Planning Process Group Artifacts

6.5 Estimate Activity Durations

6.5.2 Three-point-estimating

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6.5.2 Three-point estimating: This concept originated with the program evaluation and review technique (PERT). Pert uses three estimates to define and approximate range for an activity's duration: most likely, optimistic and pessimistic. Duration estimates based on three points with an assumed distribution provide an expected duration and clarify the range of uncertainty around the expected duration (PMI,2013). This was a homework assignment was taken from PMGT 613. It shows how PERT and the three-point estimating technique calculates probable durations.

6.5 - Deliverable: Advantage Energy Technology Data Center Migration Case Study

1.

Expected Proj Duration = 69 Days

T(s) = 68 Days

Probability of completing before 68 days?

Z=Ts – Te/sum of [(Pessimistic-Optimistic/6)^2] **of the critical path**

= 68-69/sq root of the sum .03+1.78+1.78+.44+.11+1.78+.03+.44+.11+.03+.11

= -1/ = 2.58 = -.388

Z values and Prob Table (A 7.2) pg. 242 = approximately .35 or 35%

2.

Calculate what the expected project duration would have to be to ensure a 93% chance of completion within 68 days.

Using the table from A.72:

Probability = .93

Z value of approximately + 1.5

Ts= 69.67 (QM software table)

Te=(Z*2.58)-Ts = 65.8 days

3.

Ts= 149 days

Var=7.69

** What is the probability of reducing the project by two days?

Z=Ts-Te/sq root of the sum of the variance along the critical path

(QM Excell Chart's variance outputs)

-2/sq root of .03+.11+.44+.44+.44+.11+.44+.44+.44+.44+2.78+.44+.44+.11+.11+.44

= -2/2.77

= - .722; referring to Table A7.2: prob = .25 or 25%

4.

Similar to Q2, however due to staff rearrangements, they have asked Tom to calculate the expected project duration would have to be to ensure a 98% chance of completions within 160 days.

Prob = .98

Z = +2.1 (table A7.2)

Ts=149

Sum of Var of the critical pate = 2.77

Te=(Z*2.77)-Ts = **143.18 days**

Reference List

Project Management Institute. (2013). *A Guide to the Project Management Body of Knowledge* (PMBOK Guide, 5th ed) Newton Square, PA: PMI Inc.