



Budgeting & Capital Investment Cost Control & Reduction

Management Priorities in Eye Care Delivery

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Agenda

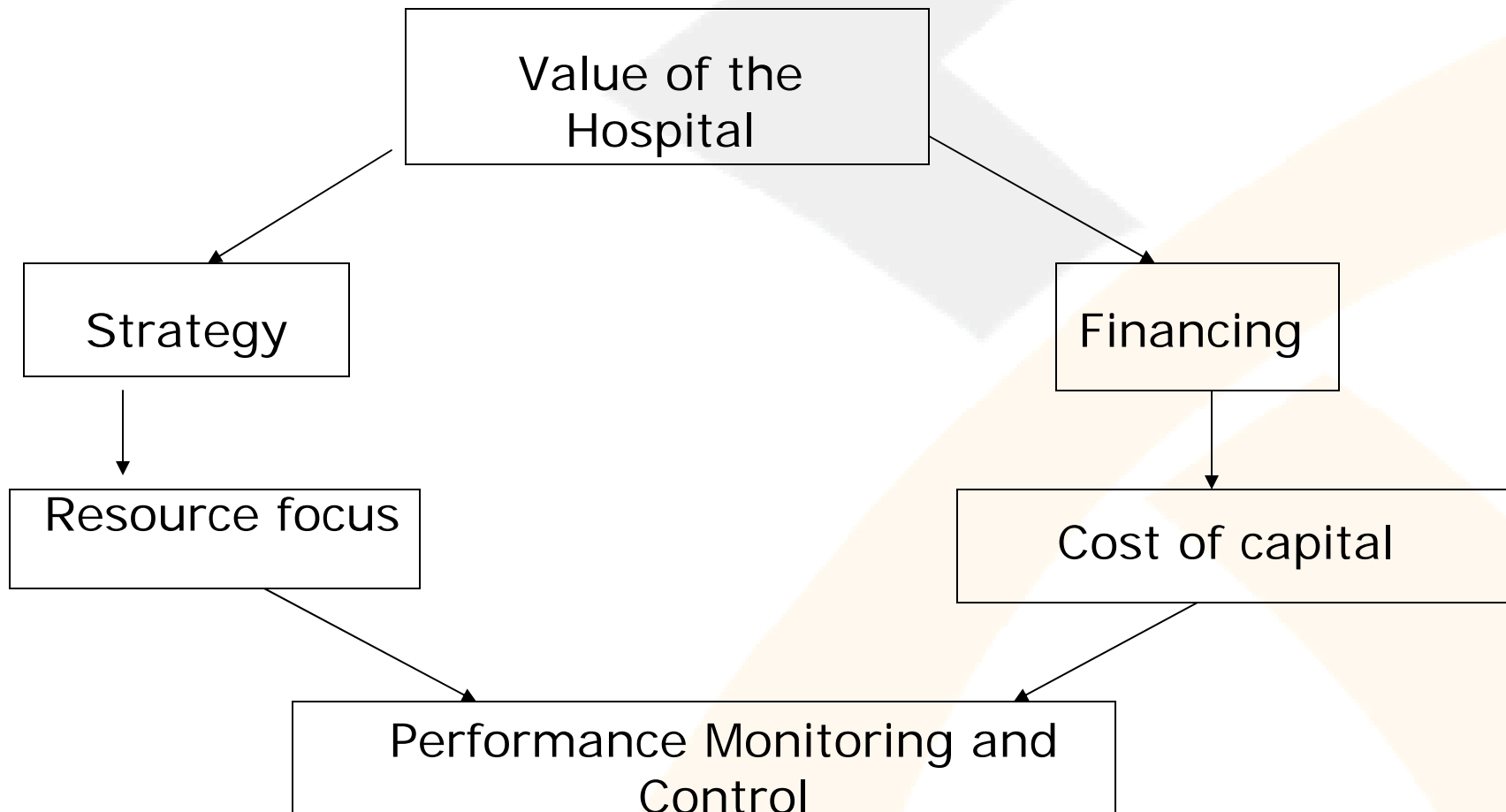
- Budgeting and Capital Investment[1 hour 30 minutes]
- Cost Control & Reduction [1 hour 30 minutes]
- Underlying theme is Finance, Cost and performance metrics and current thinking in management
- An interactive session



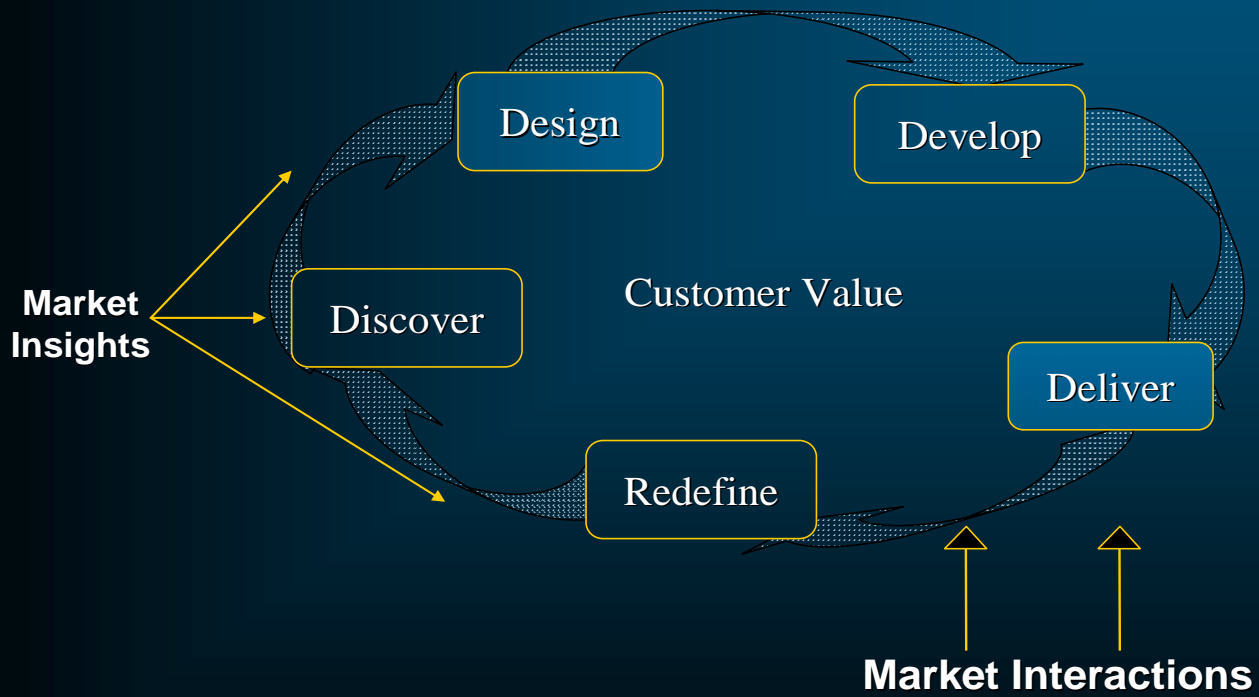
Setting the context

- Resource Management for creating value
- Continuous management of Value spiral
- Customer Value Add[CVA]
- Economic Value Add[EVA]

Value Network



Value is a Spiral ... not a Chain!





Pre-requisites for success

- Define customer value[price/performance ratio]
- Balanced score card approach
- Use of Metrics and alignment
- Process centric approach[scale and consistency]
- Activity based costing and management
- Use of Technology[scale and consistency]
- Knowledge Management



The Five Critical C's

- Customer
- Competition
- Competence
- Cost
- Change
- Know your customer, Know your product and Know your competitor and know your cost



Role of Finance & Accounting

- Accounting cycle, income statement and Balance sheet
- Cost accounting and management

Jackson Hospitals		
Balancesheet as on		
(Rupees Lakhs)		
	Year 1	Year 2
Shareholders funds	7692	12193
Long term debt	2750	3056
Total	10442	15249
Next fixed assets	4073	5160
Current assets		
Inventories	4032	8220
Accounts receivable	5227	7380
Cash	1617	2020
	10876	17620
Current liabilities		
Creditors	2479	4033
Accrued expenses	2028	3498
	4507	7531
Net current assets	6369	10089
Total	10442	15249

Jackson Hospitals		
Profit and Loss account		
(Rupees Lakhs)		
	Year 1	Year 2
Net sales	32513	48769
Cost of goods sold	19183	29700
Gross profit	13330	19069
operating expenses	10758	16541
Interest expenses	361	517
Profit before tax	2211	2011
tax	1040	704
Profit after tax	1171	1307



Performance Summary

ROS	3.60%	2.68%
ATO	3.11	3.20
Leverage	1.36	1.25
RON	15%	11%

Understanding Cost behavior

Cost per cataract Surgery at different performance levels			
Cataract Surgical Volume per year	Fixed cost per cataract	Variable cost per cataract	Total cost per cataract
500	1000	160	1160
1000	500	160	660
1500	333	160	493
2000	250	160	410



Understanding Cost behavior and management

Annual performance:

Out-patient visits	20000
Admissions	600
Cataract/IOL surgery	500
Other surgeries	50

Understanding Cost behavior and management

Annual expenditure(Based on costs in India expressed in US\$)	
Fixed costs:	
Salary	35200
Electricity	1330
Maintenance	1250
Other fixed costs	2220
Total fixed costs	40000
Variable costs(for cataract surgery only)	
Suture,drugs	2660
IOLs(450 at US \$ 6 per IOL)	2700
Instruments replacement	750
Stationery	230
Other variable costs	660
Total variable costs	7000

Understanding Cost behavior and management

Unit cost per cataract Surgery (expressed in US dollars)

Assuming that 80% of fixed costs are incurred in providing cataract surgery, cost per surgery for the current output, for 1000 surgeries and at capacity of 2000 surgeries

Number of cataract surgeries	Total fixed cost	Unit Fixed cost	Unit Variable cost	Total cost
500				
1000				
2000				

Understanding Cost behavior and management

Number of cataract surgeries	Total fixed cost	Unit Fixed cost	Unit Variable cost	Total cost
500	32000	64	14	78
1000	32000	32	14	46
2000	32000	16	14	30

Understanding Cost behavior and Profit planning

Lasik surgical procedures	
Fixed expenses	
Salary	420000
Maintenance	1700000
Electricity	380000
Rent	60000
Overheads	24000
Depreciation @20%	4000000
Interest @12%	2400000
Fixed cost	8984000

Understanding Cost behavior and Profit planning

Total Variable expenses	
Mocrokeratome blade	1000
Gas	220
Disposables	50
Medical supplies	50
Variable cost per procedure	1320
Procedure per year	800
Variable cost per year	1056000

Understanding Cost behavior and Profit planning

Volume	800	900	1000	1100
Fixed expenses				
Variable expenses				
Total expenses				
Charges per procedure	12000	11900	11700	11000
Total revenue				
Net surplus/loss				

Understanding Cost behavior and Profit planning

Volume	800	900	1000	1100
Fixed expenses	8984000	8984000	8984000	8984000
Variable expenses	1056000	1188000	1320000	1452000
Total expenses	10040000	10172000	10304000	10436000
Charges per procedure	12000	11900	11700	11000
Total revenue	9600000	10710000	11700000	12100000
Net surplus/loss	-440000	538000	1396000	1664000

Understanding Cost behavior and Profit planning

Contribution Approach to Profit Planning				
Volume	800	900	1000	1100
Charges per procedure	12000	11900	11700	11000
Total revenue				
Variable expenses				
Contribution				
Fixed expenses				
Net surplus/loss				
Contribution/sales ratio				
Fixed expenses/contribution				
Fixed expenses/(contribution/sales)				

Understanding cost behavior and profit planning

Contribution Approach to Profit Planning				
Volume	800	900	1000	1100
Charges per procedure	12000	11900	11700	11000
Total revenue	9600000	10710000	11700000	12100000
Variable expenses	1056000	1188000	1320000	1452000
Contribution	8544000	9522000	10380000	10648000
Fixed expenses	8984000	8984000	8984000	8984000
Net surplus/loss	-440000	538000	1396000	1664000
Contribution/sales ratio	0.89	0.89	0.89	0.88
Fixed expenses/contribution				
Fixed expenses/(contribution/sales)	10094382	10104877	10126474	10209091



Test-1

- Charges per procedure-10000
- Variable cost per procedure-4000
- Fixed Expenses-8000000
- What is the number of procedures to be performed to break even?
- What is the number of procedures to be performed to make a profit of 1000000
- What is the next logical question?



Test-2

- St. Vincent Hospital has overall variable cost of 30% of total revenue and fixed cost of 42 million per year
- Compute the breakeven point in revenue terms
- If the capacity is 50000 patient days, what is the average daily revenue per patient to breakeven



Test-3

	Period-1	Period-2
Revenue	1000000	1400000
Profits	50000	130000

What is the contribution/sales ratio?

What is the contribution at sales of 1500000

What is the Fixed cost?

What is the break even point?

Profit Planning approach

Resources:		
Facilities:		
Beds	50	
Equipped Operation Theater	1	
IOL Surgery sets	2	
Staff:		
Ophthalmologists	2	
Paramedics	9	
Housekeeping staff	6	
Office & Security staff	6	
Capacity of the above resources:		
From bed capacity perspective:	4000 surgeries	80 surgeries per bed
From Staff perspective:	2000 surgeries	1000 surgeries per surgeon



Budgeting nuances

- Incremental budgeting
- Performance budgeting
- Zero base budgeting
- Activity based budgeting
- Target costing

Factors Contributing to Cost Containment¹:

Parameters	Factors affecting Cost Containment
1. Leadership and Attitude	<ul style="list-style-type: none">▪ Concerned about cost▪ Instituting a culture of cost consciousness▪ Being available for timely decisions▪ Viewing patient as partner in the healing process
2. Increasing the uptake for eye care services	<ul style="list-style-type: none">▪ Forecasting & planning for expected workload▪ Utilisation of community resources
3. Human Resources	<ul style="list-style-type: none">▪ Job Description▪ Workload variations Vs manpower planning▪ Recruitment and selection▪ Employee retention
4. Building and Infrastructure	<ul style="list-style-type: none">▪ Appropriate size and design▪ Appropriate building technology and material▪ Flexible & functional building design▪ Durability and ease of maintenance
5. Supplies, Instruments & Equipment	<ul style="list-style-type: none">▪ Group purchasing▪ Inventory management▪ Models easy to repair and service▪ Appropriate technology▪ Preventive maintenance
6. Systems & Procedures	<ul style="list-style-type: none">▪ Standardisation▪ Periodic review to eliminate redundant systems▪ Level of control over finances, purchases and personnel

Cost Containment Strategies:

- Daily Planning: In addition to long range or annual planning it is essential to plan for the next day and ensure that all resources/supplies are organised and all concerned staff are informed. The patient load, availability of staff and requirement of supplies can be determined with a high level of reliability the previous day. Emergency procurements and delays in service delivery increase the cost.
- Clinical Process: A patient protocol based on integrated path for diagnosis, investigations, admission, surgery and follow-up would substantially reduce delays and associated costs.
- Personnel Costs: Hospital is a labour intensive organisation. Staff salaries constitute a major percentage of the total operating expenditure. Hence it is important that salary packages are designed keeping this in view. Incentives linked to surgeries adversely affect the cost reductions that come from increased productivity.
- Work Culture: Developing a positive work culture reduces bureaucracy, promotes teamwork and a commitment to patient care. All of these have a very direct impact on costs.

- Local Production of Consumables⁴: Many housekeeping supplies, bandages, cotton pads, swabs, etc. can be produced locally (if less expensive than buying them). This also gives an opportunity to use the clinical staff when there is no patient care.
- Managing Seasonal Variations⁵: Productivity is governed by the patient load, which tends to have seasonal and also daily fluctuations. Hence it is necessary to find ways to ensure uniform demand and when this is not possible, activities like staff training, painting the building or vacation time for staff can be scheduled accordingly.
- Appropriate Use of Human Resources: Since salaries are a major element of the fixed costs, it requires special attention. The ophthalmologists' time is both expensive and in limited supply. Delegating routine, repetitive and measurement related clinical tasks to well trained ophthalmic technicians can significantly increase the productivity of the ophthalmologists.
- Community Participation in outreach: One resource that is hardly used, when compared to its potential, is the community. In many programmes, the hospital staff does the publicity, arrange a campsite, necessary furniture, etc. All these activities can easily be done by the community and in all cases done better and often at no cost to the hospital. When the community come in as equal partners, the camp attendance also goes up.
- Other Strategies: These include developing in-house competence for Instruments/Equipment maintenance, instituting appropriate recycling systems for waste products, regular review of cost data and administrative systems like daily review of revenues and expenditures, control over expenses through formal procedures for approval, and independent audit of all internal records.



Capital Budgeting

- Long term investment decisions which provides the base for revenue generation
- Examples-investment in technology, building, equipments etc
- Decisions result in cash flows over a period of time and hence analysis of time value of money is the basis



TIME VALUE OF MONEY

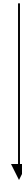


What is Time value of money?

- Business transactions results in cash flows
- Cash flows can mean cash-inflows or cash-outflows
- Cash flows occurring at different points of time have different values today
- Todays value is known as present value
- Hence, timing and magnitude becomes important criteria for evaluating alternatives

How do we measure time value of money?

Underlying principle



Earlier the cash flow higher its present value

How do we measure time value of money?

- Underlying concepts

- Future value
- Present value
- Discount rate
- Time

Compounding

Discounting



What is future value?

- You are investing Rs. 10000 today in a bond for 5 years at 14 % rate of interest compounded annually. How much will you receive after five years?



How to compute future value?

Future value (FV) = $P(1+r)^n$

P=Present value

r= rate of interest or discount

n= number of periods



How to compute future value?

$P=10000, r=.14, n=5$

$FV=10000(1+.14)^5$



How do we measure time value of money?

- What is the amount of cash flow involved?
- When is it occurring?
- What is the discount rate?(cost of capital)



How to compute future value? Contd..

- In the same example, if the compounding is done every half year, what is the future value?

If 'm' is the number of compounding and n to nm
Change r to r/m



How to compute future value? Contd..

- $FV = P(1 + (r/m))^{nm}$
- $FV = 10000(1 + (.14/2))^{(5*2)}$
- $FV = 10000(1 + .07)^{10}$

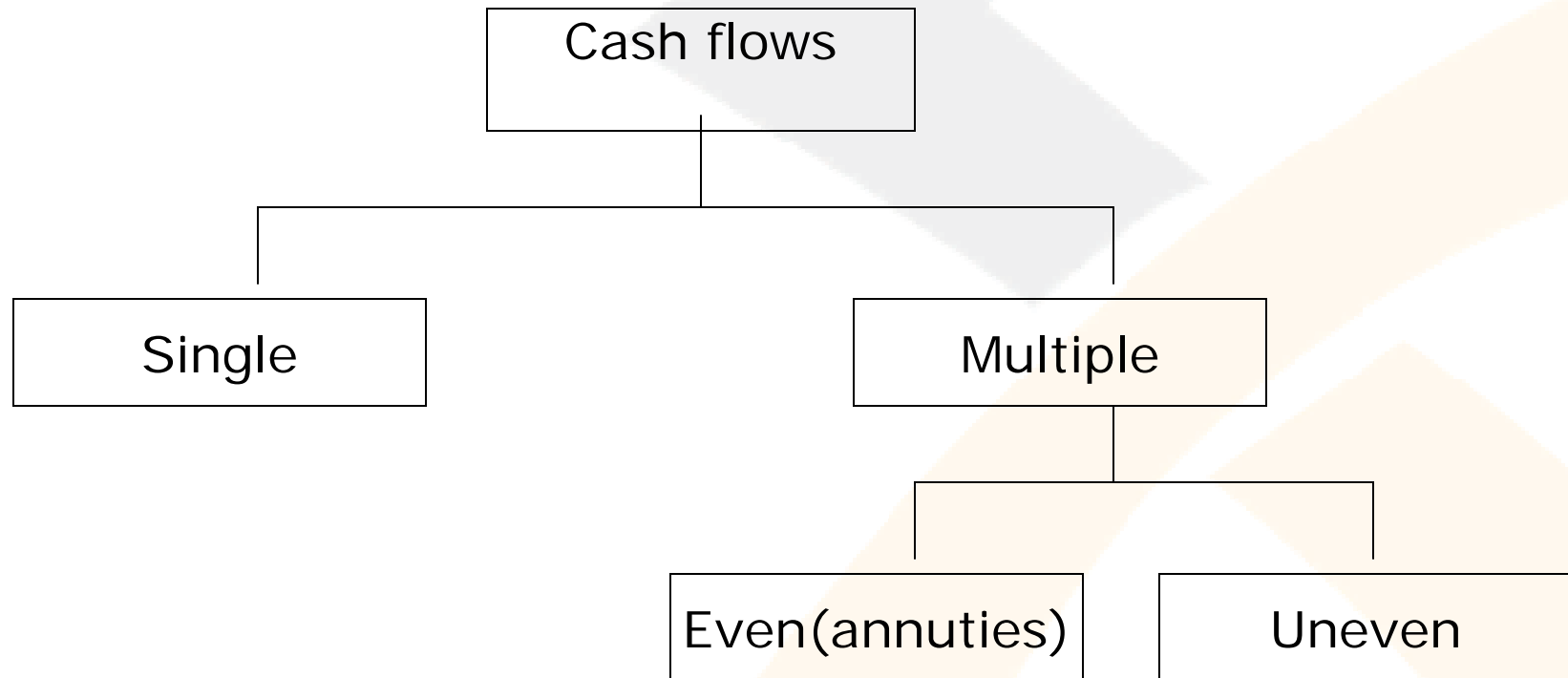


What is the underlying principle in future value?

The underlying principle is the compound interest concept

Can you distinguish between simple and compound interest?

Types of cash flows





Even cash flows

0	1	2	3	4	5	6
<hr/>						
100	100	100	100	100	100	

Can you think of two examples of even cash flows?

What is present value?

Recall future value formula

$$\text{Future value(FV)} = P(1+r)^n$$

P=Present value

r= rate of interest or discount

n= number of periods?

Can we derive present value formula from future value formula?



What is present value given future value?

$$\text{Future value(FV)} = P(1+r)^n$$

P=Present value

r= rate of interest or discount

n= number of periods

$$P = \text{FV} / (1+r)^n$$



What is present value?

- Your friend approaches you for a loan of Rs.10000 and promises to repay 30000 after 5 years. How will you evaluate your friend's proposal?



What is present value?

- What is your time preference rate?
 - The best return that you can get for your investments commensurate with your risk taking abilities
- Assume that it is 15%, you can ask what is the present value of Rs.30000 to be received after 5 years, today.



What is present value?

- $FV = 30000, r = .15, n = 5$, then
- $PV = FV / (1 + r)^n$
- $PV = 30000 / (1 + .15)^5$



Future and present values

Future value

0 (10000)

n



Present value

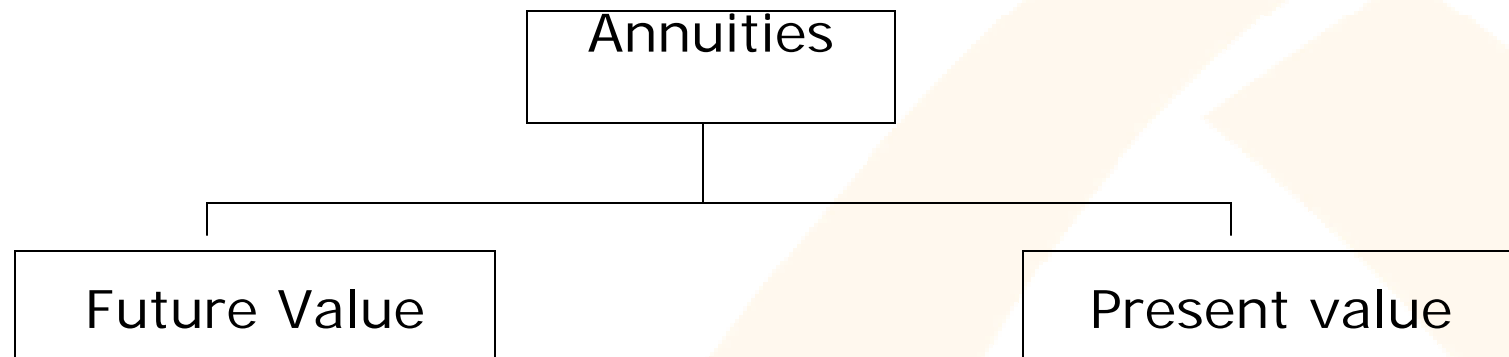
0

n



What are annuities?

Annuities means any periodical even cash flows-example insurance premium, interest on bond etc





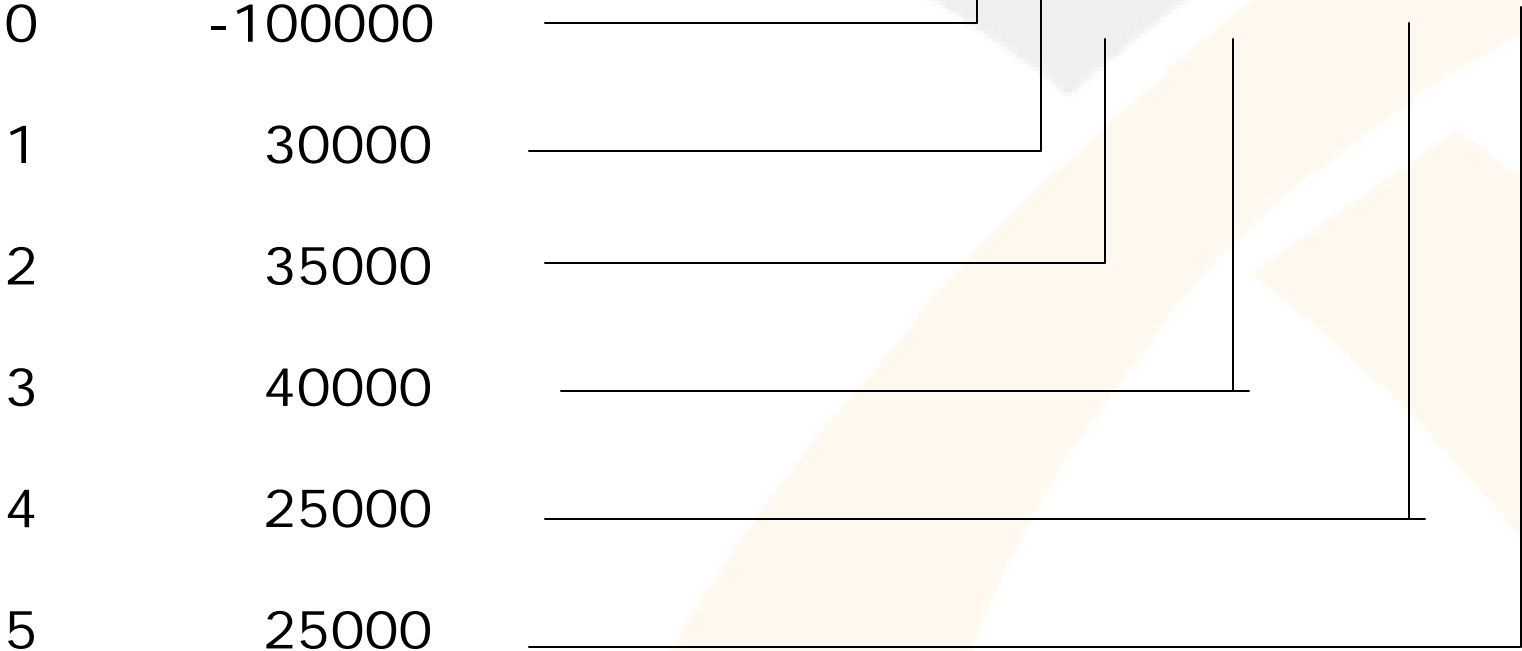
Net Present value

- An investment of Rs.100000 in a machinery is expected to fetch a return of 0000,35000,40000,25000 and 25000 in the first,second,third,fourth and fifth year. Is the project viable at 18% cost of capital?



Net Present value

Cash flow pattern



Net present value

Decision rule

Net present value > 0 , project is financially viable



Internal rate of return(IRR)

- For the same project, what is the rate of interest at which the project is repaying the original investment? In other words, what is the inherent rate of interest in the cash flow of the project? This is known as IRR. This must be more than the cost of capital



Internal rate of return

Cash flow pattern

0	-100000 / (1 + irr) ⁰ =	
1	30000 / (1 + irr) ¹ =	+
2	35000 / (1 + irr) ² =	+
3	40000 / (1 + irr) ³ =	+
4	25000 / (1 + irr) ⁴ =	+
5	25000 / (1 + irr) ⁵ =	+
•	Total	0



Applications of NPV and IRR

- NPV and IRR are used to evaluate capital investment proposals. A capital investment project will be accepted if its NPV is positive or its IRR is greater than the cost of capital.



Summary

- Are you clear about
 - Compounding
 - Discounting
 - Discount factor, cost of capital, time pref rate
 - Future value of single cash flow
 - future value of annuity
 - Present value of single cash flow
 - Present value of annuity
 - NPV and IRR

Capital Budgeting-illustration

Economics of Ophthalmic Equipment

Capital Investment Analysis-lasik equipment						
Cost Details	0	1	2	3	4	5
Initial cost						
Eximer laser	16555000					
Microkeratome	2365000					
Instrument sets	50000					
Sterliser	225000					
Topography m/c	946000					
Total investment	20141000					

Capital Budgeting-illustration

Operating expenses						
Salaries and benefits	420000	420000	420000	420000	420000	420000
Maintenance		1700000	1700000	1700000	1700000	1700000
Rent	60000	60000	60000	60000	60000	60000
Electricity	380000	380000	380000	380000	380000	380000
Overheads	24000	24000	24000	24000	24000	24000
Variable expenses	1056000	1188000	1320000	1452000	1584000	1584000
Depreciation	5000000	3750000	2812500	2109400	1582000	1582000
Expenses per year	6940000	7522000	6716500	6145400	5750000	5750000

Capital Budgeting-illustration

operating revenues						
procedure per year		800	900	1000	1100	1200
charge per procedure		10000	10000	10000	10000	10000
Revenue per year		8000000	9000000	10000000	11000000	12000000
Net surplus		1060000	1478000	3283500	4854600	6250000
Cash flow	-20141000	6060000	5228000	6096000	6964000	7832000
Cost of capital	14%					
Net Present value	1503134.51					
IRR	17%					

Economics of Ophthalmic Equipment

Capital Investment Analysis-lasik equipment						
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Cash flow	-20141000	6060000	5228000	6096000	6964000	7832000
Cost of capital	14%					
Net Present value	1503134.51					
IRR	17%					



Thank you



ABC in Healthcare

Case of Western Dialysis

- Independent non profit full service renal dialysis clinic
- Services offered-Hemo dialysis[HD] and Peritoneal dialysis[PD]
- HD requires patients to visit the clinic
- PD allows patients to administer treatment at home

Income Statement					
Revenues		Total	HD	PD	
	Number of patients	164	102	62	
	Number of treatments	34067	14343	20624	
	Charge Per treatment		129.7	55.59	
	Total revenue	3006775	1860287	1146488	
Supply costs					
	Standard supplies	664900	512619	152281	Direct
	Episodic Supplies	310695	98680	212015	
	Total supply costs	975595	611299	364296	
Service costs					
	General overheads	785825			RCC method
	Depreicaiton	137046			
	Nursing services	883280			
	Total	1806151	1101752	704398.9	
	Total operating expenses		2781746		
	Net income		225029.3		

Treatment wise Profitability

	HD	PD
Average revenue	129.70	55.59
Average cost	119.43	51.82
Profit per treatment	10.27	3.77

Phase-I ABC

	Total	Cost Driver	
Facility cost	233226	square foot	
Administration	354682	Number of patients	
Communication system	157219	Number of treatments	
Utilities	40698	KWH	
	785825		
	HD	PD	Total
Squarefoot	18900	11100	30000
Number of patients	102	62	164
Number of treatments	14343	20624	34967
KWH	563295	99405	662700
	HD	PD	Total
Facility cost	146932.4	86293.62	233226
Administration	220594.9	134087.1	354682
Communication system	64489.15	92729.85	157219
Utilities	34593.3	6104.7	40698
Depreciation	83598.06	53447.94	137046
Nursing(85% :15%)	750788	132492	883280
Total Operating cost	1300996	505155.2	1806151
Total cost	1912295	869451.2	2781746

Revised Profitability

Revised Profit statement	HD	PD
Average revenue	129.70	55.59
Average cost	133.33	42.16
Profit per treatment	-3.63	13.43