Report

Lab Exercise/Assignment week : Lab 8

Lab Group (CL/01, CL/02,…) : Lab CL/01

Family name : Le

First name : Quang Long

Student number : 6482132

Email address : qll998@uowmail.edu.au

Project Manager: Le Quang Long

Contents

[Part 1 2](#_Toc40765053)

[Figure 1.1 Earned value view after changes are made 4](#_Toc40765054)

[Figure 1.2 CPI column added 5](#_Toc40765055)

[Part 2 6](#_Toc40765057)

[Figure 2.1 Decision tree 6](#_Toc40765058)

# Part 1

In order to complete the task. A few preparations have been made to the resources and tasks entries.

* Big increase to employees wages and unit. This is to show big differences when applying techniques like crashing techniques so it can be analyzed easier.
* A few fixed costs are added to some of the summary tasks to simulate extra cost
* A new baseline is taken at task completion 100% and after the changes to the resources
* Few tasks are shortened so that there are more CV and VAC cases to examine
* Changes after made are shown at figure (1.1)

My understanding in short of the entries are

PV- Planned value: entire cost which that are planned bases on the gantt chart and employees assigned summed up altogether + fixed cost

EV- Earned value: Money that should have been spent at the specific given time of the project progress to complete the project in time this can be used to see if the Actual cost is lower than it means that the project money is used inefficiently and not being spent right, higher Actual cost means that project either progressing faster than expected or there are hidden unknown cost. Comparing Earned value against Planned value if Earned value higher means that there are some costs from the baseline that went unreported in the planned Gantt chart, if Planned value higher means that there is some unreported cost in the baseline.

AC-Actual cost, the actual amount of money has been spent up until this point since the beginning of the task

SV-Schedule variance calculated by EV-PV. A pair of ‘()’ indicates that the number is negative

CV-Cost variance calculated by EV-AC. A pair of ‘()’ indicates that the number is negative

EAC- This is to estimate using the efficiency of AC, if the project has deviated against the baseline this means that there are potential extra or less cost. By calculating the EAC this show a new cost estimate so that a project manager can plan around the changes. This can also be used as an indicator on how accurate the initial prediction is (if the baseline is the initial plan of the project).

BAC- Baseline cost, total cost from the baseline

VAC-Variance at completion, calculated by BAC - EAC

To complete the next task a CPI column has been added (Figure 1.2)

With the formula given in the lecture EAC=BAC/CPI

CPI is calculated using = EV/AC

While the EAC in MS project uses = AC + ( (BAC – EV)/CPI)

Using the task 1 ( summary task)

Using the lecture formula

300025/1.73 = 173424.8555

Using Ms Project formula

80707.50 +((300025-139832.5)/1.73) = 173304.3208

The lecture formula gives a higher results. The Ms project takes into the account the current up to date budget and the remaining budget changed by the performance (CPI). The lecture formula assume that the CPI will be constant rate without any changes in the future while the Ms project formula takes in the account that the CPI changes and at that specific progress/stage of the project. Since the CPI is at a very high rate (1.73). Therefore, it give us a lower cost.

# Figure 1.1 Earned value view after changes are made

# Figure 1.2 CPI column added

# 

Part 2

Part 2 Probability Outcome

# Figure 2.1 Decision tree

# 

P=0.5 $50000-$2000

Project 1

P=0.5 -$2000

P=0.1 $250000-$18000

Project 2

P=0.9 -$18000

EMV analysis

From the look of cost and profit project 2 is definitely more attractive with the amount of return 5 times more:

250000/50000 =5.

But looking closely at the investment return ratio percent project 1 is definitely more attractive with

Project 1 50000/2000 = 2500% against Project 2 250000/18000 = 1388%

Not to mention to invest cost Project 1 investment cost is 9 time less than project 2:

18000/2000 = 9

Now with accounting the probability we can use the amount of money as a measure on how choosing which is a better project to bid by:

(profit)\*winning chances – (|loses|)\*losing chances

So with that we calculate the EMV

Project 1

(48000)\*0.5 – (2000)\*0.5 = 23000$

Project 2

(232000)\*0.1 – (18000)\*0.9 = 21580$

We can see that Project 1 has generally a better value because of the bidding risk. Now objectively with only the EMV Project 1 should be considered since it is a safer option and the return over investment ratio is higher if an investor who have limited resources with low tolerances for failure that investor should absolutely take project 1. But that doesn’t mean project 2 is bad either. If we Objectively looking at EMV then.

(23000-21580)/23000\*100 =6.17%

Project 2 against project 1 only lost 6.17% behind, this is thanks to it’s very high profit return if the bid is successful. It is still a valid option for high-stake investor. Which again still a valid option. If we are objectively looking at EMV to choose which project is better. Project 1 is a safer and low investment high return project that is also very and does not come often therefore a good investor should absolutely choose project 1