

COST MANAGEMENT THEORY

For CA Final

*Some Areas in Cost Management syllabus
which are vulnerable and can be asked
in the exams*

*Prepared on the basis of CA Institute's Material
for Cost Management (CA Final)*

SK
Bellary, Karnataka

PROLOGUE

This material has been prepared exclusively and absolutely from the point of view of the exams. As a result, this material is strictly not recommended to students who are having objective other than passing the exams *with least effort*.

As seen in the exams, the theoretical part though, may cover substantial marks, is *usually* asked for not more than 5 marks per question. Keeping in view the pattern of theoretical questions in exams, some of the topics which are very vulnerable of being asked are jotted down in the enduring part of this material.

Chief efforts of students have to be directed towards the practical aspects of the syllabus, with special attention to Marginal Costing, Standard Costing and Quantitative Techniques. Hence as a time saver, this material can be referred to cover the theoretical part of the question paper to be confronted in the exams. Remember, One cannot read and retain every other thing found in the syllabus. One has to limit the coverage, but rationally, which has been attempted here.

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1. JUST-IN-TIME APPROACH

- MAJOR OBJECTIVES:

- i. Producing only what is actually needed.
- ii. Elimination of wastes

- INVOLVES:

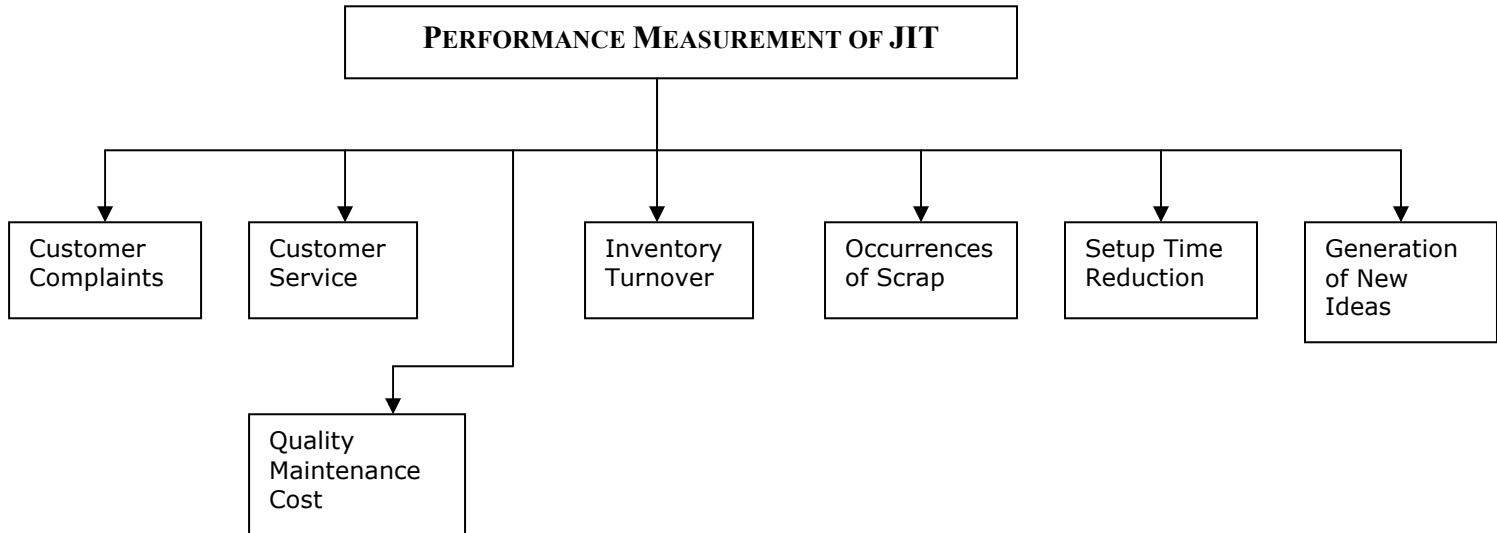
- i. Ensuring receipt of materials on exact date and exact time.
- ii. Delivery directly to production floor.
- iii. Engineering staff to visit supplier to inspect their quality control check
- iv. Installing a simple system
- v. Shortening setup time
- vi. Reducing scrap costs
- vii. Reducing WIP inventory
 - a. Using "KANBAN CARD" system and
 - b. Implementing "Work Cell" or "Machine Cell" Concept.
- viii. Single Consolidated Monthly Payment to Supplier
- ix. Reducing Wastage in Time, Assets and Materials

- IMPACT OF JIT(ADVANTAGES):

- i. Reduces Wastage in Time, Assets and Materials
- ii. Helps in Identifying Defective Parts in Production immediately.
- iii. Reduces Overheads and other costs pertaining to:
 - a. Material Handling
 - b. Quality Inspection
 - c. Interest
 - d. Insurance
 - e. Taxes
 - f. Warehouses – Rent, Employee Cost, Equipments.
- iv. Reduces Working Capital Level
- v. Reduces Inventory of all Types
- vi. Improves Quality of Product
- vii. Fastens Delivery Time
- viii. Reduces Customer Complaints
- ix. Improves Inventory Turnover Eg: Toyota Co. – improved to 70%

- PERFORMANCE MEASUREMENT OF TRADITIONAL SYSTEM NOT APPLICABLE JIT APPROACH:

- i. Machine Utilisation:
 - Involving measurement of performance w.r.t Speed, Automation, Size. Not of any use in JIT as JIT does not require to Pile up the inventory of finished goods.
- ii. Piece Rate System:
 - Avoid Piece Rate System in JIT as JIT will not reward or give incentive to workers who pile up the inventory. Time Rate system is recommended.
- iii. Direct Labour Tracking:
 - Attendance of Workers, Time sheet, clocking Barcoded IDs, etc. Avoid DL Tracking as these are non-value added activities. This makes people work faster without giving importance to quality.



2. BACK FLUSHING

- FEATURES

- No Data Entry is made in the Accounting system till **production of product is complete.**
- Entry of Total Quantity finished is only entered in the system at the end of the production.
- Using the data in the Bill of Materials (BoM), the info regarding the quantity of materials used in the production process is ascertained. (*Hence called "Back Flush Accounting"*)
- Adjustments to the Inventory of Materials is made from the data obtained in (iii)

- PROBLEMS IN BACK FLUSHING OR BACK FLUSH ACCOUNTING :

- Production Reporting** – has to be very correct as it is the only input available to update Inventory. Any error will result in mayhem in the Inventory records.
- Scrap Reporting** – has to be tracked and recorded properly else may lead to misappropriation and errors.
- Lot Tracking** – becomes impossible.
- Inventory Accuracy** – cannot be justified always. Some elements of doubts are always lingering.

3. TARGET COSTING (TC)

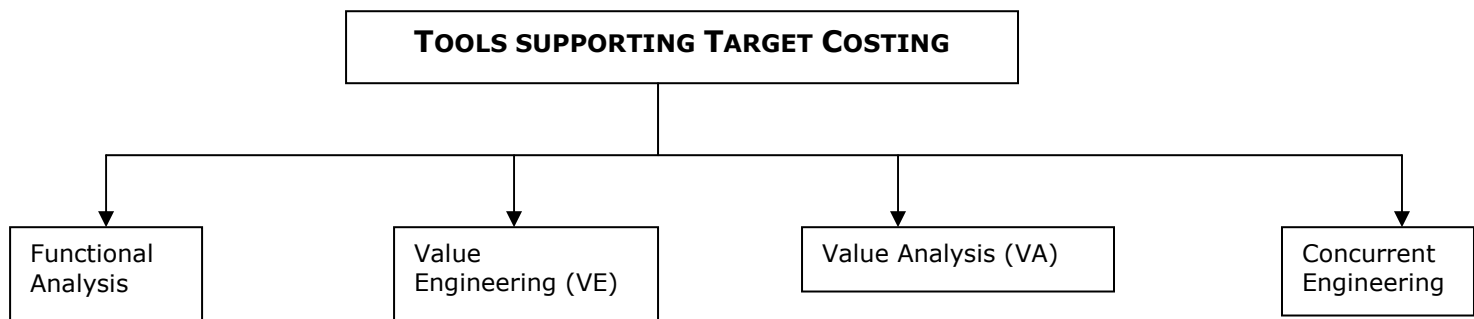
- DEFINITION :

"A Structured Approach to determining the cost at which a proposed product with specified functionality and quality must be produced, to generate a desired level of profitability at its anticipated selling price."

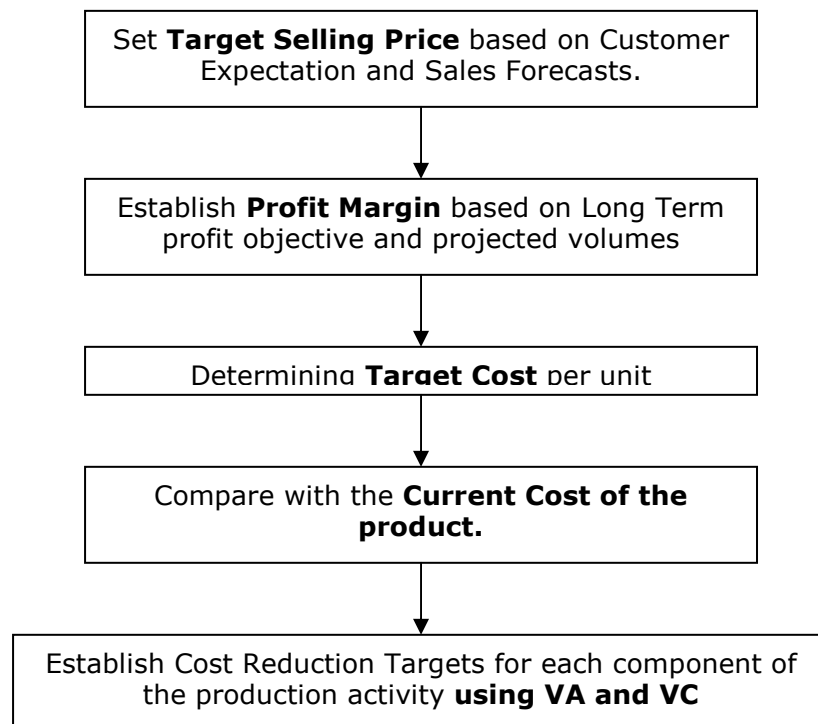
--- It is an important part of a comprehensive management process aimed at helping an organization to survive in an increasingly competitive environment

--- It is a misnomer; it is not a product costing system but rather a management technique aimed at reducing a product's life cycle cost

--- Target Costing becomes useful or can be considered inevitable when **majority of product costs are locked in during the product design phase**



- STEPS INVOLVED IN TARGET COSTING:



- VALUE ANALYSIS:

Study of Activities involved in producing the product to detect **NON-VALUE-ADDED ACTIVITIES** which can be eliminated or minimized to save costs, but without adversely affecting the functionality or quality of the product.

- VALUE ENGINEERING:

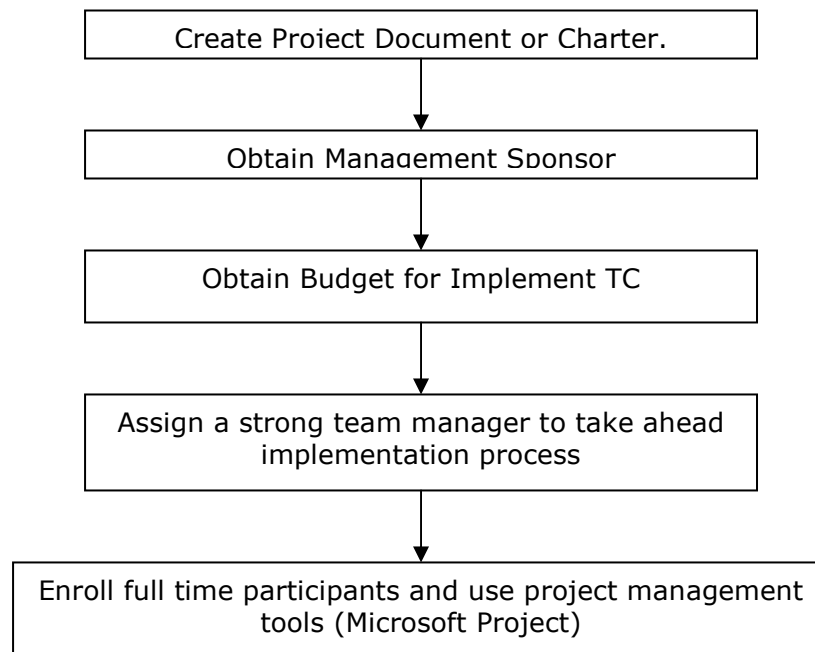
Searching for Opportunities to modify the design of each component or part of the product to reduce cost, but without reducing functionality or quality of the product.

- PROBLEMS WITH TARGET COSTING:

- i. Lengthy Development Process
- ii. Mandatory Cost Cutting result in reduced employee or worker morale due to finger pointing especially employees, making it burdensome to provide disproportionately large part of savings.
- iii. Difficulty to reach consensus because of *several minds representing no. of dept.s*

- IMPLEMENTING TARGET COSTING IN THE ORGANISATION:

- i. Requires participation of several dept.s
- ii. Requires motivation of management
- iii. No Delay should occur in implementing target once designed else, it will lead to serious cost overruns in the design cost and ultimately results in abrupt termination of entire TC.

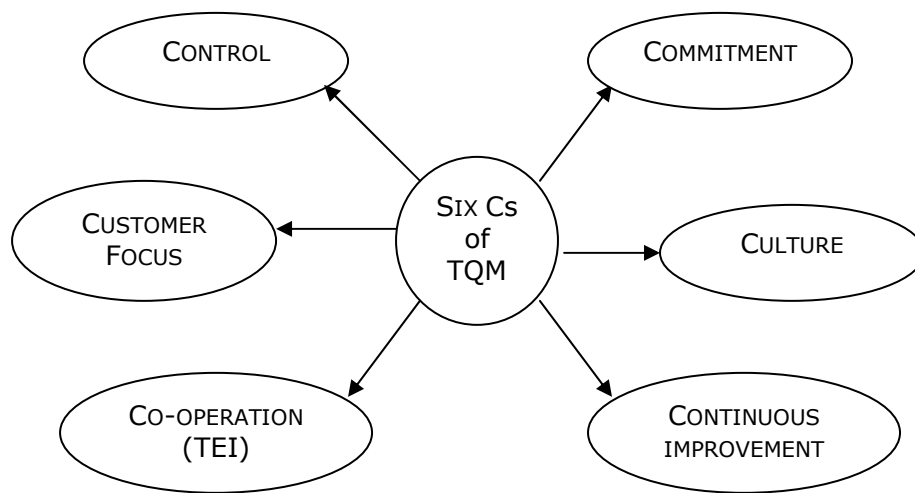


4. KAIZEN COSTING

- A Japanese Term representing a number of cost reduction steps that can be used subsequent to issuing a new product design to the factory floor
- Steps involved are similar to Value Engineering Phase, But VE is **more active in the initial phase** of product development and relatively passive in the subsequent stages. *Kaizen Costing is active in all stages of product development*
- Cost Reduction through KC results in less impact vis-à-vis VE but are still worth the effort since competitive pressures are likely to force down the price of a product over time.
- Market Price continues to drop over time, which forces a company to use target and Kaizen Costing to reduce cost and retain its profit margin. However prices eventually drop to the point where profit margins are reduced, which forces the company to develop a new product with lower initial costs and for which Kaizen Costing can be used again to further reduce costs.

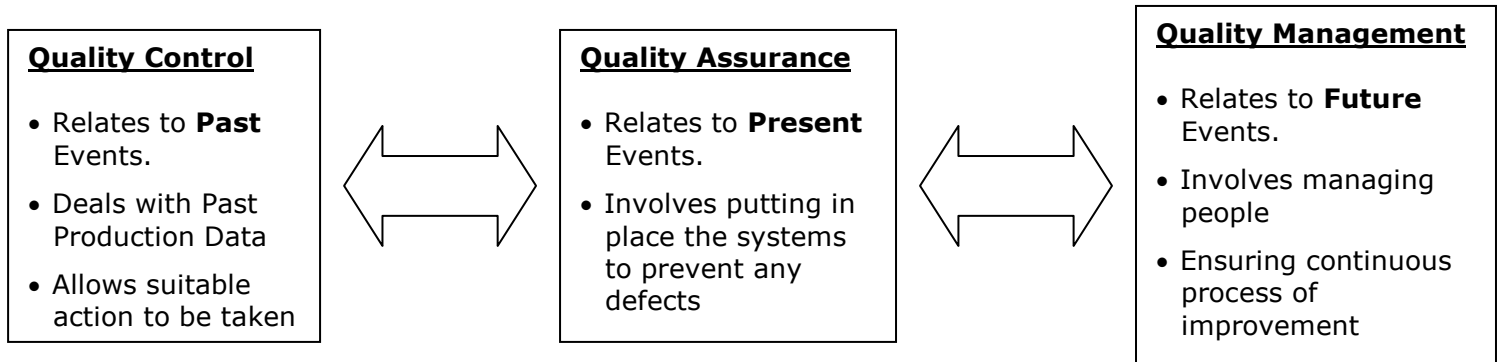
5. TOTAL QUALITY MANAGEMENT

- It is too often viewed as a technique whose usefulness is confined to manufacturing processes.
- TQM assumes potentially greater importance as a tool for improved efficiency in service areas
- W. Edward Deming and Joseph Juran were the original proponents of alternative versions of TQM. They are joined by Crosby and Feingbaum in the US in popularization of TQM.
- TQM seeks to increase customer satisfaction by finding the factors that are limiting current performance. The practice of TQM in a manufacturing environment has produced tangible improvements in efficiency and profitability as a result of small improvements.

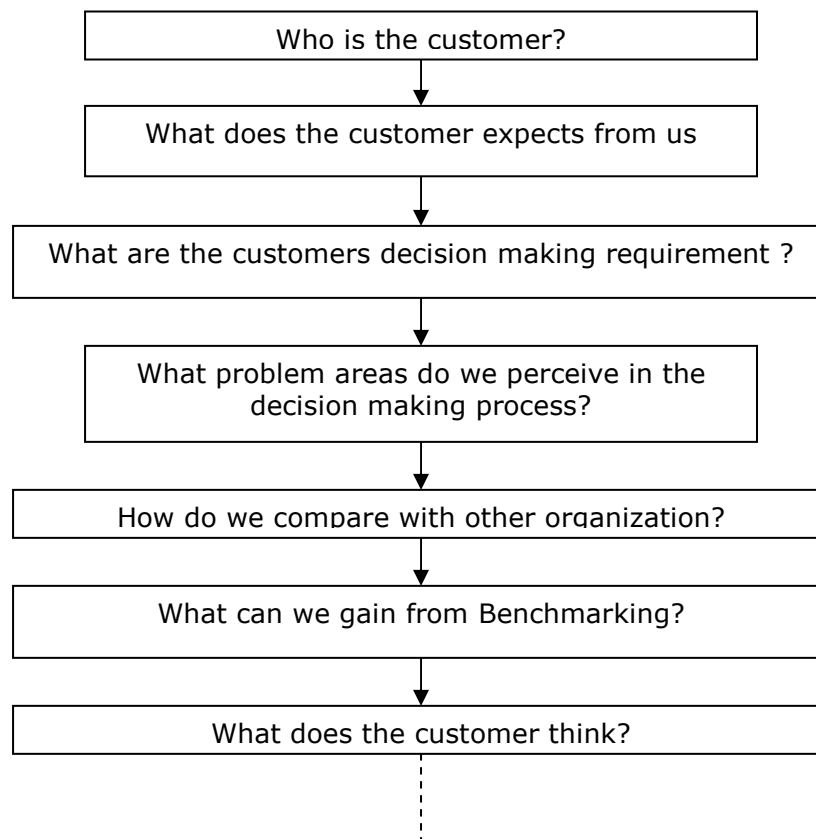


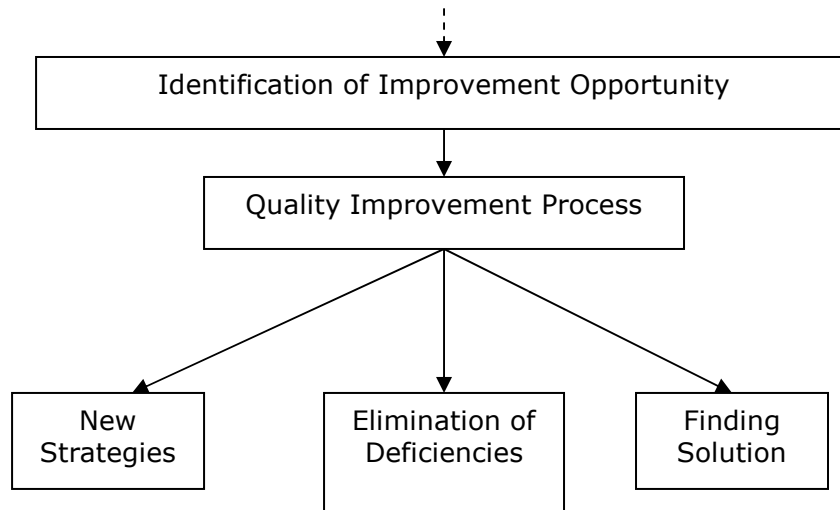
- i. **Commitment** : Commitment for improving quality
- ii. **Culture** : TQM aims at changing culture and attitude
- iii. **Continuous Improvement** : TQM is a process (a continuous one) and not a programme.
- iv. **Co-operation** : Total Employee Involvement (TEI)
- v. **Customer Focus** : Perfect Service with zero defects, needs of the customer are the major driving thrust.
- vi. **Control** : Control over the process and the organization.

• QUALITY CONTROL VS. QUALITY ASSURANCE VS. QUALITY MANAGEMENT



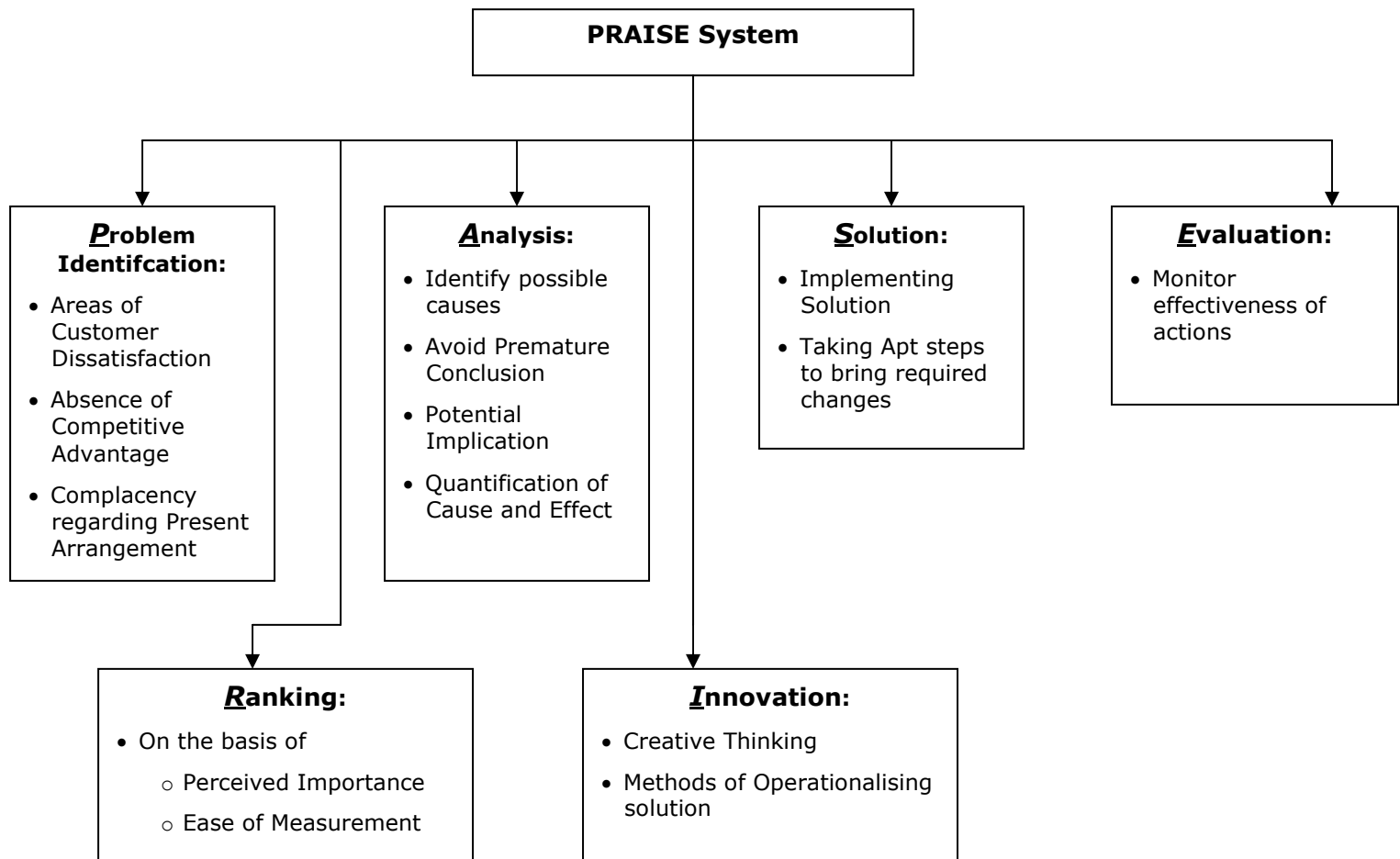
• OPERATIONALISING TQM:





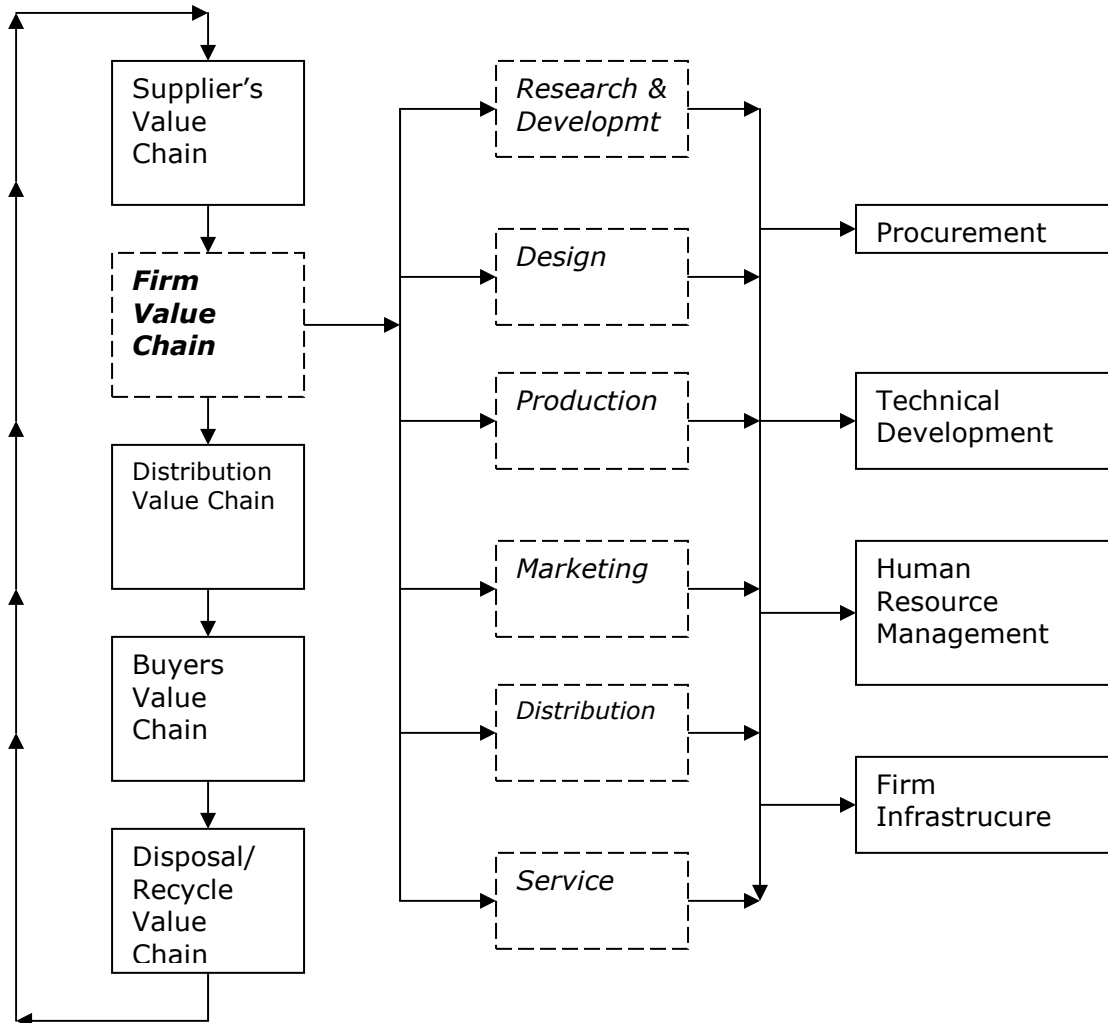
6. PRAISE SYSTEM

- Involves Identification of Improvement Opportunity and Quality Improvement Process.



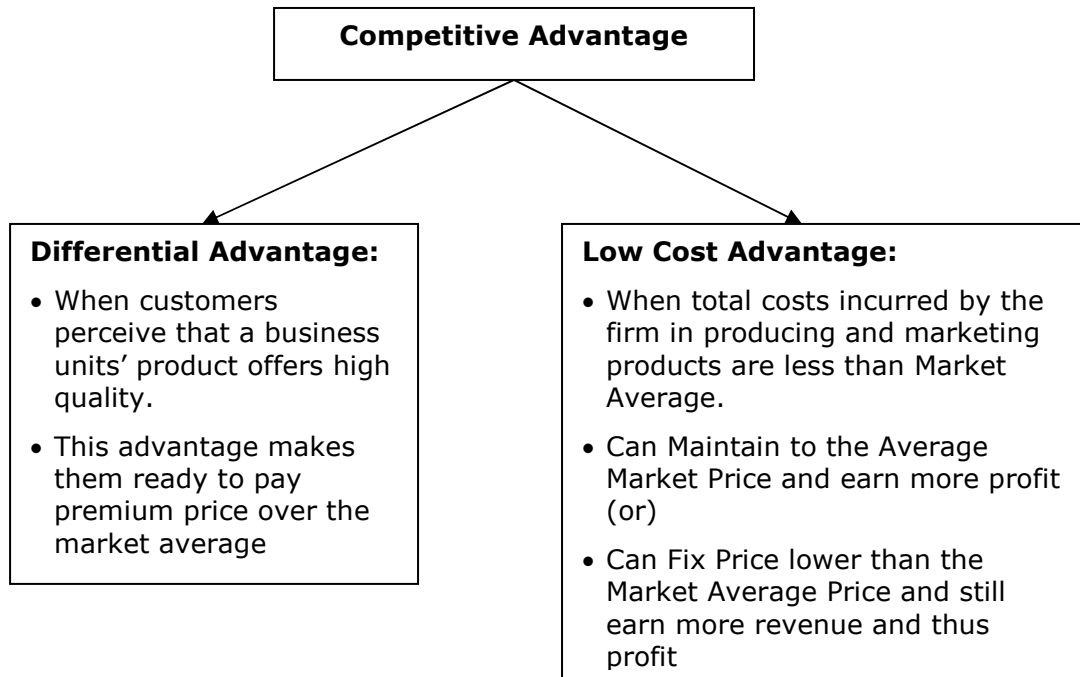
7. VALUE CHAIN ANALYSIS

- A Strategic Tool to measure the importance of the customer's perceived value is known as the Value Chain Analysis.
- By enabling companies to determine the strategic advantages and disadvantages of their activities and value-creating processes in the market place, Value chain analysis becomes essential for assessing competitive advantage.
- The concept, tools and techniques of a value chain analysis apply to all those organization which produce and sell a product or provide a service.
- Porters Definition of Value Chain Analysis:
"Internal Process or activities that a company performs to design, produce, market, deliver and support its product."
- John Shank and V. Govindarajan's Definition:
"The value chain for any firm is the value creating processes or activities all the way from basic raw material sources from compound suppliers through to the ultimate end-use product delivered into the final consumer's hands"



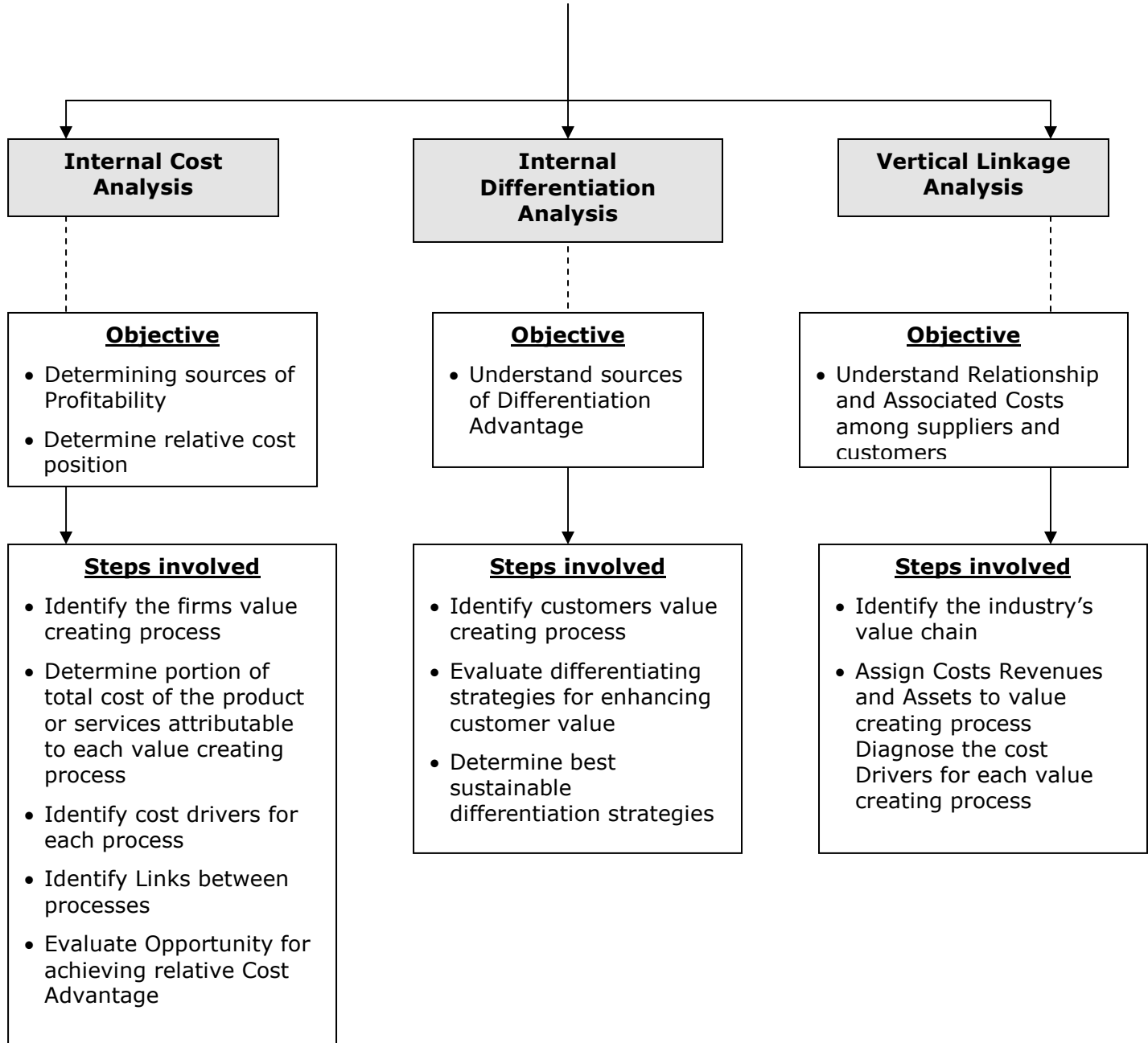
8. COMPETITIVE ADVANTAGE AND CUSTOMER VALUE:

- Secret of Success = Supply what customer want to buy + Service Competition
- Firms' Competitive Advantage = Value offered to customer – Cost of Creating Value
- Two Forms of Competitive Advantage:



RELATIVE DIFFERENTIAL POSITION	<i>SUPERIOR</i>	Differential Advantage	Differential + Low Cost Advantage
	<i>INFERIOR</i>	Stuck-in-the-middle Position	Low – Cost Advantage
		<i>INFERIOR</i>	<i>SUPERIOR</i>
		RELATIVE COST POSITION	

9. ASSESSMENT OF COMPETITIVE ADVANTAGE



10. STRATEGIC FRAMEWORK FOR VALUE CHAIN ANALYSIS

- VC Analysis requires strategic framework for
 - i. Organizing internal and external information
 - ii. Analyzing information
 - iii. Summarizing findings and recommendations

- Three Useful Strategic Framework
 - i. **Industry Structure Analysis:** - Five Factor model developed by Michael Porter, to evaluate potential attractiveness
 - a. Bargaining Power of Buyers
 - b. Bargaining Power of Suppliers
 - c. Threat of Substitute products or services
 - d. Threat of New Entrants
 - e. Intensity of Competition
 - ii. **Core Competence Analysis:** - Identified by following tests:
 - a. Can it be leveraged?
 - b. Does it enhance customer value?
 - c. Can it be imitated?
 - iii. **Segmentation Analysis:** - Industry is a collection of Different Market Segments. Grant's Five Step analysis involves :
 - a. Identify a segmentation variables and categories
 - b. Construct a segmentation matrix
 - c. Analyze segmentation attractiveness
 - d. Identify key success factor for each segment
 - e. Analyze attractiveness of broad versus narrow segment scope

11. VALUE CHAIN ANALYSIS VS. TRADITIONAL MANAGEMENT

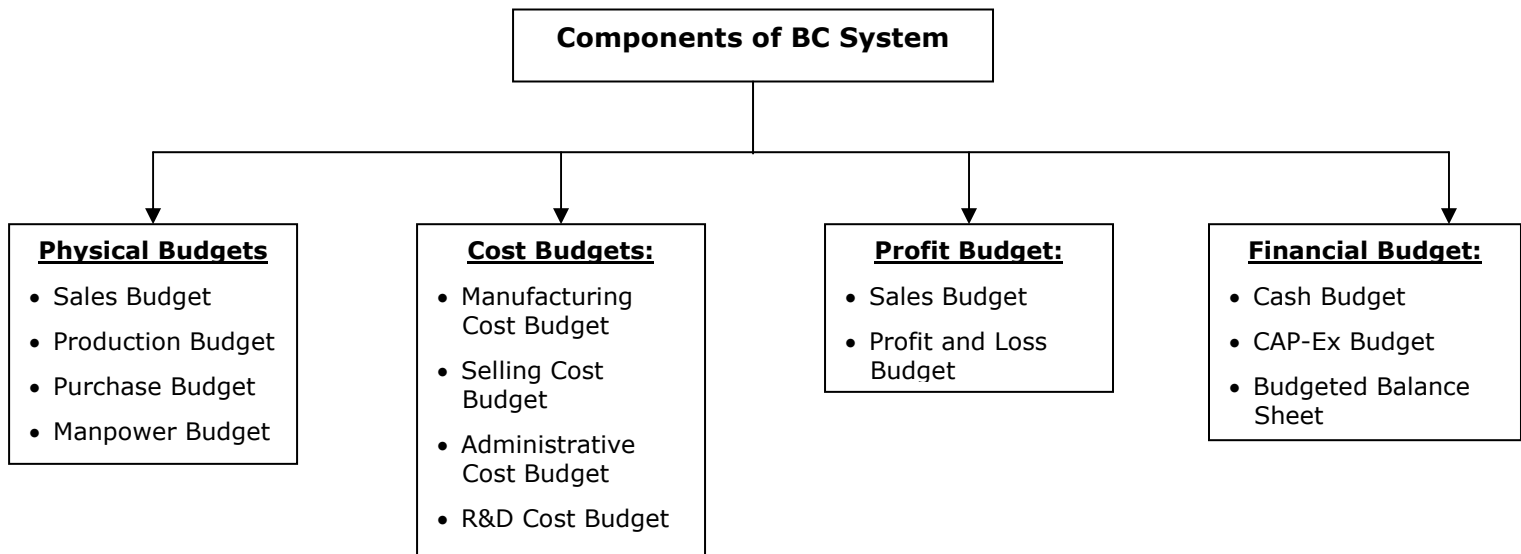
ACCOUNTING

Basis	Traditional Management Accounting	Value Chain Analysis
<i>FOCUS</i>	Internal Usage	External Usage
<i>PERSPECTIVE</i>	Value Added	Entire set of linked activities from suppliers to end users
<i>COST DRIVER CONCEPT</i>	Single Cost Driver applied at the overall firm level	Multiple Cost Driver eg. <i>Structured Drivers</i> and <i>Exceptional Drivers</i> . Unique cost Drivers for each value activity.
<i>COST CONTAINMENT PHILOSOPHY</i>	"Across the Board" Cost Reduction	View it as a function of Cost Drivers

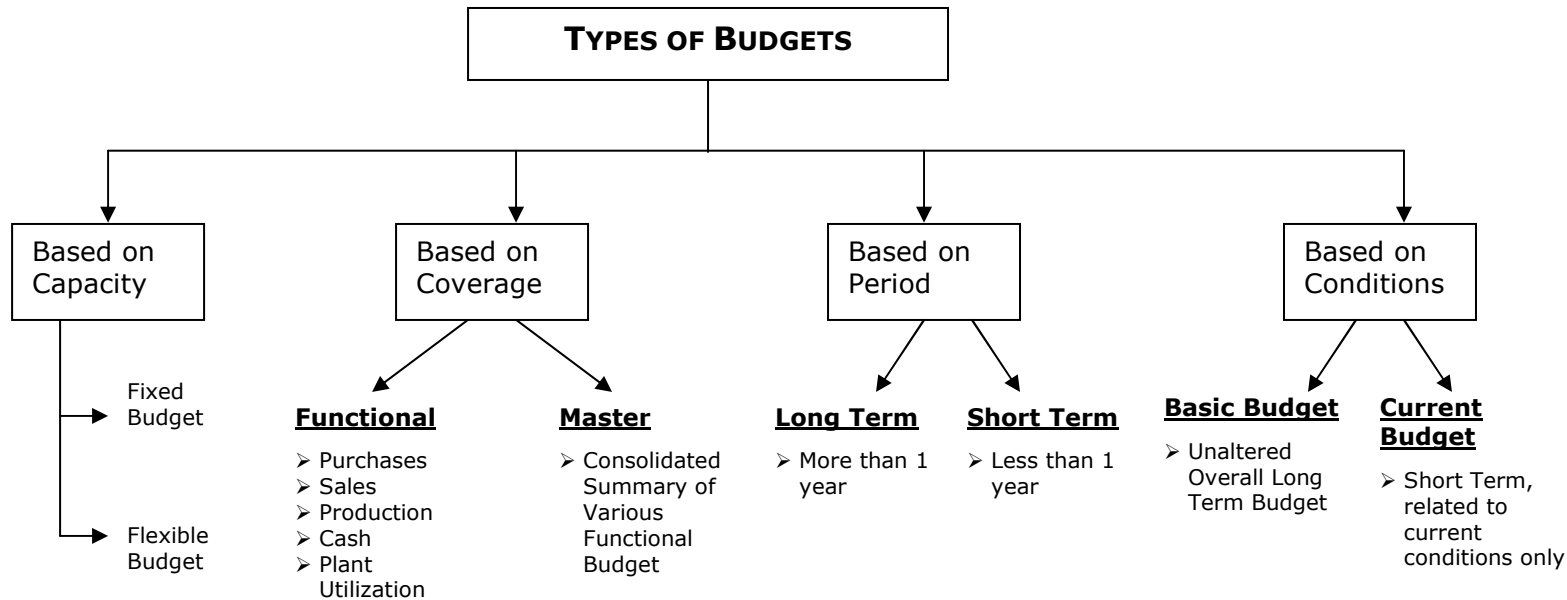
<i>INSIGHT FOR STRATEGIC DECISIONS</i>	Somewhat limited	Identify Cost Driver at the individual activity level For each activity, ask strategic question pertaining to • Make vs. Buy • Forward/Backward Integration
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12. BUDGETARY CONTROL SYSTEM

- FEATURES:
 - i. Determining
 - Objectives to be achieved
 - Policy to be adopted to achieve the objectives
 - Various activities to be carried on to achieve the objectives
 - ii. Drawing up plan or scheme of operation for each class of activity
 - iii. Laying Out system of Comparison of Actual Performance with relevant Budget and Finding cause for discrepancies.
 - iv. Ensuring Corrective Action to be taken where plan is not achieved
- COMPONENTS OF BUDGETARY CONTROL SYSTEM :



13. TYPES OF BUDGETS



14. DISTINCTION BETWEEN FIXED AND FLEXIBLE BUDGET

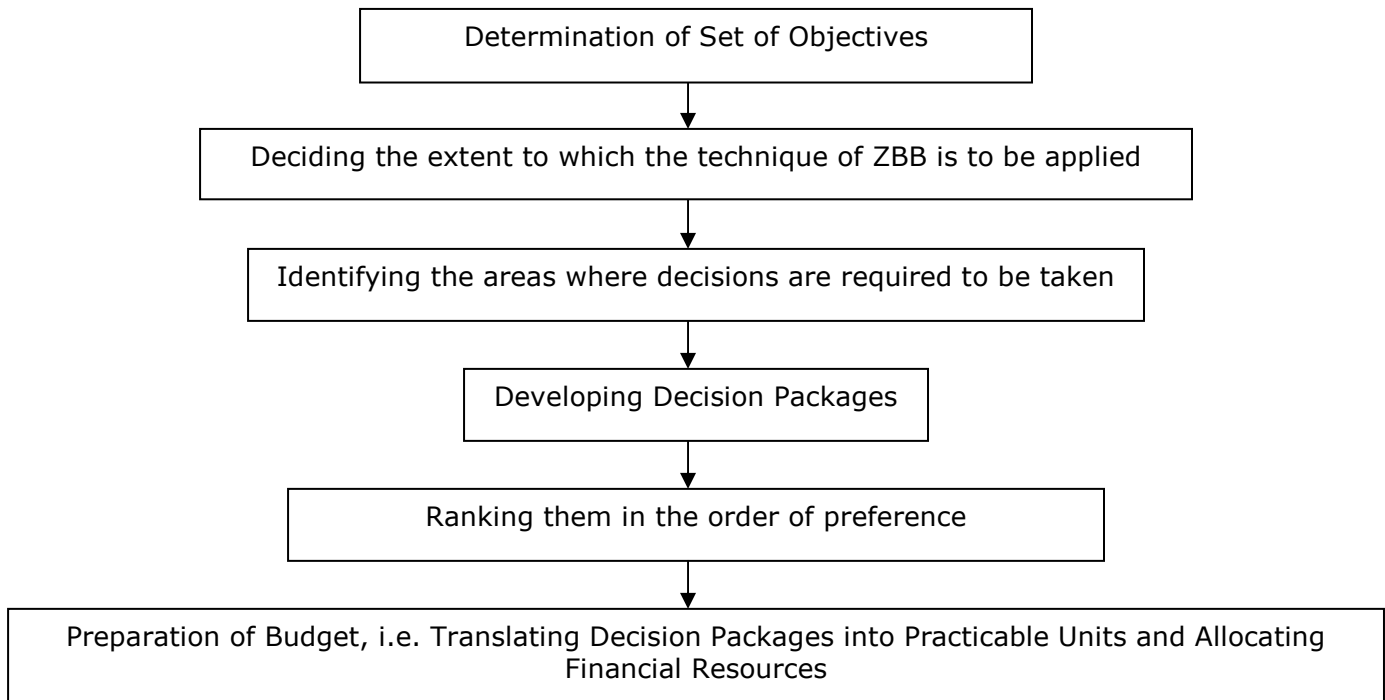
Basis	Fixed Budget	Flexible Budget
<i>CHANGE</i>	No change in Actual Volume of Activity Achieved	Redrafted on the basis of Activity level achieved
<i>ACTIVITY LEVEL</i>	Operated on one level of Activity and One set of Condition	Consists Various Budgets for different level of activities
<i>VARIANCE ANALYSIS</i>	As all costs relate to only one activity level, Variance Analysis will be of no use	Variance Analysis provides useful information
<i>COST AND PRICE</i>	As there can be significant difference in Budget and Actual Activity levels, Cost Ascertainment and Price Fixation will not provide correct picture	Facilitates correct ascertainment of Cost and fixation of Price, etc as Budgeting is made at different activity levels
<i>COMPARISION</i>	Meaningless Comparison of Actuals with Budgeted Targets	Meaningful Basis of Comparison of Actual Performance

15. BUDGET RATIOS

- **CAPACITY RATIO** = BUDGETED HOURS / MAX. CAPACITY
- **STANDARD CAPACITY RATIO** = HOURS WORKED / BUDGETED HOURS
- **ACTIVITY RATIO** = STD HOURS FOR ACTUAL PROD'N / STD. HOURS FOR BUDGETED PROD'N
- **CALENDAR RATIO** = ACTUAL WORKING DAYS / BUDGETED WORKING DAYS
- **EFFICIENCY RATIO** = STD. HOURS FOR ACTUAL PROD'N / ACTUAL HOURS WORKED

16. ZERO BASED BUDGETING

- It is an expenditure control device where, without reference to the past budget or achievements, each divisional head has to justify his entire fund requirement and prepare budget accordingly.
- David Hemminger – “A management tool which provides systematic method for evaluating all operations and programmes, current or new, allows for budget reductions and expansion in a rational manner.”
- The technique of ZBB suggests examining a programme or function or responsibility right from the scratch.
- Process of ZBB:



- Advantages of ZBB:
 - Provides a Systematic Approach for evaluation of different activities and rank them in order of preference for resource allocation.
 - Ensures that critical functions for achievement of objective are being performed in best possible way.

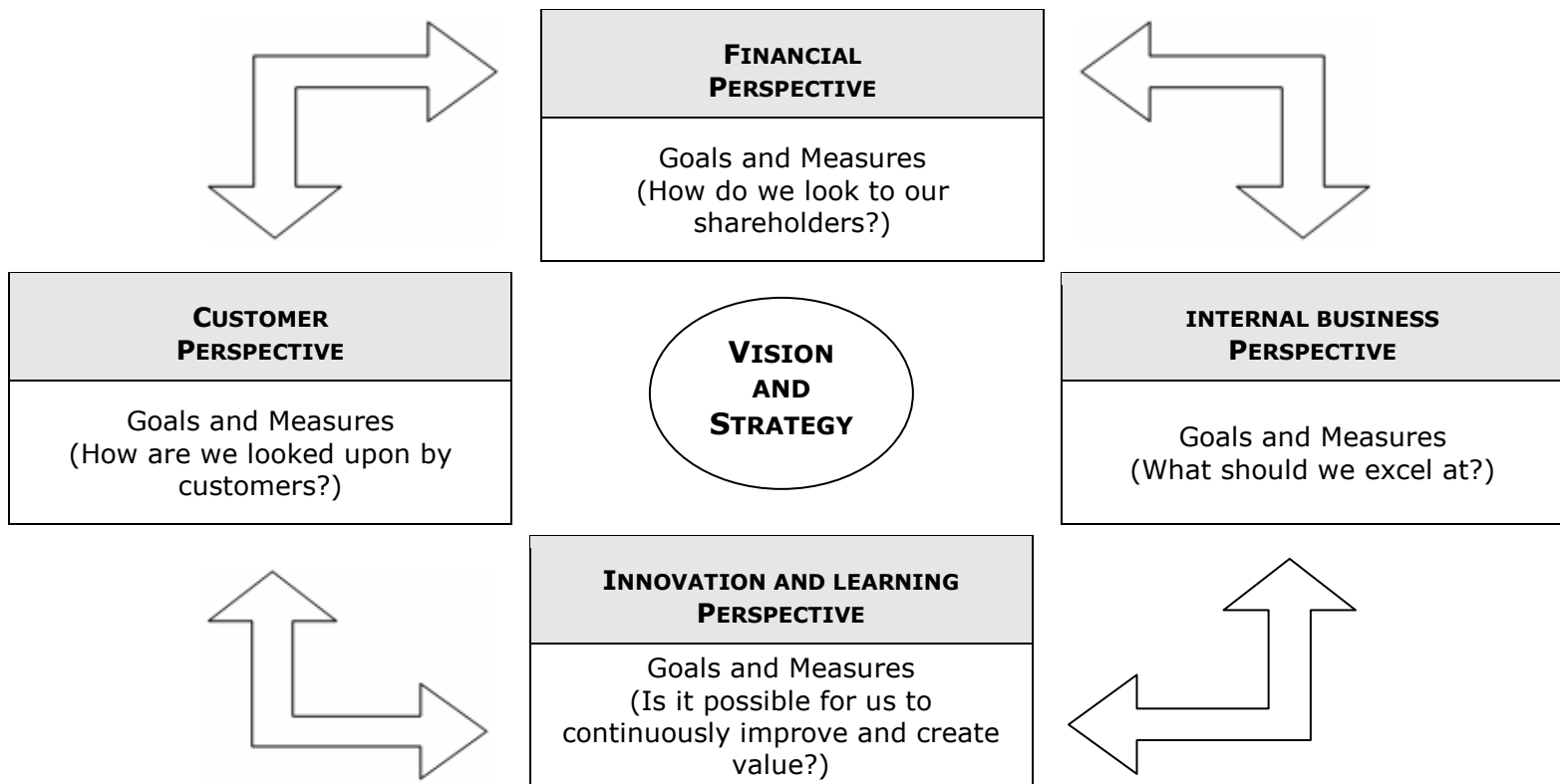
- iii. Provides opportunity to allocate resources based on the results of Cost – Benefit Analysis
- iv. Identification and Elimination of Wasteful Expenditure
- v. Close Linkage between Budget and Objectives of Company.
- vi. Introduction and Implementation of System of Management by Objective.
- Limitations of ZBB:
 - i. Facing various operational problems while implementation.
 - ii. Time Consuming
 - iii. Costly
 - iv. Proper Training becomes inevitable requirement.

17. PERFORMANCE BUDGETING

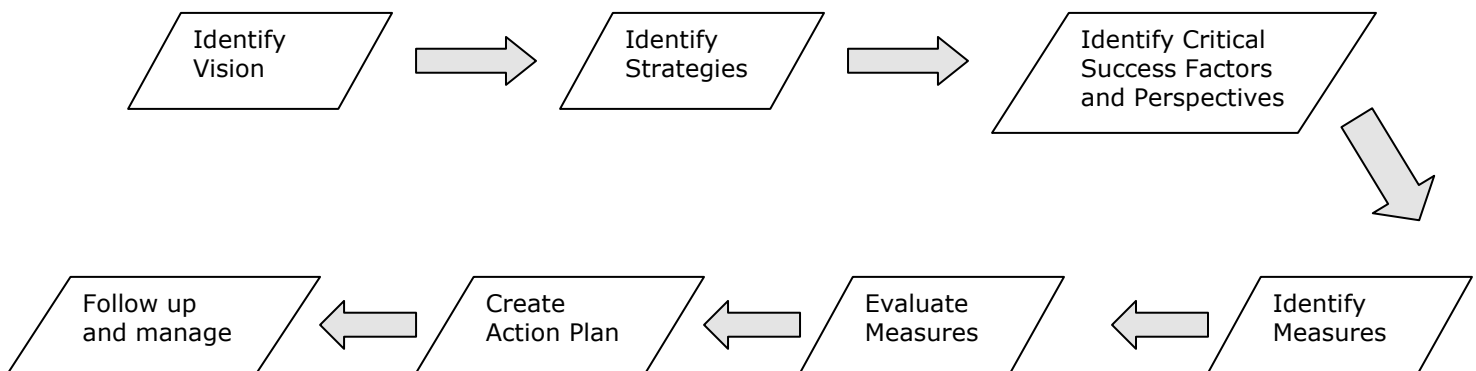
- NIBM, Bombay defines PB as – *“The process of analyzing, identifying, simplifying and crystallizing specific performance objectives of a job to be achieved over a period, within framework of organizational objectives, the purpose and objectives of job. The technique is characterized by its specific directions towards the business objective of organization”*
- Considerations while drawing up Performance Report:
 - i. Significance
 - ii. Timeliness
 - iii. Accuracy
 - iv. Appropriateness
 - v. Discrimination
 - vi. Presentation

18. BALANCE SCORECARD

- An approach to the provision of information to the management *to assist strategic policy formulation and to ensure its achievement*. It emphasizes the need to provide the user a set of information which addresses all relevant areas of performance in an **objective unbiased fashion**.
- The Central idea of the BS is that managers should develop the measures on which they manage the business from four different perspectives:



- Process of creating a Balanced Scorecard



19. DISADVANTAGES OF BALANCED SCORECARD

- The following are some of the reasons why Balanced Scorecard *sometimes* fail to provide for the desired results:
 - The use of non financial measures leads managers to think that they have a Balanced Scorecard already working for strategic purposes
 - Senior Executives misguidedly delegate the responsibility of the Scorecard implementation to middle level managers.

- iii. Companies try to **copy measures and strategies** used by the best companies rather than developing their own measures suited for the environment under which they function.
- iv. There are times when Balanced Scorecards are thought to be meant for reporting purposes only. This notion does not allow a Business to use the Scorecard to manage Business in a new and more effective way.

20. WHETHER BALANCED SCORECARD APPLICABLE TO EXTERNAL REPORTING?

Critics argue that if the Scorecard is indeed a relevant driver of long term performance, shouldn't the information generated be of interest to the investment community? However, it has been noticed that the Scorecard does not translate easily to the investment community for the simple reason that it makes sense for the individual business units and different divisions with their own mission and strategy and hence these individual scorecards cannot be aggregated into an overall corporate scorecard.

However, in case the company somehow manages to overcome such a problem and indeed use its Scorecard for external reporting, it may end up passing sensitive information to its competitors which may end up being detrimental to the company in the long run. However, with changes in the thinking process of the investment community, such strategic reporting could well be accepted in the near future.

21. BENCHMARKING

- A technique for continuous improvement in performance
- Involves comparing performance w.r.t. product, services or activities against other benchmark organization either internally between firms or externally.
- Objective – *"How products, etc can be improved and ensure that the improvements are implemented"*
- It is a performance measure that provides the driving force to establish high performance and means to accomplish these goals.
- Types of Benchmarking:
 - i. **Competitive Benchmarking:** - Comparing from inputs from competitor of same sector or industry
 - ii. **Strategic Benchmarking:** - Seek to improve performance by examining long term strategies.
 - iii. **Global Benchmarking:** - Bridging of International Culture, Business Process, and Trade Practices.
 - iv. **Process Benchmarking:** - Comparison of an Organization's process with the best practice organization.
 - v. **Functional Benchmarking:** - Organization look to benchmark with partners drawn from different business sectors or areas of activity to find ways of improving similar function or work process.
 - vi. **Internal Benchmarking:** - Seeking comparison from within organization

- vii. **External Benchmarking:** Seeking help from outside the organization that are known to be the best in the class. Two categories:

- **Intra- Group Benchmarking**
- **Inter-Industry Benchmarking**

22. STANDARD COSTING VS. BUDGETARY CONTROL

Basis	Standard Costing	Budgetary Control
<i>SCOPE</i>	More Intensive, related with control of expenses	More Exhaustive, concerned with the operation of Business Area as a whole
<i>PROCESS BASED ON...</i>	TECHNICAL ESTIMATES	PAST DATA adjusted to Future Trends
<i>DEPENDENCE</i>	For establishing Standard Costing, some form of Budgetary Control is important as there is a need to forecast output and prescribed set of working conditions	No need of Standard Costing for establishing Budgetary Control. It is independent.
<i>AREA OF APPLICABILITY</i>	Standards are set mainly for Production and Production related Expenses	Budgets are compiled for all items of expenses permissible
<i>COST VS. FINANCIAL ACCOUNTS</i>	Standard Costing is the Projection of Cost Accounts	Budgetary Control is the projection of Financial Accounts
<i>PURPOSE</i>	Standards setup targets which are to be achieved by Actual Performance Standard Cost indicate what cost should be under given conditions	Budgets setup maximum limits of expenditure which should not be exceeded Budgets are anticipated costs meant to be used for forecasting
<i>VARIANCES</i>	Variances are analyzed in detail as per their originating causes	Variances are not tracked through related accounts but are revealed in <i>toto</i> .

23. BENCHMARKING CODE OF CONDUCT

- Principles of Legality
- Principles of Exchange
- Principles of Confidentiality
- Principles of Use

- Principles of First Party Contract
- Principles of Third Party Contract
- Principles of Preparation.

24. PRICING POLICIES – TYPES

- **Cost-plus-Pricing :**

- Estimate Cost of Production
- Fix a Margin Profit and Fix Selling Price
- This policy is against the General Rule "*Price is determined by Demand and Supply*"

- **Rate-of-Return Pricing :**

- Margin = Desired Rate of Return on the Capital Employed or Invested
- 3 Problems involved:
 - a. Computation of Capital Employed – *very complicated and not uniform*
 - b. Items to be covered in the return or capital
 - c. Rate of Return – *which is a fair return?*

- **Variable Cost Pricing:**

- Markup on the Variable Cost so as to cover Fixed Costs.
- Overcomes following limitations of Total Cost Pricing
 - a. Arbitrary Allocation of Overheads
 - b. Incorrect Estimation of Normal Output for Overhead Allocation

- **Competitive Pricing:**

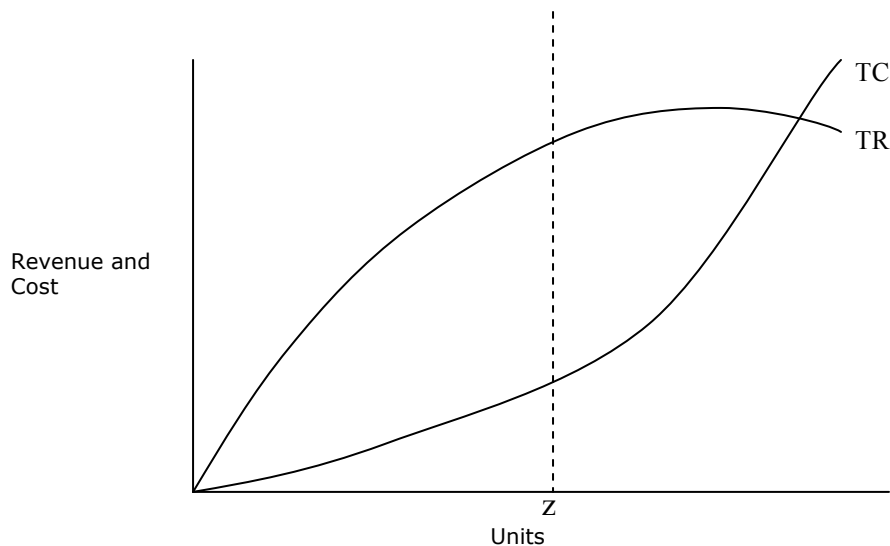
- When a company sets its price mainly on the consideration of what its competitors are charging its pricing policy under such situations is called *Competitive Pricing* or Competition Oriented Pricing.
- Not necessarily same price as charged by Competitors
- It can be a percent higher or lower than the competitors price.
- Types of Competitive Pricing:
 - a. *Going Rate Pricing: Average Industry Price – Useful when difficult to measure cost – Applicable in Homogenous Product Markets*
 - b. *Sealed Bid Pricing: Firms compete for jobs on the basis of Bids – Objective is to get the contract bidding for – Firms set price to the lowest possible extent – But not below its marginal cost of production.*

- **Incremental Pricing:**

- Involves comparison of Impact of Decisions on Revenues and Costs
- If a pricing decision results in increase in overall revenue than in cost, it is considered favorable
- Considers change in cost rather than average cost
- Overhead allocation are irrelevant
- Complementary products demand considered
- Opportunity cost to be covered by Incremental Revenue

25. THEORY OF PRICE

- The Theory of Price propels the concept that Optimum Price is the price which yields the maximum profits.
- It is based on the rational assumption that every enterprises objective is to maximize profits.
- If a firm can sell unlimited number of units, TR (Total Revenue) line will be a straight line. i.e. $TR = mx$; where m – quantity sold; x – price per unit.
- But practically, additional units can be sold only by reducing price. This means total revenue increases, **but the rate of increase declines with every additional unit.**
- However Total Cost of Production will increase when no. of units produced increases.



- Z is the point where the difference between TR and TC is the maximum. It is the point of Optimum Volume. Any increase beyond this will result in negative growth in TR.

26. PRICING STRATEGIES

• **MARKET ENTRY STRATEGIES:**

i. SKIMMING PRICING:

- Suitable when demand is inelastic to price.
- Maintain the price till product is established in the market
- Initially very high price is fixed so as to skim the creamy consumers who are not price sensitive.
- Initial High Price covers the initial cost of production.

ii. PENETRATION PRICING:

- Low Price is fixed initially.
- Suitable to penetrate the market initially
- Penetrating Mass Market as quickly as possible. (*Eg. Reliance Mobile*)

→ Suitable when demand is price elastic, savings on Large scale production, significant threat of competition.

- **PRICE DISCOUNTS AND DIFFERENTIAL:**

- i. Distributor Discounts: *Discount based on buyers position in the supply chain.*
- ii. Quantity Discounts: *Discount based on quantity purchased*
- iii. Cash Discounts: *Discount based on promptness of payment*
- iv. Time Differential: *Different prices charged for different times (Eg. Off season sale)*

- **PRICE DISCRIMINATION:**

- i. On the basis of Customers
- ii. On the basis of Product Version
- iii. On the Basis of Time
- iv. On the Basis of Place

- **GEOGRAPHIC PRICING STRATEGIC:**

- i. Whether buyer pays all the freight expense or the seller bears the entire cost or the seller and buyer share this expense.

27. PARETO ANALYSIS

- **Vilfredo Pareto**, a nineteenth century Italian Economist proposed the Pareto Analysis.
- Pareto Analysis is also known as “**80:20**” rule.
- It provides mechanism to control and direct effort by fact, not by emotions.
- Helps to clearly establish top priorities and to identify both profitable and unprofitable targets.
- Application of Pareto Analysis:

- **Pricing of Products:** It is usually found that 80% of revenue comes from 20% of the range of products. And 20% of revenue comes from 80% of the range. Top Management can take part in the pricing the product following under 80% revenue and delegate Mid and Low level management, the pricing responsibility of remaining products
- **Customer Profitability:** 80% of revenue comes from 20% of the Customers. By using Pareto Analysis, more concentration and better servicing can be adopted towards cream of the customers.
- **Stock Control:** 80% of the cost of inventory will be covered by 20% of the inventory size, being high value, low volume items. And remaining 80% of the inventory usually covers 20% of the Total Cost of the Inventory. In such cases, better inventory management can be extended towards such high value items.
- **Application in Activity Based Costing:** 20% of the Organization's Cost Drivers drive 80% of the Total Cost. Hence such Cost Drivers can be better concentrated.

- **Quality Control:** Out of the total causes for limitations in quality, nearly 20% are the cause for approximately 80% of the problems arising in the quality.

28. MARGINAL COSTING VS. ABSORPTION COSTING

Basis	Marginal Costing	Absorption Costing
<i>INVENTORY VALUATION</i>	Only Variable Cost is considered for Product Costing and Inventory Valuation	Both Variable cost and Fixed Cost is considered in Inventory Valuation
<i>FIXED COST</i>	Fixed Costs are considered as Period Cost	Fixed Costs are charged to Cost of Production.
<i>PROFITABILITY</i>	Profitability judged by PV Ratio	Profitability judged by Apportionment of Costs
<i>ROLE OF COST DATA</i>	Cost Data highlights Contribution	Cost Data highlights Profit. Revenue – Total Cost.
<i>DIFFERENCE IN STOCK</i>	Difference in the magnitude of Opening Stock and Closing Stock does not affect the unit cost of production	Difference affects the unit cost of production because of the impact of related Fixed Cost

29. COST-VOLUME-PROFIT (CVP) ANALYSIS

- Profit per unit depends upon the Selling Price and Cost of Sales
- Total Profit depends on the sale volume, which in turn depends inter-alia on Selling Price and cost of sales. By and large, cost also depends on the volume of the production.
- Thus a close relationship exists between cost, volume and profit.
- Analysis of this relationship opens up an interesting and useful field for the Management Accountant.
- CVP Analysis may be applied for Profit planning, cost control and Decision Making.
- Purpose of CVP Analysis:
 - i. to forecast profit fairly and accurately
 - ii. to setup flexi budgets
 - iii. to evaluate performance for control
 - iv. to ascertain the effects of cost of change in the volume for market expansion.
 - v. to formulate price policies
 - vi. to know the amount of overhead cost that could be charged to production.

30. TRANSFER PRICING – MEANING AND METHODS

- Transfer price is the price which one unit of an organization charges for a product or service supplied to another sub-unit of the same organization. The price charged for the transfer of goods of one division to another division is the cost to receiving division and income to the supplying division. It means that the transfer price fixed will affect the profitability of both divisions.

- **METHODS OF TRANSFER PRICING:**

- i. PRICING AT COST:

- Actual Manufacturing Cost: *Simplest, useful where responsibility of profit performance is centralized.*
 - Standard Cost: *Variances, if any, are absorbed by the supplying units. It can also be transferred to user unit too. Results inventory being carried at standard cost.*
 - Full Cost: *Cost of Prod'n, Selling and Dist'n Expenses, Admin, R&D, etc. No profit is allowed to be made but can only recover the full cost.*
 - Full Cost + Mark up: *Markup added to full cost is either expressed as a percent of full cost or of capital employed.*

- ii. PRICING AT MARKET PRICE:

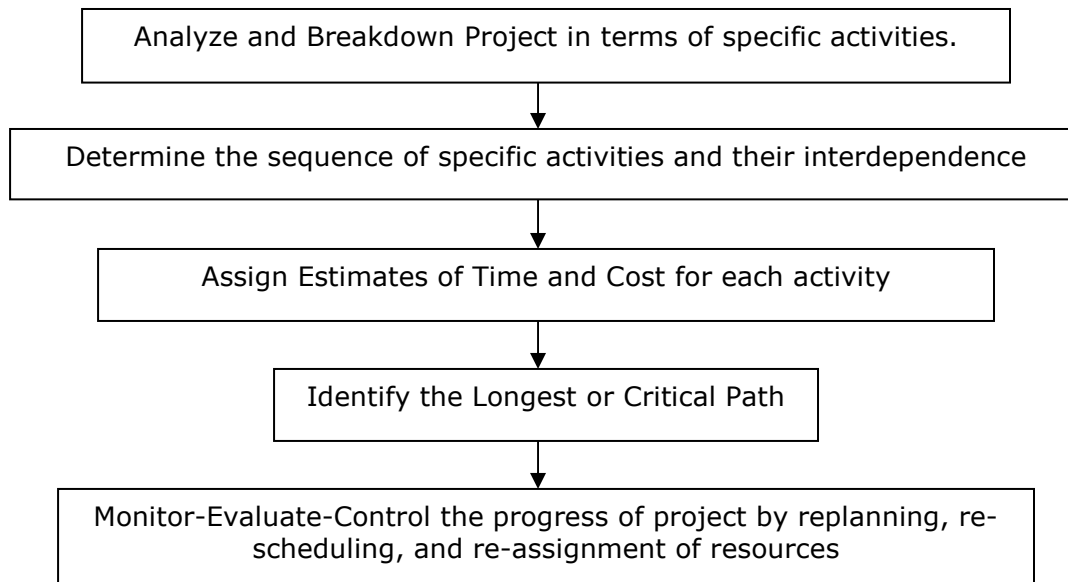
- In a competitive market goods/services cannot be transferred to its users at a higher price. Such competitive market provides incentives to efficient production.
 - Limitations
 - a. Difficulty in obtaining **fair and just** market price
 - b. Difficulty in obtaining **elements of S & D expenses.**

- iii. BARGAINED OR NEGOTIATED PRICES:

- A Refinement of market price method.
 - Each unit is considered as an independent unit and such units decide the transfer price by negotiations or bargaining.
 - Each Divisional manager has full freedom to purchase their requirement from outside if the prices quoted by their sister unit are not acceptable to them.

31. CRITICAL PATH ANALYSIS

- Critical Path Analysis, which includes PERT/CPM, is a network technique/models. It helps the Project Manager in Planning, Scheduling and Controlling and estimate requirement of resources.
- Work Methodology of PERT/CPM involves:



- Advantages of Critical Path Analysis:
 - Provides comprehensive view of the project.
 - Offers economical and effective system of control based on Management by exception
 - Constant review and reformulation of the network
- **Activity:** An Activity is any portion of a project which consumes time or resources and has a definable beginning and end.
- **Event:** The beginning and ending point of an activity.
- **Purpose of CPA(Two fold purpose):**
 - Finding the Critical Path
 - Finding Floats associated with each activity.

32. CPM VS. PERT

- CPM is incapable of handling uncertainty in timing which is a rule rather than exception for innovational project. PERT is more relevant for handling such projects which have a great deal of uncertainty associated with the activity durations. To take this uncertainty into account, three types of time estimates are generally obtained.
- These are:
 - Optimistic Time Estimate (t_o)
 - Pessimistic Time Estimate (t_p)
 - Most Likely Time Estimate (t_e)
- Expected Time for each activity is calculated using these three estimates on the basis of *beta distribution*. Following formula reveals the Expected Time for completion of each activity.

$$\frac{t_o + 4t_m + t_p}{6}$$

6

- Probability of completing a project with Expected Time is at 50% as it lies in the middle of the Normal Distribution Curve. Probability can be found out using Normal Distribution Table, but for which we require Z value.
- $Z = \frac{T_d - T_{cp}}{S.D}$
 where T_d – refers to desired time to complete project
 T_{cp} – refers to Duration of the Critical Path
 S.D – Standard Deviation of the Earliest Finish Time.

33. RESOURCE SMOOTHING VS. RESOURCE LEVELING

- **Resource Smoothing** is a network technique used for smoothening peak resource requirement during different periods of the project network. Under this technique, the total project duration is maintained at the minimum level. The non-critical activities having floats are rescheduled or shifted so that a **uniform demand on the resources is achieved**.
- **Resource Leveling** is also a network technique which is used for reducing the requirement for particular resource due to its paucity. The process of resource leveling utilizes the large floats available on non-critical activities of the project and thus cuts down the demand on the resource. In resource leveling, the maximum demand of a resource should not exceed the available limit at any point of time.
- **Constraint** in Resource Smoothing is on the **project duration time**. While in Resource Leveling, Constraint is on the **limit of the resource availability**.

34. APPLICATIONS OF LEARNING CURVE

- Helps to analyze Cost-Volume-Profit Relationship during familiarization phase
- Helps in budgeting and profit planning
- Helps in pricing
- Helps design engineers in making decision based upon expected rates of improvement
- Helps to Government in negotiations about the contracts.
- Helps in setting standards in learning phase.

