

## 1 EVM - EARNED VALUE MANAGEMENT

1. CV = EV - AC
2. CPI = EV/AC
3. SV = EV - PV = BCWP - BCWS
4. SPI = EV/PV
5. PV = BCWS = BAC \* % done
6. EV = BCWP
7. EAC variance will remain = BAC / CPI
8. EAC fundamentally flawed = AC + Bottom-up ETC
9. EAC variance will not happen again = AC + BAC - EV = BAC - CV
10. EAC over budget + deadline = AC + ((BAC - EV)/(CPI\*SPI))
11. ETC = EAC - AC
12. ETC flawed = new estimate
13. Percent Complete = EV / BAC \* 100
14. VAC = BAC - EAC
15. EV = % complete \* BAC
16. Burn Rate = AC/EV = 1/CPI
17. TCPI based on BAC = (BAC - EV) / (BAC - AC)
18. TCPI based on EAC = (BAC - EV) / (EAC - AC)
19. BV = EAC - AC
20. EVA = NOPAT - Cost of Capital
21. ROIC = NIAT / Invested Capital

## 2 PERT

22. PERT 3-point =  $\frac{(Pessimistic + (4 * MostLikely) + Optimistic)}{6}$  = EAD
23. PERT  $\sigma$  =  $\frac{Pessimistic - Optimistic}{6}$  = std Deviation PERT
24. PERT Activity Variance =  $\left(\frac{Pessimistic - Optimistic}{6}\right)^2$
25. PERT Deviation all activities =  $\sqrt{\left(\frac{Pessimistic - Optimistic}{6}\right)^2}$

## 3 COMMUNICATIONS

26. Communications channels =  $n * (n-1)/2$

## 4 PROCUREMENT

27. PTA = ((Ceiling Price - Target Price)/ Buyer's Share Ratio) + Target = PTA

## 5 PROBABILITY

28. EMV = Probability \* Impact in Currency = overall ranking of risks

## 6 NETWORK DIAGRAM

- Activity Duration = EF - ES + 1 or Activity Duration = LF - LS + 1

Total Float = LS - ES or Total Float = LF - EF

Free Float = ES of following - EF of present - DUR of Present

EF = ES + duration - 1

ES = EF of predecessor + 1

LS = LF - duration + 1

Forward path = Add 1 day to Early start

## 7 PROJECT SELECTION

$PV = FV / (1 + r)^n$

$FV = PV * (1 + r)^n$

NPV = Select biggest number

ROI = (Benefit - Cost) / Cost = percentage

IRR = Select biggest number

Payback period = Add up the projected cash inflow minus expenses until you reach the initial investment

BCR = Benefit / Cost

CBR = Cost / Benefit

Opportunity Cost = The value of the project not chosen

## 8 DEPRECIATION

Straight-line depreciation: Depreciation Expense = (Asset cost - Scrap Value) / Useful Life

Depreciation Rate = 100% / Useful Life

Double Declining Balance Method:

Depreciation Rate = 2 \* (100% / Useful Life)

Depreciation Expense = Depreciation Rate \* Book Value at Beginning of Year

Book Value = Book Value at Beginning of year - Depreciation Expense

Sum-of-Year's Digits Method:

Sum of digits = Useful Life + (Useful Life - 1) + (Useful Life - 2) + etc.

Depreciation Rate = fraction of years left and sum of the digits (ie 4/15th)

## 9 CONTRACTS

Savings = Target Cost - Actual Cost

Bonus = Savings \* Percentage

Contract Cost = Bonus + fees

Total Cost = Actual Cost + Contract Cost

## 10 MATHEMATICAL BASICS

Average (Mean) = Sum of all members divided by the number of items.

Median = Arrange values from lowest value to highest. Pick the middle one. If there is an even number of values, calculate the mean of the 2 middle values.

Mode = Find the value in a data set that occurs most often.

## 11 VALUES

1 sigma = 68.26%

2 sigma = 95.46 %

3 sigma = 99.73%

6 sigma = 99.9997 %

Control Limits = +/- Three sigma from mean

Control Specifications = Defined by Customer; looser than the control limits

Rough order of Magnitude estimate = -25% to +75 % Preliminary estimate = -15% to + 50 %

Budget estimate = -10% to +25%

Definitive Estimate = -5% to +10%

Final estimate = 0%

## 12 ACRONYMS

AC = Actual Cost; BAC = Budget At Completion; BCR = Benefit Cost Ratio; BV = Budget Variance; BCWS = Budget Cost of Work Scheduled; BCWP = Budgeted Cost for Work Performed; CPI = Cost Performance Indicator; COQ = Cost of Quality; COPQ = Cost of Poor Quality; CV = Cost Variance or Cost Value; DUR = Duration; EAC = Estimate At Completion; EAD = Expected Activity Duration; EC = Earned Cost; EF = Early Finish; EV = Earned Value; EVA = Economic Value Added; EVM = Earned Value Management; ETC = Estimate to Complete; FPIFC = Fixed Price plus Incentive Firm Cost; FV = Future Value; FS = Free Slack; IRR = Internal Rate of Return; MEPC = Mutually Exclusive Path Convergence; NEBT = Net Income Before Taxes; NIAT = Net Income After Tax; NOPAT = Net Operating Profit After Taxes; NPV = Net Present Value; POC = Price of Conformance; PERT = Program Evaluation and Review Technique; PTA = Point of total Assumption PV = Planned Value; ROA = Return On Assets; ROS = Return On Sales; ROIC = Return On Investment Capital; SV = Scheduled Variance; SPI = Scheduled Performance Indicator; VAC = Variance At Completion; TCPI = To Complete Performance Index; TS = Total Slack;