserve: 60,000 $
Cost Baseline = Project estimate + contingency reserve
Cost Baseline = 600,000 + 60,000= 660,000 $

Cost Budget= Cost baseline + Management reserve
Management reserve = cost baseline x 10% = 66,000 $

Cost Budget= 660,000 $ + 66,000 $ = 726,000 $

❑ CONTROL COST

The process of monitoring the status of the project to update the project costs and managing changes to the cost baseline.

❖ HOW TO CONTROL COST

- Follow cost management plan
- Manage change – such prevent unnecessary change

❖ Earned Value Management (EVM)

Earned value analysis is used in performance reviews to measure project performance against the scope, schedule, and cost baselines and determined the need to request change

ACRONYM	TERM	INTERPRETATION
PV	Planned Value	As of today, what is the estimated value of the work planned to be done?
EV	Earned value	As of today, what is the estimated value of the work actually accomplished?
AC	Actual cost	As of today, what is the actual cost of the work accomplished?
BAC	Budget @ completion	How much did we budget for the project @ completion

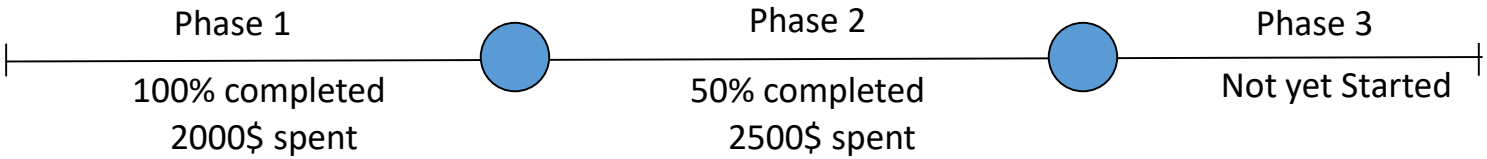
FORMULAS

FORMULA	NAME	DESCRIPTION
COST VARIANCE(CV)	CV= EV-AC	If CV is positive means the project is under budget, if CV is negative means project is over budget
SCHEDULE VARIANCE (SV)	SV= EV-PV	IF SV is positive means the project is ahead schedule, if SV is negative means behind schedule
COST PERFORMANCE INDERX (CPI)	CPI= EV/AC	It measure the efficiency of the expenses spent on the project. Greater than 1 is good, less than 1 is not good.
SCHEDULE PERFORMANCE INDEX (SPI)	SPI= EV/PV	indicates how efficiently you are actually progressing compared to the planned project schedule. If result is positive means is good, if negative it is bad.

EXERSICE

You have a project to execute a Gaz pipe line . The project is divided into 3 phases. Each phase will take 1 week to build and 2000 $ has been budgeted per phase . Today is the end of week 2. The phase 1 is 100% completed and 2000 $ already spent. 50% of the phase 2 has been completed and spent 2500$. The phase 3 is not yet started.

Using the following project status chart, calculate the following: EV, PV, AC, BAC, CV,SV,CPI and SPI?



EXERSICE

BAC: 2000+2000+2000= 6000 $
PV : 2000 +2000= 4000 $
EV : 2000 + 1000= 3000$
AC : 2000 + 2500= 4500 $
CV : EV-AC= 3000- 4500= -1500$
SV : EV- PV= 3000-4000= -1000$
SPI : EV/PV = 3000/4000= 0.75
CPI : EV/AC = 3000/4500 = 0.67

EXERSICE

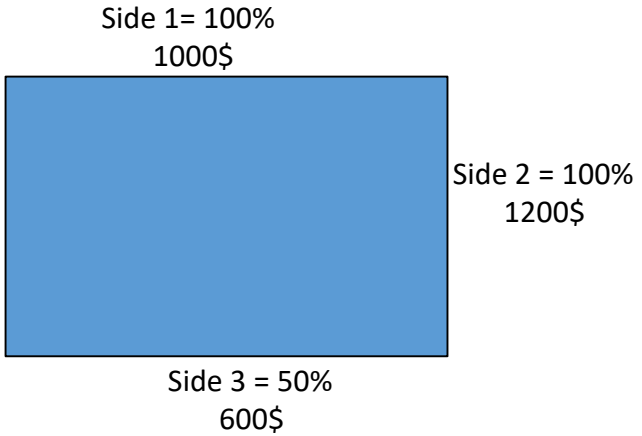
You have a project to build a fence. The fence will form a square. Each side will take 1 day to build and 1,000 $ has been budgeted per side. The sides are planned to be completed one after other. Today is the end of day 3.
Using the following project status chart, calculate the following: EV, PV, AC, BAC, CV,SV,CPI and SPI?

Side 1: Started……Finished. 100% Completed, spent 1000$

Side 2: Started ……. Finished. 100% Completed, Spent 1200$

Side 3: Started……Not finished. 50% completed, Spent 600$

Side 4: Not yet started.



ANSWER

- PV = 3,000 $
- AC= 2,800 $
- EV= 2,500 $
- BAC= 4,000 $
- CV= EV- AC= -300$ The project is over budget
- CPI = EV/ AC = 0.893 the project is not in good condition, we are getting 0.893 out of every dollars we put into the project
- SV= EV-PV = - 500 $ the project is behind the schedule
- SPI = EV/ PV= 0.833 We are processing @ about 83 percent of the rate planned