

Capital Budgeting: Methods

Pay Back Period	Accounting Avg. Rate of Return	Discounted Cash flow method/ PV Method	Internal Rate of Return(IRR)
When ACF are even NI/ACF When ACF are uneven Pay back Reciprocal 1/Pay back period or 1/(NI/ACF)	When EAT are Even i. EAT/NI ii. EAT/(NI+SV/2) In case of Uneven EAT Avg EAT will be used instead of EAT	Discounted cash flows -When ACF are even ACF x Annuity factor -When ACF are uneven ACF x Pv factor NPV Method PV of CI-PV of CO Profitability Index/Desirability factor/Benefit cost ratio PV of CI/PV of CO NPV Index NPV / PV of CO	When ACF are even NI/ACF When ACF are uneven Steps Determination of First Rate of IRR 1. Calculate Avg CI 2. Calculate Pay Back Period=Cost / Avg CI 3. See Annuity Table

If the life of the Project is not same , then EQUILVENT ANNUAL NPV(EANPV) Method will be used.

EANPV=NPV/ cumulative Annuity Factor

Equilvent annual cost (EAV)= PV Of CO/cumulative annuity factor

ACF= Annual Cash Flows	NI=Net investment = Cost of investment- scrap value	EAT=Earning After Tax instead of ACF EAT+Depreciation=ACF
CI=Cash Inflows =All the cash profits after tax earned through out the life of the investment + salvage + working capital realized at the end of the project	CO=Cash Outflows= All the capital exp. Net off cash receipts.+ working capital invested	F.V.=Future Value R=Interst rate/cost of capital SV=scrap value PV= Present Value NPV=Net Present Value

Method	Expressed In	Bench mark (Basis of Selection)	Formula	When to use
Pay Back Period	Years	Shortest	Recovery time of investment	When no cost of capital is given
Annual Rate Of Return	%	Highest	1) AR / II 2) AR / AI	When no cost of capital is given
NPV	Rs.	Greatest Value	Discounted CI - Discounted CO	When two projects is same in all aspects ie. No disparity
IRR	%	Highest	At this rate Discounted CI = Discounted CO and NPV = 1, PI = 1	Rarely used in finding Cost of Capital.
Profitability Index (PI)	Points	Highest	<u>Discounted CI</u> Discounted CO	Size Disparity

EAC (or) EAB	Rs.	EAC = Lowest EAB = Highest	EAC = <u>Discounted CO</u> PV Factor EAB = 1) <u>Discounted CI</u> Annuity Factor 2) <u>NPV</u> PV Factor	Life Disparity
Discounted Pay Back	Years	Shortest	Recovery time of Investment	Break even time

Calculating the Initial Investment			Operating Cash Flows	
Cost Of New Machine } Depreciation +Installation cost } Outlay -Proceeds from sale of Investment +/-Tax on sale of old machine +Opportunity cost +/-change in Working Capital	Xxx Xxx Xxx Xxx Xxx Xxx		(Calculate each year separately) Revenue -Expenses(excluding Depreciation) Profit Before Dep & Tax -Depreciation NetProfit Before Tax -Taxes Net Profit After Tax +Depreciation	Xxx Xxx Xxx Xxx Xxx Xxx Xxx xxx
Initial Investment	Xxx		Cash INFLOWS +Salvage value +Recovery of Working Cap.	Xxx Xxx Xxx

Cash Flow in Replacement Situation		Depreciation base of new machine in replacement situation	
Cost of New Machine +Installation cost +/-Working Capital -Sales proceeds of existing machine -Tax saving on loss on sale of old machine	XX XX XX XX XX	WDV of existing machine +total cost of new machine -sale proceeds of existing machine.	

- **Depreciation** is an imp cash flow when taxation is considered , if no taxation , no Dep.
- Try Only Incremental basis ignore Average Calculation.
- Capital gain arise in the following situations
 - Sales > WDV of the block
 - Block is sold out
 - 100 % Depreciable assets
- Special formula of IRR
 - $LDR + \frac{\text{Annuity Factor at LDR} - \text{Pay back period}}{\text{Annuity factor at LDR} - \text{Annuity Factor at HDR}}$
- **Net advantage of Leasing-calculation of outflows in case of leasing.**
 - +Loss on tax shield of DEP.
 - +Lease payment
 - Tax shield on lease payment
 - +Loss on salvage value
- **Borrowing- calculation of Net cash outflow**
Principal + Interest -(Tax saving on Interest and Dep)= Net cash outflow