**Earned Value**

CV = EV - AC

CPI = EV / AC

SV = EV - PV

SPI = EV / PV

EAC ‘no variances’ = BAC / CPI

EAC ‘fundamentally flawed’ = AC + ETC

EAC ‘atypical’ = AC + BAC - EV

EAC ‘typical’ = AC + ((BAC - EV) / CPI)

ETC = EAC - AC

ETC ‘atypical’ = BAC - EV

ETC ‘typical’ = (BAC - EV) / CPI

ETC ‘flawed’ = new estimate

Percent Complete = EV / BAC \* 100

VAC = BAC - EAC

EV = % complete \* BAC

% COMPLETE = EV / BAC x 100

% SPENT = AC / BAC x 100

CV% = CV / EV x 100

SV% = SV / PV x 100

**PERT**

PERT 3-point = (Pessimistic+(4\*Most Likely)+Optimistic)/6

PERT α = (Pessimistic - Optimistic) / 6

PERT Activity Variance = ((Pessimistic - Optimistic) / 6)^2

PERT Variance all activities = \_sum((Pessimistic - Optimistic) / 6)^2

**Classes of Estimates**

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%

**Project Selection**

PV = FV / (1+r)^n

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

NPV = Select biggest number.

ROI = Select biggest number.

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.

Exp. Value = Probability % x Consequence $

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| **Communications** |
| Communication Channels = n \* (n-1) / 2 |

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| **Probability** |
| EMV = Probability \* Impact in currency |

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| **Procurement** |
| PTA = ((Ceiling Price - Target Price) / Buyer's Share Ratio) + Target Cost |

**Depreciation**

Straight-line Depreciation:

Depr. Expense = Asset Cost / Useful Life

Depr. Rate = 100% / Useful Life

Double Declining Balance Method:

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

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

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

Sum-of-Years' Digits Method:

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

Depr. rate = fraction of years left and sum of the digits (i.e. 4/15th)

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| **SIGMA** |
| 1 sigma = 68.26% |
| 2 sigma = 95.46% |
| 3 sigma = 99.73% |
| 6 sigma = 99.99% |

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| **Important Values** |
| Control Limits = 3 sigma from mean |
| Control Specifications = Defined by customer; less than the control limits |
| Float on the critical path = 0 days |
| Pareto Diagram = 80/20 |
| Time a PM spends communicating = 90% |
| Crashing a project = Crash least expensive tasks on critical path. |
| JIT inventory = 0% (or very close to 0%.) |

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| **Network Diagram** |
| Forward Pass  ES = EF of the predecessor node  EF = ES + Dur  **Backward Pass**  LF = LS of the Successor  LS = LF – Dur  Slack = LF – EF = LS – ES  Free Float = ES(Successor) - EF(Predecessor) |

**ES Dur EF**

Node

**LS Float LF**

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