Chapter 1 :- Introduction To Strategic Cost Management

Traditional Cost Management (TCM) Technique

Meaning

TCM Tech. is old way of costing under which cost management accountant was asked to calculate several things e.g. cost to produce one unit, bifurcation of all costs into multiple heads like Direct Material cost, Direct Labour cost & Overhead cost. He always gave his opinion based on financial factors only e.g. Advise to use an alternate material since cost per unit reduces.

Example

-Calculate Selling Price using "Cost Plus Profit" Approach.
-Calculate Cost of Each product.
-Calculate "Cost in outsourcing" if entity shifts from "manufacturing & sell" to "Buying & Sell" Considering Opportunity Cost.

Strategic Cost Management (SCM) Technique

Meaning

·TCM Tech. never considered non-financials factors while giving opinion /advise. TCM always focused on reducing cost.
·These Limitations became reason for birth of SCM.
·SCM considered non-financial factors, market conditions & change behave of customers also while **giving advise/opinion.**

Example

·TCM suggested to use alternate material since cost per unit reduces. It did not consider reduction in product-quality
·TCM suggested to reduce marketing cost. Although it can reduce sales also.
·SCM suggested to use expensive material if quality of product increases ignoring increase in cost since now customers are "quality-sensitive" in place of "Price-sensitive"

4 Stages in SCM

Meaning

Stage 1:- Make Plan Or Decide Purpose
Stage 2:- Communicate Plan/Purpose to All
Stage 3:- Take Small action to achieve purpose
Stage 4:- Check success of action

Example

Stage 1:- We have to provide quality-product to customer. Don't bother if cost increases
Stage 2:- Tell everybody
Stage 3:- Buy high quality material
Stage 4:- Check whether quality of product is improved or Not

3 tools of SCM

1. Strategic Positioning Analysis Tool

Meaning

It is evaluation of "How our company is different from its competitors". It is evaluation of "Where customer place our company is list of Top 5 companies". Basically It is evaluation of "Positioning" of company in eyes of customers.

Example

Kent RO has a good positional value in terms of customer as compared to other RO sellers. Kent RO gives 4 year warranty while other are giving just 1 year warranty. Kent RO sells its RO nearly around Rs.17,000 while its competitors are selling around Rs.10,000. Inspite of high price, customer is buying Kent RO because of value its provides to customer i.e. "Sabse Sudh Paani"

2. Cost Driver Analysis Tool

·Cost Drivers Means Factors responsible for cost. It isidentification of all factors which are responsible for incurring cost.
·Thought under TCM – "Only Production is responsible for cost" e.g. Use of material is responsible for Direct Material Cost
·Thought under SCM – "Yes, agreed that Cost is dependent upon production but the way a company utilizes its resources, is also responsible for cost" e.g. Using Skilled Labour in place of unskilled labour indicates mis-utilisation of resources. It will increase cost since skilled labour is expensive as compared to unskilled labour.

·There are 2 types of Cost Drivers:-

1. Structural Cost Drivers:- It is related to structure of Entity e.g.Producing at big scale reduces cost per unit.
2. Executional Cost Drivers:- It is related to how an entity executes its operations e.g. If skilled labour do a work which can be done by unskilled labour. It is not optimum utilization of resources

3.Value chain analysis tool (Mr. Michael Porter developed this Idea)

Meaning

·Put all activities in a sequence starting from purchasing raw material till selling of FG.
·Now find out those activities which are performed but customer don't feel its benefit while using product.
·Now try to eliminate these non-value adding activities since it does not provide any benefit but cost is incurred.

Example

·Activity of storing FG before dispatching to customer is useless activity (Non-Value adding activity) since entity incurs cost in it but it does not add any benefit in product.

2 categories

1. Primary activities

Meaning

All Activities related to converting material into FG

1. Inbound Logistics:- activities related to Raw Material coming in factory is covered under this.
2. Operational Activities:- Activities related to producing FG using men, material & machines are covered under this.
3. Outbound Logistics:- activities related to sending of FG to customer is covered under this.
4. Marketing & Sales
5. After Sale Service

Example

1. Receiving material from supplier is inbound logistics
2. Labour processing material using machine to produce FG is operations.
3. Dispatching FG to customer is outbound logistics
4. Doing advertisement on TV, Youtube etc. is marketing
5. Replacing defective product is after sale service

2. Secondary Or Support Activities

All activities which helps in doing primary activities

1. Procurement of Raw Material e.g. purchasing raw material
2. Technological Development e.g. buying new advanced fully automatic production machine
3. Human Resource Management e.g. hiring efficient employees & firing inefficient

Firm Infrastructure e.g. maintain required fund, factory space etc.

3 Strategic Frameworks of "Value chain analysis"

1.Industry structure Framework (Mr. Michael Porter developed this Idea)

1. Bargaining Power of buyers:- If buyer can switch to another similar product of different entity, It means "profit making Potential of industry" is low.
2. Bargaining Power of suppliers:- if supplier of raw material can increase price of material & there is no option to use any other material in production, it means "profit making Potential of industry" is low.
3. Threat of substitute product:- If other entities are selling product which is substitute to our product. It means "profit making Potential of industry" is low.
4. Threat of new entrants:- if any new entity can produce product similar to entity's product. It means "profit making Potential of industry" is low.
5. Intensity of competition:- if competitors are fighting by reducing price of product. It means "profit making Potential of industry" is low.

2. Core Competencies Framework

If entity has unique skill which adds value to product, It means "profit making Potential of industry" is high.
There are 3 tests by which we can check whether entity has core-competency or not.
Test 1:- Resources:-If any other entity cannot purchase same resources then our entity has core-competency. It means "profit making Potential of industry" is high. E.g. Coca-Cola Company formula to make soft drink
Test 2:- Greater Market Share:-It our entity has huge market share. It means it has core-competency e.g. Colgate Tooth paste
Test 3:- End-Product Benefit:-If unique skill of our entity adds value in product. It means it has core-competency. E.g. Maggi Masala

3. Segmentation Framework

· An industry has multiple segment which are closely related to each other e.g. Car Making Industry has Tyre segment, Battery Segment, Glass Segment etc.

· Analyze profitability of all segments & then choose profitable segment. It is not necessary to operate in all segments

2 Strategis

1. Product Differentiation

Meaning

If customer keeps product on your company at TOP position as against your competing company. It means your product is "differentiated" by customer in comparison to other similar products. Your product has "Profit making Potential"

Example

Customer prefer to buy Kent RO as compared to Other RO even if price of Kent RO is approx. double of price of other similar RO. It means Kent RO has profit making potential

2. Cost Leadership

Meaning

If en entity can produce a product at a cost which is much lower than the cost at which other entities are producing product. It means this entity has leadership in cost. It has huge profit making potential

Example

China produces product at low cost as compared to other countries. It means China has profit making potential

3 Analysis are used to gain competitive advantage

1.Internal cost analysis

Meaning

·Divide all activities into value adding activities & non-value adding activities
·Calculate cost of each non-value adding activity & its contribution in selling price.
·Try to eliminate those non-value adding activities where benefit is less than cost.
·This is called "Internal Cost Analysis"

Example

·Making "Easy Notes" for students is value adding activity since student can understand concept fast in less time. Time spent on it is useful. It is value adding activity.

2. Internal differentiation analysis

Meaning

·This analysis suggests to remove an activity whose benefit is not felt by customer when he consumed goods so that our new product gets differentiated from old product.
·It also suggest to add new activity if it will increase benefit of product in eyes of customer

Example

·Avoid using wire in Mouse since now customer likes to use wire-less mouse.
·Add new feature in phone to differentiate it.

3. Vertical linkage analysis

Meaning

·Compare value chain activities of our entity with value chain activities of competitors.
·Now analyse benefit of each activity which is involved in processing
·Eliminate activity if its removal will not reduce image of product in market.

Example

·Suppose in future, all teachers starts giving PDF copies of Books then eliminating the activity of "getting books printed" should be removed since it will reduce cost without reducing quality of product.

Value shop Model Or Service Chain Model (Mr. James developed this Idea)

·It is similar to Porter's Value chain model. But difference is that it is related to solving problems of "Service" sector whereas Value chain model is related to "manufacturing" industries.
·Like Value chain, It also divides all activities into primary & secondary.
·Steps in primary activities are different but all 4 categories of secondary activities are same.
·Steps in primary activities to solve problem

1. Find Out Problem
2. Find Out many solutions to solve this problem
3. Evaluate each solution & choose & Implement "Best" Solution
4. Evaluate Whether problem got solved or Not.

Chapter 2 :- Modern Business Envir0nment

Cost of Quality

Quality means a feeling in mind of customer that product is best. Organization has to incur many cost to maintain & even improve quality of product/service.

Hence COQ is sum of cost incurred on preventing production of defective goods, detection of defective goods & rectification cost of defective products.

Components of COQ

Quality of product can be divided into as "Good Quality"& "Poor Quality".

- If Product is of good quality, it means company must have spent money on monitoring of activities related to quality (supervision cost) & must have also spent money on preventing production of defective products.
  Cost incurred on monitoring of activities related to quality is technically known as "Appraisal Cost"
  Cost incurred on preventing production of defective product is known as "Prevention Cost"

- If product is of poor quality then this poor quality (defect) in product can be identified internally within organization before product is dispatched to customer & defect can be identified by customer after he has received & used the product. Now company will have to incur cost to satisfy customer.

- If defect is identified internally then company needs to spend cost on rectification. Such cost is technically named as "Internal failure cost".
- If defect is identified by customer then Company needs to spend cost on replacement of product, repairing goods & re-supplying to customer. Such cost is technically named as "External failure cost".

- Cost of poor quality is also known as "Price of Non-Conformance"
  Means price paid since quality standards are not met.

- Cost of good Quality is also known as "Price of Conformance".
  It means Price paid for meeting quality standards.

Internal failure cost + external failure cost = Cost of failure of control
Appraisal cost + Prevention cost = Cost of Control

Optimal COQ

Meaning

Zero defect policy may not be good for economic interest of company

Example

If company spends more on Appraisal & prevention cost then definitely it shall reduce internal & external failure cost but company should not do this if sum of appraisal & prevention cost is much higher than saving in internal & external failure cost.

Total Quality Management (TQM)

Focuses at ensuring quality work in all functions of organization e.g. product designing, production, marketing, customer service.
Follow Following Six C's for successful implementation of TQM

1. Commitment:- All employees take commitment (Mental Oath) for continuous quality improvement
2. Culture:- Develop a culture in company to promote creative thinking for quality improvement
3. Continuous improvement:-TQM is a continuous improvement process. It is not one time program
4. Co-operation:- All employees must co-operate for successful implementation of TQM
5. Customer Focus:- Customer means both external & internal customer. External customer means person buying the product. Internal customer means employees. TQM should focus on both
6. Control:- company must note down current best practice followed and also evaluate benefit of suggested practice thereby having a control over quality standards

Deming 14 points

14 points (Principles) which should be focused to ensure quality Improvements.

1. Company should create a purpose for which improvement is always desired.
2. Company should motivate workers to beat expectation of quality improvement
3. Company should stop doing inspection If quality variances are reduced.
4. Company should buy one kind of raw material from same supplier since quality of multiple supplier will be different.
5. Company should continuously try for reduction in quality variances
6. Company should give proper training to staff otherwise quality variation shall be there
7. Company should motivate leadership in employees.
8. Company should avoid fear in mind of workers towards quality improvement. Since workers may feel that their job is at stake if quality is improved continuously.
9. Company should avoid competition between departments. Each department should help other department to achieve quality improvement
10. Company should improve the process of working & avoid harassing workers.
11. Company should avoid giving numerical production targets since it results in poor quality production
12. Company should focus on worker satisfaction in producing quality products.
13. Company should motivate & reward self-improvement by workers
14. Company should give responsibility to every one for detecting & eliminating poor quality work.

PDCA Cycle

P – Plan – Decide a new process for quality improvement
D – Do – Implement the decided process
C – Check – Check whether desired quality improvement is obtained or not
A – Act – Take the corrective action if desired quality improvement is not attained

EFQM excellence model

EFQM stands for "European foundation for quality management". This model gives

3 tools by which business excellence can be achieved

1. 8 Fundamental Principles – Company should follow on these principles
2. 9 Criteria – First 5 criteria helps in understanding "What the company does" and last 4 criteria helps in understanding "what the company achieves".
   First 5 criteria are called "enablers" and last 4 are called "Results"
3. RADAR (Results – approaches – Deploy – Assess – Refine)

8 fundamental principles of EFQM Model

Following are the 8 fundamental principles which the organisationshould focus at

1. Organisation should focus on creating value for customer (Value for money)
2. Organisation should focus on creating sustainable future for all stakeholders
3. Organisation should focus on developing organisation capability (implementing fully automated production instead of semi-automatic production)
4. Organisation should focus on creativity & innovation e.g. Launch New product
5. Organisation should focus on leading with vision & inspiration
6. Organisation should focus on flexibility
7. Organisation should focus on succeeding with talented man-power
8. Organisation should focus on sustaining outstanding results

Criteria of EFQM Model

Meaning

First 5 criteria referred as "Enablers" are as follow
1.Leadership
2.People
3.Strategy
4.Partnership & resources
5.Process, Product & services

Last 4 criteria referred as "Results" are as follow
1.People Result
2.Customer Results
3.Society Results
4.Business Results

Example

If company implement fundamental principles on "Enablers" then company shall get "Results" e.g. If company implement principle number 5 "innovation" on enabler number 4 "Resources" then definitely company shall find some ways by which quality of final product shall be improved & at the same time cost of resources shall be reduced thereby getting profit as "Business Results"

RADAR

Now it is time to check performance of the organization. Following steps are used to do that

1. R – Results – Decide results which are be achieved e.g. "Increase profit"
2. A – Approach – choose the correct approach e.g. "Innovation in resources"
3. D – Deploy – Implement the choosen approach e.g. "using substitute raw material which is available at less cost"
4. A – Assess – Calculate the result e.g. Check whether cost reduced & at same time , quality of product got improved or not"
5. R – Refine – Re-deploy if desired results are not attained

Throughput accounting ratio

It is used as basis to rank product & decide most profitable product so co. cam maximize its profit.

Formula:-
Throughput accounting ratio

$$= \frac{\text{thourghput contribution per bottle neck minute}}{\text{factory cost per bottleneck minute}}$$

Bottleneck means constraint which restricts production.

Theory of constraints

Following 3 things must be focused to earn huge profit (Technically we call it as "Operational measures of TOC")

1. Company should produce that product more which has highest Throughput contribution per unit of time.
2. Company should minimise investment in assets such as equipments, computers etc.
3. Company should minimise operating Expenses.

Formula:- Throughput contribution per unit of time = throughput contribution per unit / time required per unit for 1 unit of product

Note 1 Goldratt assumed direct labour cost per unit & variable overhead cost as fixed.

Note 2 Operating Exp. Includes direct labour cost, operating & maintenance expenses

Customer life time value (CLV)

Using this approach, a firm divides its all customer into 2 category i.e. profitable customer and less-profitable customer.
This concept says to stop servicing non-profitable customer.

CLV is present value of profit that a firm will derive from a particular customer over entire lifetime of relationship with that particular customer. Profit is discounted using cost of capital of firm.

Supply Chain Management

It is a chain which comprises of vendors that supply raw material, producers who convert raw material into FG, warehouse that stores FG, distribution center that deliver FG to retailers and finally a retailer who sells FG to ultimate customer.

There are 2 types of supply chain

1. Push Model:- it is old way of producing & selling FG to customers. Business organisation used to forecast sales. Its flow was as below
   Step 1:- Supplier supplies raw material to manufacturer.
   Step 2:- Now Manufacturer (business organisation) used to produce.
   Step 3:- Now Distributor (Warehouse of company) get stock of FG from Manufacturer
   Step 4:- Now Retailer get stock of FG from distributor
   Step 5:- Now customer has to purchase what is available.

   Supplier → Manufactuer → Distributor → Retailer → Customer

2. Pull Model:- it is new way of producing & selling FG to customers. Its flow is as follows Under pull model, FG are produced in response to actual demand by customer. The product which is already being sold in the market, is main focus in this model. Business organisation sees actual demand of product & produce similar product with new features in it so as to fit needs of customer

   Supplier ← Manufactuer ← Distributor ← Retailer ← Customer

Outsourcing or Contracting Out

Certain work given to outsiders on contract basis at less price

Gain sharing Arrangement

Meaning

In this arrangement supplier agrees to deliver supplies without any guarantee of receiving payment from customer. Supplier shall receive payment which will be based on benefits which emerge to customers. In such case supplier becomes stake holder in customer and has risk of not receiving even a single rupee.

Example

Supplier agreed that he will supply a different kind of material to customer at low price and if customer's sales get increase due to best quality of product then both will share extra gain in 60%:40% ratio.

CHAPTER 3 – LEAN SYSTEM & INNOVATION

Lean System

A system, which aims at minimizing waste without sacrificing productivity in manufacturing unit, is called lean system. Co. aims at reducing following 7 types of waste.

1. Producing more than demand (Overproduction) is treated as waste.
2. Having inventory more than "required inventory" is waste.
3. Product waiting for being processed in production process is waste
4. People or equipment moving time is more than "required time" is waste
5. Product moving time within production process is required than "required time" is waste
6. Re-working for defective items is waste.
7. Unnecessary activity within production process is waste.

Techniques to minimize Waste

Meaning

Zero defect policy may not be good for economic interest of company

Example

If company spends more on Appraisal & prevention cost then definitely it shall reduce internal & external failure cost but company should not do this if sum of appraisal & prevention cost is much higher than saving in internal & external failure cost.

Just in Time

Produce only when customer orders are lying in hands Or Purchase raw material only when FG is to be produced (Maintain Zero Inventory of FG Or Raw material)

Essential Pre-requisite for implementing JIT

1. Vendor of raw material must be reliable so he dispatch material on time directly on production-floor.
2. Organization must have implemented TQM.
3. Organization must have implemented preventive maintenance system i.e. repair machines on regular basis without doing wait for breakdown
4. Demand of products must be stable so estimated demand can be calculated
5. Raw material must be of good quality i.e. defect free raw material

Impact of JIT (Benefit of JIT)

1. Impact on waste:- All types of waste such as excess inventory, waste of material, re-work on defective production etc. gets reduced.
2. Impact on overhead cost:- material handling cost, quality inspection cost, unnecessary inventory gets reduced.
3. Impact on product price:- benefit of reduction in cost can be provided to customer by reducing selling price if customer is price sensitivity. Selling Price need not be reduced is customer is quality sensitive.

Performance Measurements in JIT System (Way to measure success of JIT)

JIT Implementation is successful If

1. If Inventory turnover of raw material & FG has increased.
2. If machine setup time of company has reduced.
3. If number of customer complaints, time taken in responding to customer complaint has reduced.
4. If material scrap rate has reduced to a considerably rate, it means JIT implementation is successful.
5. If Cost of Quality e.g. Appraisal cost, prevention cost, internal & external failure cost has reduced.
6. If customer is provided on time delivery, if customer is shipped full order & if return & replacement of delivered FG has reduced (If customer service is improved)
7. If number of ideas generated per worker has increased, if number of ideas implemented has increased.

BACK-FLUSHING IN JIT SYSTEM

- A system whereby cost of FG is calculated at the time when FG is ready. This approach helps in eliminating maintaining of WIP account & calculation of cost during all stages in production.

- Calculate Cost of FG only when it 100% complete. It suggest not to waste energy & time in calculating cost of WIP.

KAIZEN COSTING

Kaizen is a Japanese word. It means "change for better". Kaizen costing technique aims at doing small small improvements on continuous basis by involving workers of all levels so that a particular big problem gets resolved.

PRINCIPLES TO IMPLEMENT KAIZEN COSTING

1. It requires small improvements in existing process at reasonable cost
2. It requires collective decision making approach whereby all workers of all areas participate
3. It assumed that there is no limit on level of improvement which can be implemented
4. It requires setting up standards for continuous improvement to attain long term sustainable improvement
5. It aims at eliminating waste & improve productivity

5S approach

5S stands for list of 5 Japanese words which starts from alphabet "S".

1. Seiri (Sort):- Prevent accumulation of unnecessary items & reduce chances of being confused within unnecessary items
2. Seiton (Set in Order):- Arrange necessary items in "easy to identify" mode so that they can be easily selected for use & finally make smooth workflow.
3. Seiso (Shine):- clean the workplace on daily basis so it shines. Workplace should be safe, clean & pleasing to work in.
4. Sriketsu (Standardise):- Maintain high standard in work place & everything is done according to its standard.
5. Shitsuke (Sustain):- Assure worker does work without being told. Training must be given to employees for long term sustain.

TOTAL PRODUCTIVE MAINTENANCE

TPM aims at keeping all machines in top working conditions so as to avoid breakdowns & delays in manufacturing process. TPM is implemented in following 4 stages

1. Preparation stage:- Prepare employees mentally ready to use best working machines. Employees' fear of losing job should be taken care.
2. Introduction stage:- Now tell all employees about TPM & its benefit.
3. Implementation stage:- Implement TPM with help of 8 activities which are referred as 8 pillars of TPM
4. Institutionalizing stage:- Now it is time to give awards & recognition.

Foundation & 8 Pillars of TPM

Foundation - 5S:- TPM starts with 5S. It aims at organizing work place so that problems gets recognized.

Pillar 1:- Autonomous Maintenance:- It aims at repairing equipment before breakdown & eliminating defect through active participation.
Pillar 2:- Focused Improvement (Kaizen):- It aims at minor improvements which are made on continuous basis.
Pillar 3:- Planned Maintenance:- It aims at pre-planned maintenance of equipment so as achieve zero breakdown at optimum maintenance cost.
Pillar 4:- Early Management:- It aims at reducing time required for equipment development.
Pillar 5:- Quality Maintenance:- It aims at achieving customer satisfaction with highest quality product.
Pillar 6:- Education & training:- It aims at improving knowledge, skills & morale of employees.
Pillar 7:- Office TPM:- It aims at implementing TPM in Office & administration work.
Pillar 8:- Safety, Health & Environment:- It aims at zero accident and zero health damage of employees.

PERFORMANCE MEASUREMENT IN TPM (How measure success of TPM)

OEE is a parameter with the help of which a firm measure performance of TPM. OEE stands for Overall equipment effectiveness.
Calculation of OEE requires identification of following "Six Losses"

1. Equipment breakdown
2. Set up time of equipment
3. Minor stoppage
4. Reduction in speed
5. Reduction in yield
6. Quality defects & rework

The first 2 losses are called "Time Losses" and they are used to calculate availability of equipment i.e. availability hours of equipment.
Third & fourth losses are called "Speed Losses" and they are used to calculate performance efficiency of equipment i.e. how efficiently the equipment is performing
The last 2 losses are called "Quality losses"
OEE (%) = Availability (%) x Performance (%) x Quality (%)
Desired levels of OEE components are

1. Availability should be more than 90%
2. Performance should be more than 95%
3. Quality should be more than 99%

"Cellular Manufacturing" / "One Piece Flow Production System

It aims to maintain a single work flow where waiting time after each process gets reduced to minimum extent & waste is also minimized.

PROCESS INNOVATION

It is implementation of new process or significantly improved process or new technology or new equipment or new software in business organization. PI note that regular seasonal change or selling new product or selling significantly improved product is not considered as PI.

Customer life time value (CLV)

Ratio of Defective units produced to total units produced is calculated. This defective % indicates the level of quality if production. It aims at zero defective.

Sigma Level	Defective (%)	Yield (%) (100% -Defective %)	Quality / Profitability
1σ	69%	31%	Lower Quality in Production
2σ	31%	69%	Non-Competitive Quality (Competition within industry not possible)
3σ	6.7%	93.3%	Average
4σ	0.62%	99.38%	Above Average
5σ	0.023%	99.977%	Below maximum productivity
6σ	0.0034%	99.99966%	Near Perfection

Methods to implement Six Sigma

There are 2 methods which may be used to implement six sigma in company.

1. DMAIC Method:- It aims to improve existing process to get drastic improvement in producing high quality product. It is 5 steps process. DMAIC stands for
   a. D – Define - Define the perfect problem perfect goal & perfect customer requirements
   b. M – Measure - Measure the current performance
   c. A – Analyze - Analyze the root cause of poor performance
   d. I – Improve - Improve the current practice & eliminate root cause of problem
   e. C – Control – Control & maintain the new practice

DMAIC is used in following circumstances only
a) There is only one product and only a single process needs to be altered provided competitor's action is stable, technology is stable & customer's behave is stable.

2. DMADV Method:- it aims at developing new process to get drastic improvement in producing high quality product. It is 5 steps process. DMADV stands for
   a. D – Define – Define the perfect problem , perfect goal & perfect customer requirements
   b. M – Measure – Measure & determine customer desired performance
   c. A – Analyze – Analyse the options to meet customer requirements
   d. D – Design – Design detailed process to meet customer requirements
   e. V – Verify – verify the decided process & ability to meet customer requirement.

DMADV is used in following circumstances only
1) Product is not in existence & multiple process needs to be altered and competitor's action is changing, technology is changing & customer's behave is changing.

BUSINESS PROCESS REENGINEERING (BPR)

It aims at complete rethinking (reengineering) of each business process to achieve drastic improvements in performance of cost, quality & speed. 4 components of BPR are

1) Fundamental rethinking:- it aims at challenging fundamental questions e.g. "What do we do what we do", "Why do we do the way we do".
2) Radical redesign:- it aims at redesigning of complete business operations considering "if we were a brand new business, how would we operate our company".
3) Dramatic improvements:- Achieving dramatic improvements using fundamental rethinking & radical redesign is main motive of BPR. For example Ford company adopted BPR in procurement process which led to reduction in number of employees by 75%.
4) End to End business processes:- It means each individual task in company should be related directly to ultimate objective rather than connected to next activity in the process.

Stages for implementation of BPR

1) Process Identification:- Each task is broken into multiple processes
2) Process rationalization:- Processes, which are non-value adding, are removed
3) Process – re-design:- Remaining processes are re-designed
4) Process – re- assembly:- re-designed processes are implemented in most efficient manner.

CHAPTER 4 – COST MANAGEMENT TECHNIUQES

Cost Management Techniques

A technique which aims at
1. Not allowing actual cost go above standard cost (Technically we call it Cost Control)
2. Reduction of cost (Technically we call it Cost Reduction)

Areas on which cost management technique may be applied

1. Product design:-Cheaper substitute of material may help in reducing cost but Quality should not be reduced.
2. Factory layout equipment:- Replacing old machines on expiry of life is better way to avoid production of defective units.
3. Production Plan Programme & Method:- Following things must be checked w.r.t. production plan Whether there is any wastage of material Whether there is any scope for reduction in idle capacity Whether stores control services are efficient (Stores means raw material) Whether labour is wasting its time.

Target Costing

Target costing is exactly opposite to cost plus profit approach. Under cost plus profit approach, a company used to produce a product without any cost restriction in mind. Once the product gets produced then they simply add the desired profit & decide selling price.
But under target costing, a company first decide the price which a consumer can pay for its product then it decide the profit to be earned. Now desired profit is reduced from selling price to arrive at budgeted cost per unit. This budgeted cost is technically called target cost for company. Company aims to produce a product within its target cost.

Components of Target Costing

1.Value Analysis (VA):- It is reviewing the material composition of existing product so that cost can be reduced without doing any reduction in value of product for customer.
2.Value engineering (VE):- It is use of VA tool on new product.
VE aims at reducing cost even before producing. Sometimes it is also known as functional analysis.

Target costing impact profitability

Target costing has a large positive impact on profitability in following 2 ways
1. It continuously focuses on product cost throughout life cycle of product thereby regularly track of actual cost is kept. Product design team becomes alert if there is little bit increase in cost. This process keeps on reducing target cost & thereby profit becomes higher
2. It helps in deciding target price at which company feels that customer will get value for money. If customer gets value for money then demand automatically gets increased and finally profit gets improved. Strategy of target costing is entirely different from traditional costing.

Traditional Costing :-
Decide Product Specification → Decide Product Design → Calculate Estimated Cost → Add Target Profit → Decide Target Price

Target Costing:-
Decide Product Specification → Decide Target Selling Price & volume → Desided Target Profit → calculate Target cost → Decide Product Design

TARGET COSTING CONTROL POINTS

Following points must be taken care of in target costing
1. Identify principal control point:- E.g. Timing of new product launch should be decided. If product is launched at right time then only it can absorb maximum market demand.
2. Point of Go / No Go decision:- organization should pre-decide the time & cost to be invested in deciding design of product. If target cost is not achieved within that time then company should leave this project/product.
3. Milestones:- it means stages which has been completed in target costing process. It aims at reaching level of design e.g. 80% product design is ready or 2 months has been invested in analyzing product design out of decided 3 months.

Points to remember for successful implementation of target costing

1. Create a project charter which describes goals of target costing efforts. This helps in pre-deciding the time & cost to be invested in target costing process hence it avoids delays.
2. Obtain management support:- An individual from Top management must be part of product design team because he can eliminate small problems in timely manner so that project is completed on time
3. Obtain a budget:- Top management must pre-approve budget amount to be spent in target costing process so as to decide "Go / No Go" decision. Money must be allocated out of corporate budget.
4. There are different individuals from different departments of an organization. All of them may have different agendas in regard to "What they want program to produce". Hence a strong team manager must be in target cost team
5. Target costing team must have individuals who are only involved in performing work assigned by target costing team. They should be full time participants.
6. Target costing may be very complex if it is related to high cost product & this product has many features & components. Using project management tools such as tracking the completion of small small task, easy access to previous cost data may help in performing target costing task easily.

Life cycle costing

A product has a life like a human. LCC aims at identifying cost & revenue over life of a product. This analysis tools helps in identifying strategies to be adopted during product's life to maximize profit e.g. which pricing strategy should be adopted during launching state, pricing at maturity stage etc.

4 stages in PLC (Product Life cycle)

1. Introduction stage
2. Growth Stage
3. Maturity or Stabilization stage
4. Decline stage

Stage 1:- Introduction Stage

This is first stage when product is launched. This has following characteristics:
1. Objective:- Since product of firm is not known in market hence firm focuses on creating product awareness.
2. Sales Level:- Initially sales volume is low.
3. Cost per customer:- Company spends much on high promotional & distribution expenses i.e. huge marketing cost in incurred hence there is high cost per customer in this stage
4. Profit:- Initially profit is also low or even negative
5. Competitors:- Less competition since an organization normally launches a better product

Following strategies are adopted during this stage
1. Product:- basic version product is offered
2. Price:- Pricing may very low or very high. Low pricing is called "Penetration pricing" and high pricing is called "Skimming pricing"
3. Advertising:- Firm advertises a lot to build product awareness among customer & dealers. Sales promotion cost is very high.
4. Distribution:- Initially distribution channel is not so big. Initially company chooses only those dealers who are very passionate about product.

Stage 2:- Growth Stage

Sales begin to increase rapidly due to greater customer awareness. This is second stage which has following characteristics:
1. Objective:- Since product of firm is known in market hence firm focuses on maximizing market share.
2. Sales Level:- Sales volume increases rapidly.
3. Cost per customer:- Company spends much on high promotional & distribution expenses i.e. huge marketing cost in incurred. Cost per customer is now average since number of customers increases.
4. Profit:- Profit starts rising at increasing rate
5. Competitors:- gaining huge market share attract new competitors in market

Following strategies are adopted during this stage
1. Product:- Now advanced version product is offered. After sales service & warranty is also provided.
2. Price:- firm will maintain high price so as to realize maximum profit. It has exceptions i.e. price is reduced if
   a. Low price will lead to market penetration
   b. Firm has spare capacity to absorb the increased sales
   c. New competitors are entering market day-by-day.
3. Advertising:- Firm advertises with a view to build product awareness in mass market
4. Distribution:- company aims at building intensive distribution channel.

Stage 3 – Maturity Stage

During this 3rd stage, sales continue to increase but rate is decreasing e.g. in 4th year sales increased by 25% as compared to 3rd year and in 5th year sales increased by 20% as compared to 4th year. Sales is increasing but rate of increase is decreasing. Sales begin to increase rapidly due to greater customer awareness.
This is third stage which has following characteristics:
1. Objective:- aim is to maximize profit while firm tries to maintain market share.
2. Sales Level:- Sales volume is on peak level.
3. Cost per customer:- low cost per customer
4. Profit:- Profit level is high.
5. Competitors:- There is intensified competition in the market.

Following strategies are adopted during this stage
1. Product:- Now firm try to diversify brands & models
2. Price:- Price will be close to cost due to high competition
3. Advertising:- Firm stresses on brand difference & benefits thereof
4. Distribution:- company aims at building more intensive distribution channel since now big distribution channel becomes a support.

Stage 4:- Decline Stage

Decline in sales volume is feature of 4th stage. Need or demand for the product disappears. Now market provides better & less costly substitutes. Sales begin to increase rapidly due to greater customer awareness.
This is 4th stage which has following characteristics:
1. Objective:- Reduce unnecessary expenditure since sales is low or even zero.
2. Sales Level:- Sales volume is low
3. Cost per customer:- low cost per customer since marketing expenses are low & customers is also low
4. Profit:- Profit starts declining or even losses occur
5. Competitors:- Several competitors also leave the market

Following strategies are adopted during this stage
1. Product:- Product can be sold with little new features & adding more values to customer
2. Price:- Gap between price & cost is further reduced.
3. Advertising:- this cost is also reduced
4. Distribution:- company identifies and close unprofitable outlets. Only selective distribution channels are kept.

Pareto Analysis

This was developed by Mr. Pareto. He made 80:20 rule. He observed that 80% wealth is owned by 20% citizens so he focused and laid down that an entity should apply this rule in organization also. It should identify those 20% activities or product which are contributing to its 80% sales & hence should focus mainly on these. This rule recommends to focus on most important aspect of decision making in order to simplify the process of decision making

Areas in which Pareto Analysis can be applied

1. Product Pricing:- A firm can maximize its profit at best price. Best price does not mean minimum price or maximum price. Best price means at which sales are at its maximum. Top management should identify 20% product which contribute to 80% of sales. Now Top management can devote sufficient time to decide price about these 20% product.
2. Customer profitability analysis:- Pareto analysis focuses on analyzing profitability on the basis of customers & identify those 20% customers who contributes to 80% profit. Now entity may think over the strategies to keep these 20% customers happy.
3. Stock Control:- Identify those 20% raw material which are responsible for 80% of stock cost. Now decide maximum stock level, minimum stock level and re-order level for this critical raw material.
4. Application of Activity Based Costing:- Under ABC, overheads are apportioned over products based upon number of cost drivers used. Pareto analysis says to identify those 20% cost drivers which are responsible for 80% overhead costs.
5. Quality control:- Identify those 20% causes which are responsible for 80% problems as reported by customers. Focus & improve on these 20% causes may provide competitive advantage.

Environmental Management Accounting (EMA)

Some organization adversely affect environment by its activities such as disposal of waste material, disposal of waste water etc. so these organization needs to incur cost to safe environment. EMA is collection of environment cost & thereafter doing analysis of these costs to control & reduce such costs. Environmental costs are divided into 4 categories:-
1. Prevention cost:- cost associated with preventing adverse impacts on environment e.g. evaluation of equipment w.r.t. pollution emission
2. Appraisal cost:- Cost incurred to determine whether products, processes & activities are in compliance with environmental standards.
3. Internal failure cost:- cost incurred from performing activities that has led to waste and same has not been discharged into environment e.g. disposing toxic material.
4. External failure cost:- cost incurred after environmental damage has been caused outside the organization.

4 Techniques to identify environmental cost

1 Input – output analysis:- Waste is identified by controlling input & output e.g. suppose 100 kg of material has been bought & 80kg has been utilized in production process. Now company has to account difference 20 kg. 10% of this 20 kg has been sold as normal loss scrap and remaining 90% has been waste. Now company must analyze impact on this waste on environment.

2 Flow cost Accounting:- This technique uses not only material flows but also the organisational structure. It makes material flows transparent by looking at the physical quantities involved, their costs and their value. It divides the material flows into three categories: material, system and delivery and disposal. The values and costs of each of these three flows are then calculated. The aim of flow cost accounting is to reduce the quantity of materials which, as well as having a positive effect on the environment, should have a positive effect on a business' total costs in the long run.
3 Life cycle costing:- under life cycle costing, environmental cost of a product is analysed over life of a product. Company must adopt TQM to reduce lifecycle cost.
4 Activity Based Costing:- ABC allocates internal costs to cost centres and cost drivers on the basis of the activities that give rise to the costs. In an environmental accounting context, it distinguishes between environment-related costs, which can be attributed to joint cost centres, and environment driven costs, which tend to be hidden on general overheads.

Controlling of environmental costs

After identification of environmental cost, now the task of controlling the cost arises. Following environmental cost are controlled
1 Waste:- Waste of material can be calculated by comparing material bought in and material consumed in production. Waste has environmental cost in terms of lost resources. Fines paid for non-compliance of pollution norms.
2 Water:- Organization spend money on water 2 times i.e. first while buying water and 2nd while disposing extra water. It is important for organization to identify where water is used & how consumption of water can be reduced thereby reducing environmental costs also
3 Energy:- energy cost can be reduced by identifying inefficiencies and wasteful practices thereby identifying cost savings
4 Transport & Travel:- if a business invest in most fuel efficient vehicles then it can save in terms of travel & transport of goods & material.
5 Consumables & raw materials:- These costs are usually easy to identify and discussions with senior managers may help to identify where savings can be made. For example, toner cartridges for printers could be refilled rather than replaced.

CHAPTER 5 – COST MANAGEMENT FOR SPECIFIC SECTOR

Specific Sector Means

1. Power sector
2. Agriculture sector
3. Information technology Sector (IT)

POWER SECTOR

Thermal power sectors are one of the main source of electricity in India. Other types of energy sources include hydro-electricity, solar power & wind power.

KEY RISKS IN POWER SECTOR

1. Highly capital intensive:- Power sector projects need long time frame hence always a risky business with huge requirement of capital investment
2. Coal supply position:- more than 50% of India's generation of electricity is based on coal. According to future estimate, India needs approx. 2000 million tonnes of coal by financial year 2031-32. This is more than 5 times of current coal consumption.
3. Complex electricity distribution network:- electricity is generated at power plant & then grids of electricity substations, transformers & power lines are used to connect producers & consumers. It needs more reliable networks.

VALUE CHAIN ANALYSIS IN POWER SECTOR

1. Generation of Electricity
   - Multiple power plants are installed
   - Generation of electricity is decentralised (Generation at multiple places
2. Transmission of Electricity
   - Grids are installed for transmission
   - "zero loss" is transmission is targeted
3. Distribution of Electricity
   - Smart metering is done
   - condition based maintenance is ensured
4. Storage of Electricity
   - Integration of multiple storage facilities is done
5. Marketing, Sales & after Sale service
   - Pricing & marketing strategies are decided
   - it is ensured that ultimate customer gets best efficiency
6. Customer's Consumption
   - timely response to demand of customer is ensured

AGRICULTURE SECTOR

Production & Sale chain in agriculture sector

Farmer → consolidator → Trader → Agent → Wholesaler → Retailer → Consumer

1. Farmer produce the product
2. Consolidator consolidate all products from different farmers
3. Consolidator sell to wholesaler through trader and commission agent
4. Now wholesaler sells to retailers
5. Ultimately retailers sells to consumer

FEATURES OF AGRICULTURE SECTOR

1. Unorganized Structure of industry:- Lack of government regulation is main reason why farmers get low margins.
2. Farmers lack knowledge of cost management techniques such as just-in-time, target costing
3. Understanding the potential to work collaboratively:- Farmers lack the benefit of working together. By focusing at "what the customer needs" and "how much the customer needs", farmers can also get advantage of push system.
4. Target cost management:- Target costing technique calculates target cost by reducing target profit from anticipated selling price. This helps in controlling cost & thereby helps in earning profit. But farmers cannot decide the selling price due to fluctuation in weather & customer demand
5. Imbalance of power distribution:- Power means bargaining power of farmers. Farmers lack this bargaining power which helps in selling at target price. This is due to unorganized nature of agriculture sector.

INFORMATION TECHNOLOGY (IT) SECTOR

FEATURES OF IT SECTOR

1. It has various sizes of entities starting from SMEs to very large entities
2. It deals in variety of services therefore lack of standardization is available in this sector
3. It is difficult to assign and management indirect cost in this sector
4. It is difficult to measure service work-in-progress
5. It has very complex structure.

APPLICATION OF COST MANAGEMENT TECHNIQUES IN IT SECTOR

SCM techniques can be applied in IT sector in following areas

1. Use of activity based costing to trace direct & indirect cost related to activities
2. Use of value chain analysis across different activities so as to reduce or eliminate non-value dding activities.

Use of cost analysis reports to identify variances & take remedial actions against negative variances.

4D IT COST OPTIMIZATION FRAMEWORK

4D STANDS FOR 4 TIMES "D"

1. Define organization vision:- Define vision of organization & obtain commitment of cooperation from TOP management regarding IT activities.
2. Documents current state:- Identify strength & weakness of current IT system
3. Delineation of target business structure:- Identify the gap between present IT structure & Target IT structure and lay down the strategies to implement same
4. Decision as to build VS Buy:- It is related to decision as to whether entity should build IT system in company or buy support services from outside.

CHAPTER 6 – DECISION MAKING

Cost-Volume-Profit Analysis (CVP Analysis)

Meaning

It helps in understanding relation between cost, volume & profit. This understanding helps in better decision making. CVP analysis aims at calculating Break-Even Point Sales.

Example

- Production at high “Volume” reduces “Cost” per unit.
- Less “Cost” per unit results in high “profit” per unit
- Calc. of BEP Sales helps in deciding “minimum sales” so that entity does not incur any loss

ACTIVITY BASED CVP ANALYSIS

Under ABC costing, Definition of Variable cost, Fixed cost is different

- A Cost which changes with change in production units is called variable cost
- Cost which changes with change in number of batches e.g. set up cost is called batch level cost.
- Cost which is specific fixed cost e.g. engineering cost is called specific fixed cost
- A general fixed cost

Batch level Cost, Specific Fixed cost & general fixed cost are added to find out total fixed cost & thenBEP is calculated.

$$\text{BEP (Under ABC)} = \frac{\text{Set up cost per set up x number of set ups+Engg.cost per hour x number of Engg.hours+General FC}}{\text{Selling price per unit-variable cost per unit}}$$

CVP ANALYSIS WHEN CONDITIONS ARE UNCERTAIN

- Sometimes calculating exact amount of fixed cost, variable cost & selling price per unit is not practically possible. For example, Manufacturing a chinese product in India & going to be launched First time in Indian Market.
- In such case BEP sales is calculated based on different probability.

CVP analysis in service sector & non-profit making organization

- Calculating BEP for Service Sector & Non-profit making organization is computed in the same manner as applicable for Manufacturing Entities.

CVP analysis when just in time is used

If a JIT System is implemented, the impact on Costs will be as under –

A- Direct Material Cost p.u will be lower due to better negotiation, long-term purchase agreements etc.

B- Direct Labour will be considered as a Fixed Cost instead of as a Variable Cost.

C- Batch Level, e.g. Set up Costs, will be removed since 1 Batch = 1 Unit, under JIT system.

$$\text{BEQ (under JIT)} = \frac{\text{Fixed Costs (including Labour) (+) Engg Cost} \times \text{No.of Engg Hours}}{\text{Sale Price per unit (-)Variable Costper unit (excluding Labour}}$$

Short term (run) decision making

Decisions impacting 6 month to 1 year are referred as short term decision making or tactical decisions.

Steps to take short term decision

1) Define the Problem or Issue requiring the Decision.
2) Identify various Alternatives and eliminate unfeasible Alternatives.
3) Determine Costs & Benefits of each feasible Alternative.
4) Examine the Total Relevant Costs, Benefits of each feasible Alternative.
5) Evaluate non-financial factors and ethical issues, wherever applicable.
6) Select the Alternative with greatest overall benefit, subject to non-financial and ethical factors

Types of Short term decision

Short term decision includes

1) Keep or drop decision
2) Product mix decision
3) Out sourcing decision
4) Sell or Further Process decision
5) Minimum price decision

Keep or Drop Decision

It is related to deciding whether to continue an unprofitable segment or drop (close) it.

Following things are calculated to take decision

1) Revenue to be lost:- it is difference between original sales revenue & new sales revenue which is expected after dropping the segment.
2) Cost Savings:- variable cost associated with segment to be dropped is cost savings.

Decision Making Rules

1) If cost savings are greater than revenue to be lost then segment should be dropped
2) If cost savings are equal to revenue to be lost then management is indifferent w.r.t. segment drop. Non-financial factors should be considered.
3) If cost savings are less than revenue to be lost then segment should be kept (Continued)

Product Mix Decision

This decision requires decision whether to produce a product or another product. In such case decision is made on the basis of contribution of each product and market demand. A product which yields the highest contribution is best one to produce & sell. Decision is taken on the basis of contribution per unit of limiting factor

Minimum Pricing Decision

Minimum Price = Relevant Cost

= Incremental (both Fixed and Variable) Costs of Manufacturing and Distribution + Opportunity Cost, if applicable

Sell or further Process

It is a choice between following 2 option

1. Either sell a product/component as it is
2. OR alternatively process it further by incurring additional cost

For Example:- Sell Chinese Pen drive as it is Or Customize it according to customer & then sell it.

steps are involved in decision making on further processing –

1) Compute Additional Revenue = Sale Value after further Processing Less Sales Value at Split off.
2) Compute Additional Costs = Further Processing Costs + S & D OH if any.
3) Compute Additional Profit = Additional Revenue Less Additional Costs.

Decide: If Additional Profit ≥ 0, process further. If not, sell without further processing

Outsourcing Decision Or “Make or Buy” Decision

This decision requires calculation of 3 things

1) Incremental cost:- It is purchase price of components or cost of services provided by external suppliers if outsourcing is decided.
2) Incremental cost savings:- it is reduction in cost that will no longer be incurred if outsourcing is decided.
3) Opportunity costs:- for example, if company decides to outsource then it is able to lease the factory space since it will no longer be required now. It is benefit of outsourcing

Decision Making Rules

1) If Incremental cost savings + Opportunity costs is less than Incremental costs then reject the outsourcing
2) If Incremental cost savings + Opportunity costs is greater than Incremental costs then accept the outsourcing
3) If Incremental cost savings + Opportunity costs is equal to Incremental costs then company will be indifferent w.r.t. both decisions. Non-financial factors must be considered.

CHAPTER 7 – PRICING DECISION

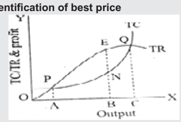
Pricing Decision

Pricing decision is one of the main decision which affect profitability & thereby survival of the organization. Pricing should be "best price". Best price does not mean minimum price or maximum price. It is the price at which customer feels that he is getting more value than he is paying. It indicates to "value for money" product.

Theory of Price Or Theory of Pricing Or Theory of Pricing using TR-TC approach

- Total revenue curve & total cost curve are considered to calculate best price.
- Total Revenue means Units sold multiplied by selling price. In graph TR curve originates from zero.
- Total cost curve:- Total cost is sum of Total variable cost (TVC) & Total Fixed Cost (TFC). TC curve starts from TFC line. TFC remains Fixed while TVC increases with increase in production units.
- The Price at which TR & TC has maximum positive gap is called best price.

Identification of best price



Analysis of Above Graph

- At Output level of "A", Firm is at break-even point since Total revenue and total cost is same
- At Output level of "C", firm is at break-even point since TR & TC is same.
- At output level of "B", Firm is having maximum gap between TR & TC. It means profit is maximum. On drawing a line from "E" point to y-axis, we will get best price

Theory of Pricing using MR – MC

- Marginal Revenue (MR) & Marginal Cost (MC) are considered to calculate best price.
- Marginal revenue means Change in Total Revenue due to change in quantity sold by 1 more unit. MR is also called derivative of TR E.g. TR of 10 units = Rs.20 x 10 = Rs.200 and TR of 11 units = Rs.20 x 11 units = Rs.220 Hence MR = 20
- Marginal Cost means Change in Total cost due to change in output by 1 unit.
  Example: VC p.u. = Rs. 10 and TFC = 200000
  TC for 5000 units produced = 5000 units x Rs.10 + 200000 = 250000
  TC for 5001 unit produced = 5001 units x Rs.10 + 200000 = 250010
  MC = Rs.10 = VC p.u.
- According to economics concept, Profit is maximum at a level where MR becomes equals to MC. Derivation of this is shown as below MR means additional revenue (Normally equal to Selling Price per unit)
  MC means additional cost (normally equal to Variable Cost per unit)
  Company shall reduce selling price to increase sales but maximum reduction in selling price shall be upto variable cost of producing additional unit otherwise it will incur loss on sale of additional unit.

Hence
Company shall reduce MR to increase sales but Maximum reduction in SP shall be upto VC
Hence MR = MC, profit will be maximum when MR = MC

- Above model also helps in deciding price at which profit is maximum

$$P = a - bQ$$

Whereby P = Price (selling Price)
A = Price at which no one is ready to buy i.e. Price at which demand is zero
b = Discount in selling price to sell one more unit (Reduction in SP to sell one more unit)
Q = Quantity demanded

Pricing under different markets

1. Perfect Competition Market - Many Sellers of Similar Product – Best Price is Market prevailing price
2. Monopoly Market - Only One Seller in Market – Best Price is high Price
3. Monopolistic Market – No. of Sellers are more than one but less than No. of sellers in perfect competition – Best Price means a price little less than prevailing market price
4. Oligopoly Market – 2 or 3 sellers having maximum market share (90% Market share) – Following 2 ways to decide best price
   a) Predatory pricing policy – Sell at a price below cost – Gain huge market share – Competitors normally close their operations & then increase price & earn abnormal gain
   b) Limit-Pricing policy OR Forestalling price policy – Sell at a price which is above the cost but below the cost of competitors

Price Customization

It means different price for same product depending upon situations.

1) Price changes due to change in requirement of customers:- For example, customer want more memory option in smartphone e.g. 16GB & 32GB. Price will change due to this
2) Price changes due to past behave of customer:- if customer pays on time then he may be offered products at less price
3) Price changes due to demographics:- pricing policy based on age or social status of customer e.g. railway given concession in fare to senior citizen
4) Price changes due to time differential:- e.g. if customer takes subscription of data usage for higher period then he may be offered at less price

Price Senstivity (Developed by Mr. Thomas Nagle)

It is related to study the impact on customers demand if price is changed (Either increased or decreased). If price sensitivity is higher then firm will avoid to increase price since higher prices may shift the customer to competitors.

1) Unique value effect:- if product is unique then price sensitivity is low.
2) Substitute awareness effect:- if buyers is aware of substitute products then price sensitivity is high. Firm should think twice before increasing price
3) Difficult comparison effect:- if buyer feels difficulty in comparing 2 alternatives then price sensitivity is low
4) Total expenditure effect:- if expenditure on a product is low as compared to income of customer then price sensitivity is low
5) End-benefit effect:- if expenditure on a part of a product is low as compared to total cost of product then price sensitivity of that part shall be low e.g. if customer will be less price sensitivity for price of fan which is used in CPU.
6) Shared Cost effect:- if buyer is able to share the product with other then price sensitivity will be low.
7) Sunk investment effect:- if product is used along with asset previously bought then price sensitivity will be low
8) Price quality effect:- if buyer has high perceived value for a product then price sensitivity will be low. High perceived value means customer feels high satisfaction.
9) Switching Costs Effect – the higher the product-specific investment a buyer must make to switch suppliers (monetary and non-monetary), the less price sensitive that buyer is when choosing between alternatives.

Pricing Methods

1. Cost Based Pricing Method:- Price is simple addition of cost per unit & desired profit per unit
2. Competition based pricing method
   a. Going rate pricing method – sell at prevailing market price.
   b. Sealed Bid pricing method – Bid means offer price. Quote a price which is less than price of competitors
3. Value based pricing method
   a. True Economic Value Method / Objective Value Method – Selling price is based on estimated value of additional features given in product

Formula - TEV = Cost of next best alternative + Estimated Value of additional features

   b. Perceived value method – Set a price which a customer is ready to pay.

Pricing in period of recession

Recession means when people are not earning well. Firms don't wish to make profit in this period.
Set price below total cost but at least above variable cost per unit

Pricing below marginal cost (Variable cost)

This method is never desirable method. Firms incurs loss in this. It is adopted either to sell dead stock of perishable goods or to popularize the product. Example Parle-G biscuit is sold without earning any profit. It is just to popularize company

Pricing methods for New Products

New product means

1) Revolutionary products (RP) – unique product having new features – It is sold at high price
2) Evolutionary products (EP) – an upgraded product having additional features – Pricing little more than prevailing market price
3) Me too product – These products emerge due to success of RP / EP. It is sold at prevailing market price

Pricing Policy

1) Skimming Pricing Policy – Charge high price at initial launch e.g. Mobile Phones of Apple Company
2) Penetration Pricing Policy – Charge low price at initial launch to popularize the product

Sensitivity analysis in pricing decisions

It involves evaluating the effect of Price on various other factors (Demand, Output, Marketing Costs, etc.), and vice-versa

Price adjustment policies

It refers to discount giving strategies. Discount giving policies are as follows:-

1. Distributor's discounts:- discount is given to various distributors in trade channel on the basis of functions performed by them e.g. 5% discount is given to all retailers, 8% discount is given to dealers and 10% discount is given to wholesalers.
2. Quantity discounts:- Give huge discount if customer is buying huge quantity.
3. Cash Discounts:- Give discount if customer is making payment immediately
4. Price Discrimination:- it means charging different price in different market and to different buyers. Example – Different price in Delhi & Mumbai
5. Geographic Discount:- More price if goods are to shipped in foreign as compared to goods shipped in India due to different freight charges

Pricing in service sector

Pricing depends upon type of contract

1) Supply and Labour Billing: Service Companies like appliance repair shops, automobile repair business arrive at prices by using two computations, one for Labour and other for Materials and Parts.
2) Pure Labour Billing: If materials and parts are not part of service being performed, then only direct labour costs are used as basis for determining price.
3) Cost Plus Pricing: With a cost based approach, a mark-up percentage is used to cover Overhead Costs and profit margin, in addition to the direct cost of Labour, Materials and Parts.
4) Service Overhead Based Billing: Using ABC techniques, Direct Labour and Overhead Costs are ascertained. The desired margin is added to determine the service charges, e.g. Consultants, Lawyers.

CHAPTER 8 – PERFORMANCE MEASUREMENTS & EVALUATION

Introduction

- Every company is formed for some purpose. Example profit making is the objective of Dabur Company & Giving service to poor patients is the objective of hospitals.
- We need some parameter with which we can actual performance & evaluate whether entity is successful or not. This is technically called "Performance measurement & evaluation"

Responsibility Centers & Its types

Each Dept. is given some responsibility e.g. Dept. A has to earn profit, Dept. B has to minimize production cost. Each Dept. is informed of "What he is required to do" and "What is expected from it"

Types of RC
1. Cost Centre:- it is responsible for cost management i.e. cost control & cost reduction.
2. Revenue Centre:- it is responsible for increasing sales revenue
3. Profit Centre:- it is responsible for increasing profit
4. Investment Centre:- it is responsible for maximum utilization of all available resources.

Types of Performance measurement techniques

Following techniques are used for financial evaluations

1. Return on investment (ROI)
2. Residual Income (RI)
3. Economic Value Added (EVA)
4. Shareholder Value Added (SVA)

Following techniques are used for financial as well as non-financial evaluations

1. Triple Bottom Line (TBL)
2. Performance Pyramid Model
3. Performance Prism Model
4. Building Block Model (BB Model)
5. Balance Score Card (BSC)

Financial Evaluations

Return on investment (ROI)

Performance of a Dept. is compared with desired ROI. Comparison with absolute figure of desired profit is not considered good.

$$ROI = \frac{\text{Divisional Profit}}{\text{Assests of Division}} \times 100$$

Residual Income (RI)

Performance of a Dept. is compared with residual income. Residual income means income earned by division over & above minimum target income. Minimum target income means investment multiplied by opportunity cost of capital.

Steps to Calculate RI
1) Calculate Profit of Division
2) Calculate opportunity cost of capital e.g. investment amount x Opportunity Cost of Capital
3) Calculate RI = Division's profit – Opportunity Cost of Capital

RI technique measures income in absolute figure which is its limitations.

Economic Value Added (EVA) (Developed by Stewart)

Performance of a Dept. is evaluated using EVA. If entity is earning EVA, it means Its performing better on financial ground.
EVA is the profit earned over and above cost of capital of the firm.
Formula
EVA = Net operating income after tax (NOPAT) – Capital employed x Weighted average cost of capital (WACC)
WACC = [Cost of Equity x Proportion of equity in total capital + cost of Preference Capital x proportion of Preference Capital in total capital + Cost of debt x Proportion of debt in total capital x (1 – tax rate)].

Steps to Calculate EVA
1) Calculate NOPAT
2) Calculate WACC & Capital Employed
3) Calculate EVA

Adjustments to calculate NOPAT – Stewart suggest following adjustment while calculating EVA
1) Amount of Interest on loan & its tax benefit is removed. If interest is charged in P&L A/c then Interest on loan is added back and tax benefit on interest is reduced.
2) Non-Cash Items e.g. goodwill written Off, Preliminary Expenses W/Off should be added back (If reduced)
3) Accounting Dep. should be added back (If reduced) and Economic Dep. Shall be reduced. Economic Depreciation means reduction in market value of assets
4) Provision for doubtful debts shall be added back (If reduced)
5) Interest on capital shall be added back (If reduced)
6) Increase in capitalized research & development cost shall be added back (If Reduced)
7) provision of deferred tax shall be added back (If reduced)

Shareholder Value Added (SVA) Or shareholder value analysis – Developed by Mr. Alfred Rappaport

If an entity keeps on increasing SVA, it means company is performing better on financial grounds.
SVA per Share = Total Shareholder Value ÷ Number of Shares Outstanding.
Total Shareholder value means value of Company's present and future Cash Flows discounted at an appropriate Cost of Capital.
According to "Alfred" following 7 factors affect shareholder value
1) Growth Rate of Sales
2) Operating Profit Margin
3) Income Tax Rate
4) Investment in working capital
5) Investment in Fixed capital
6) Cost of Capital
7) Life of project

He calls these 7 factors as "Value drivers"

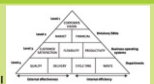
Non - Financial Evaluations

Triple Bottom Line Model ("TBL" or "3BL" or "3P") – Developed by Mr. John Elkington

In 1994 he emphasized on looking at social & environmental performance rather than simple financial performance. TBL has 3 dimensions

1) Social (People):- It focuses on "Do something for people". It is proven fact that a company which ignore their people earns "Lower profit"
2) Environmental (Planet):- It focuses on "Look after your planet". It is proven fact that a company which focuses on environment gets a powerful image in mind of people which lead to several benefits. Coca-cola company pledges to achieve major recycling initiative by 2030.
3) Economic (Profit):- It is related measuring economic success of company & improving it. It focuses on "Don't Forget to earn profit".

Performance Pyramid Model - developed by Cross and Lynch



It has 4 levels of "SMART" model
1. Level 1 OR TOP Level:- Top of Pyramid shows vision and mission of the organization which describes its ambitions and how will it achieve its vision.
2. Level 2 OR Business Level:- This aims to achieve CSF w.r.t. market-related measures & financial-measures. Marketing & financial success is required utmost to achieve corporate visions
3. Level 3 OR Operating system level:- It has 3 indicators which helps in measuring business operating system. Now Marketing strategies & financial strategies are linked to higher customer satisfaction, increased flexibility to respond to change in market immediately & higher productivity. Productivity means optimum utilization of resources such as men, money & material (3Ms)
4. Level 4 OR Department level:- It has 4 criteria to evaluate performance of departments. Success of strategies are measured at departmental level. It includes quality of product, on-time delivery, less cycle time Less time to produce product) & less wastage (Reduce non-value adding activities).

Benchmarking & its types

Benchmarking means "comparing with best & taking improvements". Its Types are as follows
1) Competitive benchmarking:- it involves comparison with competitors. Competitors products, services & activities are compared with own products, services & activities.
2) Process benchmarking:- it involves comparison with processes. Processes, operations & activities of best organization are compared with own Processes, operations & activities.
3) Strategic Benchmarking:- it involves comparison of long term strategies.It looks at what other companies are doing w.r.t. development of new competitive products.
4) Global benchmarking:- it involves finding out difference between international culture, international business processes, international operations & national culture, processes & operations.
5) Functional Benchmarking:- it involves comparison of similar functions from best organization from a different sector. It leads to innovation & drastic improvements.
6) Internal benchmarking:- it involves comparison within different units of same business organization. It is internal comparison.
7) External benchmarking:- It involves comparison with outside organizations which are known to be best in class.

Benchmarking is categorized into 2 category.
1) Intra-Group benchmarking:- Under this, A group is formed in which all companies in same industry agree to share their data related to processes & activities with each other. It helps in identifying and transfer of best practice to all members of the group
2) Inter-industry benchmarking:- under this, non-competing business having similar process is identified and used for comparing business. For example, a school book publishing company may compare with university book publishing company and identify best practice between them & take advantage.

BENCHMARKING CODES OF CONDUCT

1) Principle of legality:- It should not lead to illegal activities e.g. Doing price fixation
2) Principle of exchange:- Parties of benchmarking arrangement should be loyal in exchanging information about processes, operations & activities.
3) Principle of confidentiality:- Information & findings should not communicated outside
4) Principle of Use:- Gathered information should be used only for improvement purpose among benchmarking partners.
5) Principle of first party contract:- there should be a legal contract among benchmarking partners which clearly defines rights & responsibilities of each party to it.
6) Principle third part contract:- third party means a person who was not in benchmarking team but he may have access to findings of benchmarking committee. Legal contract among benchmarking partners should clearly define whether or not access to third party will be available.
7) Principle of preparation:- benchmarking process should be clearly defined. It should clearly lay down all activities with their sequence to perform so that objectives of benchmarking can be obtained.

Performance measurement of "Not-For-Profit" organizations

There are 2 techniques to measure performance of NGOs
1) Value for money framework
2) Adapted Balanced Scorecard

VALUE FOR MONEY FRAMEWORK
There is a framework i.e. "Value for money framework" which helps in evaluating performance of "Not-For-Profit" organizations. It has following 3 parameters to evaluate performance of "Not-For-Profit" organizations. There are 3E in this framework

1) Effectiveness:- Assessment of whether NGO achieved its mission & objectives?
2) Efficiency:- Assessment of whether resources & funds utilized properly? i.e. Assessment of whether maximum output obtained with minimum resources/Input?
3) Economy:- Assessment of whether desired output produced at lowest cost without compromising quality?

ADAPTED BALANCED SCORECARD APPROACH

There are 4 perspective in adapted balanced scorecard:-

1) Customer perspective:- customer means beneficiaries. It aims at satisfaction of beneficiaries.
2) Financial perspective:- it aims at proper utilization of raised funds therefore focused at members/donors.
3) Internal processes perspective:- it aims at getting efficiency in using resources
4) Learning & growth perspective:- it aims at capability of organization to adjust according to changing environment.

Balance Score Card

Scorecard is like a marksheet of student and when scorecard is used in relation to business, it was termed as "Balanced Scorecard". It includes financial as well as non-financial aspect.
1) Financial perspective:- It encourages identification of high level financial measures which helps in answering the question "How do we look to shareholders?" e.g. Sales growth every year, High ROI etc.
2) Customer Perspective:- It encourages identification of high level measures which helps in answering the question "How do customer view us?" e.g. % of Sales from new product, on-time delivery, customer satisfaction etc.
3) Internal business perspective:- It encourages identification of high level measures which helps in answering the question "At What must we excel?" e.g. less cycle time, les per unit cost of product etc.
4) Learning & growth perspective:- It encourages identification of high level financial measures which helps in answering the question "How can we continue to improve, create value & innovate?" e.g. developing new products

Performance prism model

It puts 5 questions which are necessary to answer to complete performance measurement.
1) Stakeholders satisfaction:- "Who are the stakeholders and what are their need & wants?". Here stakeholders include customers, investors, employees, suppliers etc. Need & want of each stakeholder is different e.g.
   a. Customer need high quality product, on-time delivery, timely respond to customer problem etc.
   b. Employee need high salary package, on the job training, timely promotion etc
   c. Investor need high ROI
   d. Suppliers need timely payment, feeling of being partner in business of organization etc

2) Stakeholders contribution:- "What the organization needs from stakeholders?".
   a. Organization wants customers to be loyal & actual feedback provider.
   b. Organization wants employee to be reliable, responsibility-taker, skillful etc
   c. Organization wants investor to believe in plans & policies of management.
   d. Organization wants suppliers to supply high quality raw material, timely supply etc

3) Strategies:- "What strategies should be put to satisfy wants and needs?". In the performance prism model, strategy means "how the goal will be achieved". It is the route that an organization takes to reach goal, not the goal itself. Goals are defined in first 2 perspective of this model e.g. Plan to launch a new product with help of skillful employees may fulfill both above goals.

4) Processes:- "What processes are required to implement above startegies?" after deciding strategy, now company needs to find out "Right business processes" to support strategies. Business process reengineering may be used to identify redundant process. Value chain analysis may be used to identify key processes. Strategies helps to decide "What to do" and Processes helps to decide "How to do".

5) Capabilities:- "What capabilities organization needs to operate processes?" Capabilities means people, technologies & infrastructure required to enable a process to work. Availability of right capabilities is of utmost importance as per performance prism model.

Building Block Model - developed by Fitzgerald & Moon

It is specifically designed for service sector.
There are 3 aspects to build performance measurement system

First Aspect	Dimensions	Deciding goals on which performance shall be measured
Determinants (The things that are important to get results)	1. Innovation 2. Quality 3. Resource Utilisation 4. Flexibility	Number of New products Product Reliability, Product Friendliness Good Productivity & Efficiency (Less wastage, Less time to produce) Ease in change in Specification,
Results	5. Competitive Performance 6.Financial Performance	Sales Growth, Relative Market Share Growth Good Profitability, Return on Capital Employed, Optimum Liquidity

- Getting the Top 4 correct will lead to strong financial & competitive performance.
- These are insured at Board Level
- They are further broken in multiple targets for divisional managers so that someone is responsible to ensure that Each target is achieved.

Second Aspect	Standards Key Performance Indicators	Deciding what the company wants / desires
	1. Ownership 2. Achievability 3. Equity	Who is responsible to achieve standards How difficult are standards All managers should be given equally challenging standards
Third Aspect	Rewards	Deciding what the managers will receive
	1. Clarity 2. Motivation 3. Controllability	Targets should be very very clear e.g. innovate one new product within every 3 monthss Rewards should itself motivate managers to achieve standards Reward should be based on non-financial elements also.

CHAPTER 9 – TRANSFER PRICING

Meaning of Transfer Price (TP)

Meaning

Price at which goods / services are sold internally within an organization, is called TP

Example

If a subsidiary company sells goods to a parent company, the cost of those goods paid by the parent to the subsidiary is the transfer price.

TP Methods

1) Market based TP – TP is decided based on market price of similar goods / services
2) Shared Profit relative to Cost Method – TP is sum of Cost incurred per unit & share in profit

Step 1 - Calculate total profit of the company using following formula

Total profit of company = Sales value – Cost of Supplying Dept. – Cost of Receiving Dept.

Step 2 - Divide profit in ratio of total cost of individual deptt.

$$\text{A's Share} = \frac{\text{Total Profit of company}}{\text{Total Cost of Company}} \times \text{A's Cost}$$

$$\text{Step 3 - TP} = \frac{\text{A's Total Cost} + \text{A's Share of profit}}{\text{Total Qty}}$$

3) Cost Based TP
   a. Marginal Cost Based TP – TP is equal to variable cost / marginal cost of units produced by supply Dept. for receiving Dept.
   b. Standard Cost Based TP – TP is equal to standard cost of producing the units
   c. Full Cost Based TP – TP is equal to total cost incurred in producing units.
   d. Cost plus Mark-up Based TP – TP is equal to cost per unit & profit per unit.
4) Negotiation Based TP – TP is the price at which both supply Dept. & Receiving Dept. is agree.

Goal Congruence

Meaning

It means department has to achieve its objective in align with objectives of organization.

Example

Dept. A (Selling Dept.) must earn profit in internal transfer but must also ensure that Entity gets cost advantage by using FG of Dept. A as raw material

Range of TP to promote goal congruence

In order to promote "Goal Congruence" a range of TP is decided i.e. minimum transfer price and maximum transfer price.

1. Minimum TP:- it is determined by supply dept.

   Minimum TP = Marginal cost of production + any additional incidental cost incurred by supply dept. e.g. storage cost etc. + Opportunity Cost

   Opportunity Cost means benefit forgone if decision to supply internally is taken in spite of selling outside

2.Maximum TP:- it is determined by purchase dept.

   Maximum TP is lower of
   - Market purchase price of component (External Buy-in-Price) OR
   - Net Marginal Revenue

Net Marginal Revenue

= The price at which purchase department sells its FG in market (Selling price of Purchase Dept.)

– Cost incurred by purchase Dept. after purchase of component

Example:- Dept. A produces Product A and Dept. uses product "A" as component/raw material to produce its FG "B".
Dept. A incurs marginal cost of Rs.10 per unit on producing "A".Dept. B incurs marginal cost of Rs.5 per unit to process it further.
Division B sells product "B" externally at Rs.20 per unit. You are required to calculate price range of TP assuming that Component "A" can be purchased from market at Rs.14 per unit.

Solution:- Minimum TP = Marginal Cost = Rs.10 per unit

Maximum TP means Lower of

1. Net Marginal Revenue i.e. Selling Price of FG – Modification Charges by Purchase Dept. i.e. Rs.20 – Rs.5 = Rs.15
2. External buy-in-price i.e. Rs.14 Hence maximum TP is Rs.14 per unit.

   Range of TP which promotes goal congruence, will be Rs.10 per unit to Rs.14 per unit

Methods to resolve TP Conflict

1. Dual Rate TP system:- under this system, Supply management records its transfer at "cost plus profit" and purchase department records internal transfer at "marginal cost". Inter-departmental profit is eliminated by an accounting entry. This method makes happy to both department. There are 2 prices at which internal transaction is recorded that's why it is called "Dual rate TP system".

2. Two Part TP system:- under this method, one TP is calculated at which both departments records the transaction. TP includes "marginal cost of production" plus "lump-sum fixed charge".
   "Marginal cost of production" means additional cost incurred by supply department to produce for internal transfer.
   "lump-sum fixed charge" enables supply department to charge some portion of fixed cost of supply department. This helps supply dept. to show better profitability.

It is called "Two Part TP system" since TP includes 2 types of cost
- First Marginal Cost
- Second Fixed Cost

International TP

When purchase division and supply division operates in different countryMthen price at which goods/services are transferred from supply to purchase division,
is termed as "International TP".

CHAPTER 10 – STRATEGIC ANALYSIS OF OPERATING INCOME

Pricing Decision

Name of this chapter is "strategic analysis of operating income", This chapter mainly focuses on 2 things

1. Evaluation of overall profitability of a firm including profitability of its product as well as profitability of its customer.
2. Strategies required to be implemented so that actual profit is at least equal to desired profit.

Generic Strategy (Suggested by Mr. Porter)

According to Generic Strategy, there are only 2 ways in which a firm can maximize its profit. A firm can choose any method to increase profit.

1. If a firm can produce a product at a cost lower than its competitor then it can meet desired profitability standards i.e. it can earn desired profit. This strategy is called "Cost Leadership strategy"
2. If a firm can add some special features in its product which make it different in eyes of customer & customer feels that he is getting more value from this product as compared to value from product of competitor. This Strategy is called "Differentiation Strategy"

Profitability analysis through Activity Based Costing

ABC suggests to divide cost on the basis of activities. Example If a product needs more set up time to produce then more set up cost should be allocated to this product.
This way suggests to use ABC while evaluating profitability analysis.

Customer profitability analysis

It suggests to calculate customer wise profit so as to identify least profitable customer & thus avoid servicing them. A banking company classify its credit card customer in 4 categories
1.Platinum customer – Most profitable
2.Gold customer – Profitable
3.Iron customer – Low profitable but desirable
4.Lead customer – non-profitable & not desired

Direct Product profitability

It suggests to calculate product wise profit so as to identify "most profitable product" & "least profitable product.
Under DPP, all cost are divided into 2 category:-
1) Direct cost - these cost can be identified for each product hence should be deducted directly from selling price to arrive at gross profit e.g. purchase cost
2) Indirect cost:- cost which is incurred for all products collectively hence cannot be identified product wise e.g.
   i. Indirect overhead cost (Warehouse Rent),
   ii. Volume related cost (storage & transportation cost),
   iii. Product Batch cost (Labour time cost attributable to stockings of product),
   iv. Inventory financing cost (Interest payment attributable to Cost of stock of product)

Note:- These indirect cost, apportioned on the basis of cost drivers, is called "Direct Product Cost".

Activity based cost management (ABM / ABCM)

Under ABM model 3 types of analysis are done
1) Activity analysis
   a) Value added activities analysis – Identify value adding activities & Keep on performing them
   b) Non-Value added activities (NVA) analysis – Identify such activities & remove them e.g. inspection time, waiting time, moving time & storage time – all are NVA
2) Cost-Driver analysis - It aims at studying cost drives (Factors) which affect level of cost. For example, cost in processing of customer invoices is dependent upon training of customer invoice executive. If there is lack of proper training to executive then cost will increase. This study aims at identifying such factors & aims to eliminate or at least reduce these factors.
3) Performance analysis - it involves identification of performance parameter on which actual performance of an activity shall be compared.

ABC in advanced manufacturing environment

- Advanced manufacturing environment means an environment in which "advanced manufacturing technologies" are used which helps in adopting "just-in-time manufacturing" approach.
- ABC in advanced manufacturing environment focuses on identifying cost of activities & then comparing it with value added by that activity in product. ABC helps in assessing "activity performance".

Delivery Manufacturing Cycle Time

Delivery Cycle Time :- it is time between the receipt of Customer Order and Delivery of Goods.
Manufacturing Cycle Time :- it is total Production Time required per unit which is sum of VA Time & NVA Time, where

VA Time = Processing Time

NVA Time = Inspection Time + Waiting Time + Move Time
Manufacturing Cycle Efficiency

$$= \frac{\text{Processing Time}}{\text{Processing Time} + \text{Inspection Time} + \text{Waiting Time} + \text{Move Time}}$$

An organization aims to improve manufacturing cycle efficiency (%).

STRATEGIC PROFITABILITY ANALYSIS

Profitability analysis makes analysis of change in profit. Change in profit means difference between current year's profit and previous year's profit.
Under this modern way of analysis, change in profit is analyzed on 3 parameters.
1. Growth parameter
2. Price Recovery parameter
3. Productivity parameter

Each parameter is further sub-divided into 2 categories:-
1. Revenue Effect
2. Cost Effect

Growth Component

This component measures the impact on "change in profit" due to "change in quantity of units sold". Growth in quantity sold may be positive or negative. Positive growth means higher units sold as compared to last year and negative growth means less units sold as compared to last year.
For example, if 1,50,000 units sold in current year as compared to 1,00,000 units sold in last year then it will have impact on 3 things.
- First thing:- It will have impact on "Sales Revenue".
- Second thing:- it will have impact on "Variable cost" since production at big level normally provides economies of scale & thereby normally variable cost per unit decreases.
- Third thing:- it will have impact on "Fixed Cost" since may be organization need to enhance its capacity (Rent a new machine, Rent more Factory space) hence this will impact fixed cost amount.

Now Let me tell you that
- First thing is technically called "Revenue Effect" of Growth Component.
- Second thing is technically called "Variable Cost Effect" of Growth Component.
- Third thing is technically called "Fixed Cost Effect" of Growth Component.

Formulas to Calculate each "Effect" of Growth Factor
1.Revenue Effect of Growth Component
= (Actual units sold in current year – Actual units sold in last year) x Selling price of Last year

2.Variable Cost Effect of Growth Component
= (Units of input required to produce current year output in Last year – Actual units of input used to produce Last year's output) x variable cost per unit of input of Last year

3.Fixed Cost Effect of Growth Component
= (Actual units of capacity in last year if adequate to produce current year's output in last year – Actual units of capacity in last year) x Fixed cost per unit of capacity in Last year

Pl. Note that if you are thinking "why we have used last year selling price" or "Why we have used last year variable cost or fixed cost" so let me tell you that "impact of change in selling price" & "impact of change in variable & fixed cost" are considered in 2nd parameter i.e. "Price recovery parameter"

Price Recovery Component
As we know that under this parameter, we will study impact of "Change in selling price", "Change in variable cost" & "Change in fixed cost".
Price means Price received & Price paid. Price received is called "Selling Price" because a firm receives it from customer. Price Paid means "variable cost & fixed cost" since firm pays it to produce finished goods.
So Price Impact in calculated in 3 parts:-
1) Revenue Effect
2) Variable cost Effect
3) Fixed Cost Effect

1) Revenue effect:- :- It measures impact of change in selling price on profit.
Formula = Change in Selling Price x Actual Quantity Sold in current year
= (Selling Price of current year –Selling Price of previous year) x Actual Quantity Sold in current year

2) Variable Cost Effect of Price Recovery parameter:- It measures impact of change in variable cost on profit.
Formula = (variable cost per unit of input in current year - variable cost per unit of input in last year) x units of input required to produce current year's output in last year

3) Fixed Cost Effect of Price Recovery parameter:- It measures impact of change in Fixed cost on profit
Formula = (Fixed cost per unit in current year - Fixed cost per unit in last year) x Actual units of capacity in last year, if adequate to produce current year's output in last year.

Productivity parameter
Now coming to last parameter, this is productivity parameter. Productivity is related to units produced by using inputs e.g. raw material, labour hours etc.
For example, if in previous year, labour was producing 4 units in 1 hour and now in current year labour produces 5 units in 1 hour. It means worker are producing 1 additional unit in 1 hour. This indicates 25% increase in efficiency level of workers.
Productivity measures impact of change in product mix/yield on profit. This component impacts only cost hence it is calculated in 2 parts
1) Variable cost Effect
2) Fixed Cost effect

Variable Cost Effect of Productivity Parameter
Formula = (Actual units of input used to produce current year's output – units of input required to produce current year's output in last year) x Variable cost per unit in current year

Fixed Cost Effect of Productivity Parameter
Formula = (Actual units of capacity in current year – Actual units of capacity in last year if adequate to produce current year's production in last year) x Fixed cost per unit of capacity in current year.

Reconciliation Statement

Particulars	Amount (Rs.)
Operating profit in last year	XXXX
Revenue & Cost Effect of Growth Component	Add (If Favorable) & Reduce (If adverse)
Revenue & Cost Effect of Price Recovery Component	Add (If Favorable) & Reduce (If adverse)
Cost Effect of Productivity Component	Add (If Favorable) & Reduce (If adverse)
Operating profit in current year	XXXX

DIFFERENCES BETWEEN ABC AND ABM

ABC	ABM
ABC is basically a technique which suggest to apportion overhead cost among products based on their cost drives.	ABM simply means application of ABC in cost management. Cost management means cost control & reduction.
ABC is a smaller concept.	ABM is a much broader concept which focuses on "activity performance" & thereby helps in gaining "competitive advantage"

Activity-Based Costing (ABC)	Activity-Based Budgeting (ABB)
Resources	Resources
↓	↓
Activities	Activities
↓	↓
Cost objects: products and services produced, and customers served	Fore cast of products and services to be produced, and customers served

ABB analyzes product/services to be produced. It starts with "what activities are required to produce those products/services and finally leads to what resources are required to perform those activities". In simple words, ABB is just reverse of ABC.

CHAPTER 11 – BUDGETORY CONTROL

Budget

Meaning:
It means establishment of future targets

Example:
Mr. A decided to sell 2,00,000 units in next quarter. (It is sales target)

Budgetory Control

Meaning
Comparing actual result with budgeted target, finding out variances & taking corrective action, if variance is negative

Example
Mr. A compared actual sales of 1,50,000 units with 2,00,000 units as budgeted & found out reason of non-achieving sales target. Now he take new initiatives to avoid it in future

Feedback control

Meaning:
It means taking corrective action after the error has taken place.

Example:
Co. started production & thereafter found that production quality is low.
It identified that low quality of raw material is the reason for low quality if production. Hence now buying high quality of raw material. Action of buying high quality material after error, is called feedback control system.

Feed-Forward control

Meaning:
It means taking corrective action even before the error has actually taken place.
If forecast about result is negative then corrective action is taken in advance even before actual results

Example:
Even before starting production, production manager estimated that raw material quality is not good and production will be of low quality due to this.
So he ordered high quality material even before producing

4 Types of Feedback

1. Positive feedback
   When budgeted targets are actually achieved & therefore no corrective action is required then it is called positive feedback.Actual Sales is 2 Lakh units. Budgeted Sales target was 2 Lakh units. Hence positive feedback. No adverse variance.

2. Negative feedback
   When actual results are less than budgeted targets & corrective action is required then it is called negative feedback.Actual Sales is 1.50 Lakh units. Budgeted Sales target was 2 Lakh units. Hence negative feedback. Corrective action is required to avoid adverse variance in future e.g. increasing marketing activities to increase sales.

3. Primary feedback
   When negative variance is small and it can be corrected by lower management staff. It is called primary feedback. TOP management is not required to interfere.Workers abnormal idle time of 10 minutes on daily basis can be avoided if their reporting managers scolds workers & gives warning to cut salary if abnormal idle time continues further.

4. Secondary feedback
   When negative variance is big & TOP management has to interfere to avoid it in future. It is called secondary feedbackWorkers abnormal idle time of 2 hours on daily basis. Workers are ignoring warning of salary cut given by reporting officer. Now TOP management ordered to mark full day leave if a worker abnormally waste more than 10 minutes on daily basis

Control reports

Meaning
It means report card. It shows "budgeted targets", "actual achieved result" & "variance" of each budget. It is also called "Feedback reports".

Example
It is like mark sheet of CA Student wherein "Required Passing Marks", "Actual obtained Marks" and "Fail/Pass" is written

The Effect of budget difficulty on performance

Meaning
- If budget target is easy then actual result is normally more than budgeted target.
- If budget target starts becoming difficult then actual results starts falling short of budgeted target.
- If budget target is very difficult to achieve then actual results gets far below than budgeted target.

Example
- Student fixed daily study target of 6 hours & actually studied 7 hours in a day. So he easily achieved it.
- Student fixed daily study target of 10 hours & actually studied only 6 hour. His study time reduced due to tention.
- Student fixed daily study target of 16 hours & actually studied 5 hour. Too much difficult plan keeps mind in tention always.

Imposed style budgeting approach

Meaning
Budget is prepared by TOP management & targets are distributed among employees. lower level staff is not asked anything while setting budget. It is also called Top-Down budget approach

Example
Father, in a house, fixed monthly expense budget of Rs.40,000 without talking to his wife & children about their requirement.

Participative style budgeting approach

Meaning
Lower level staff makes budget & submit it to TOP management through departments' heads. Now TOP management reviews budget & suggest any changes, if required. So All employees participate in making budget. It is also alled Bottom-UP approach.

Example
Children told about their requirement to mother & Now mother submitted budget to Father for approval after adding her requirement. Now father may suggests some changes, if he thinks so. So all participate in making budget

3 Styles to evaluate actual performance against budgeted target

1. Budget constrained style
   Under this, managers are evaluated by comparing actual results with budgeted targets for a small period say monthlyComparing actual monthly sales with budgeted monthly sales target will come under this style

2. Profit conscious style
   Under this, managers are evaluated by comparing actual cash profit with budgeted cash profit for a longer period say yearlyComparing actual cash profit from operating activities with budgeted yearly cash profit will come under this style

3. Non-Accounting style
   Under this, managers are evaluated based on quality of product they produce, based on customer satisfaction they provide etc. hence only quality factors are considered for evaluating managers.If more customers are giving positive feedback about product & service, it means managers are working good.

Beyond budgeting

Meaning
Under this style of budgeting, targets are not given in numbers rather targets are growth based.

Example
Giving profit target of Rs.1.20 Crore on a sales target of Rs. 10 Crore in a year is a style of traditional budgeting method. Under beyond budgeting, managers will be told to achieve Net profit ratio of 15%. Benefit of this is that, in case sales gets reduced to 8 Crore. Even then company will ear Rs. 1.20 Cr (Rs.8 Cr. X 15%)

Leadership Principles of Beyond Budgeting

1.	Meaning	:- CustomerFocus on improving customer satisfaction
	Example	:- If customer is happy then profit will go on increasing
2.	Meaning	:- AccountabilityDecide responsibility of each employee
	Example	:- Manager A, You are responsible to buy material from market.
3.	Meaning	:- PerformanceFocus on better product performance
	Example	:- If product is best then profit will go on increasing
4.	Meaning	:- Freedom to ActGive some right to managers to take action
	Example	:- Manager A, You are free to decide supplier of raw material
5.	Meaning	:- GovernanceMake good policies for employees
	Example	:- Give promotion to manager if he beats the target
6.	Meaning	:- InformationShare all information with all employees
	Example	:- Everybody must be aware of all required information

Process Principles of Beyond budgeting

1.	Meaning	:- GoalsSet Goals of entity & keep improving them
	Example	:- To earn good profit & pay good salary
2.	Meaning	:- RewardsIf employee do one good thing and one bad thing then definitely reward him for good thing.
	Example	:- Employee was present full year without a leave but his some work remained undone. Give Reward to employee on "100% attendance"
3.	Meaning	:- PlanningMake & improve plan continuously
4.	Meaning	:- ControlsEvaluate performance of budget based on Key performance indicator
5.	Meaning	:- ResourcesMake resources available as & when required
6.	Meaning	:- Co-ordinationEnsure co-ordination among all functions & departments
	Example	:- Purchase department & production department must share information.

CHAPTER 12 – STANDARD COSTING

Standard Costing

Meaning
This chapter deals with comparison of "Cost target set" with actual cost. Technically we call it "Variance Analysis".

Example
After analysis, it was established that DMC for unit of FG shall be Rs.10 but after actual production, it was found that Actual DMC per unit is coming Rs.11. Rs.1 is Direct material cost variance.

Favourable Variance

- If Actual cost < Standard Cost
- If Actual Sales > standard sales.
- If actual profit > standard profit

Adverse Variance

- If Actual cost > Standard Cost
- If Actual Sales < standard sales.
- If actual profit < standard profit

Planning & Operational Var.

- In May Month, Top Mgt. fixed standard Purchase price per unit of Material as Rs.5. PI Note Material was freely importable in May.
- In Nov Month, Purchase manager actually purchased at Rs.10 per unit of material. PI Note Govt. imposed many restrictions on import of this material so price hiked.
- TOP Mgt scolded purchase manager & blamed that "You purchased at higher rate, You paid Rs.5 per unit extra & You are responsible for adverse material Price var. of Rs.5 per unit"
- Purchase manager said to TOP Mgt – "Sir, In Nov Month prevailing market price was Rs.11 due to restrictions on import. I managed to buy at Rs.10 per unit due to my bargaining skills. I should be rewarded for saving Rs.1 per unit".
- Winner:- Purchase manager is winner. He is saying right. He should be rewarded.
- Var. due to difference between Original budget (Standard Price Rs.5 per unit) and Revised budget (Prevailing market price Rs.11 per unit) is called "Planning Var."
- Var. due to difference between Revised budget (Prevailing market price Rs.11 per unit) and actuals (Actual Price Rs.10 per unit) is called "Operational Var."

Learning Curve Impact on Variance

Meaning
- We know that Practice makes a man perfect. Here it means if labour keeps on doing same work again & again then average time per unit on next units will keep on reducing.
- This concept suggests to calculate "Standard hours for actual output" considering learning curve impact.

Example
Labour will take 10 hour in producing 1st unit. In Producing 2 units, Labour will 20 hours. It will be wrong to say that Labour will take 20 hours to produce 2 units. Since on producing 2nd unit, Labour will save some time. Suppose learning effect is 90%. It means 10% less labour hour will be required to produce 2nd unit.Hence Total labour hours for both units shall be 10 hour for 1st plus 90% of 10 hour of 2nd units hence Total 19 hours should be taken in producing 2 units.

Relevant Cost approach in Var. Analysis

Meaning
This approach suggest to add opportunity cost in actual cost while calculating variances.

Example
Rental income lost on space used in factory should be included in factor overhead cost while calculating factory overhead variances

Variance analysis in Advanced MFD. Env. & in High Technology Firms

In advanced Mfd Env. & High Tech. Firms, Direct Labour Variances & Fixed Overhead variances are of no use. Direct Labour cost & Fixed Cost should be considered committed cost. Main Emphasis should be only on Direct Material Cost Variances & Variable Overhead Variances

Standard costing in service sector

In service sector, Overhead cost has major portion in total cost hence Overhead variance should be carefully calculated. In service sector, Direct material & Direct labour cost is typically less hence small adverse var. may be considered as acceptable variance.

Standard Costing in Service Sector

Public sector means Semi-Govt. companies like BHEL. Following should also be added in actual cost while calculating variances

1) Trade payable (Service has been used by company but bills are still unpaid)
2) Accruals (Services has been used by company but bill is yet to receive)
3) Timing difference (Cost which are not incurred evenly over the year e.g. Dep. Based on machine hour

Variance Analysis in Activity Based Costing

According to ABC, Overhead cost is apportioned among product on activities basis.
Here Use of ABC suggest to calculated Budgeted OH based on activities & actual OH based on activities. Now compare both & calculate OH Variance.

•Budgeted Figure :- To Produce 2000 units, Machine Set up is required 20 times & Rs.4000 is required to spent on all 20 set up.
•Actual Figure :- Co. produced 2100 units, machine actually set up 19 times & Rs.3900 actually spent on all 19 set up

Analysis:-
1. To Produce 2100 units, Required set up as per planning is 21 times but co. did only 19 set up hence it saved set up cost on 2 set up i.e. Rs.200 x 2 set up i.e. Rs.400. This is technically called "Overhead Efficiency Var." since it is showing efficiency achieved.
2. To do 19 Set up, co. was required to spent Rs.3800 as per planning (Rs.200 per set up) but company spent Rs.3900. it means extra expenditure incurred Rs.100. This is technically called "Overhead Expenditure Var.".

Variance analysis & throughput accounting

Meaning
Throughput accounting focus on utilizing resources only upto optimum level. It prohibits use of available resources to

Example
According to this concept, Manager should not produce more if there is no customer order right now. He should avoid building inventory even if it will lead to adverse idle time variance.

McDonaldization Concept (Developed by Mr. George)

He told that Fast Food Restaurant (MacDonald) has 4 great features. These should be copied by every service provider
1. Efficiency:- McDonald is very fast service provider. It provides the fastest way from "being hungry" to "being full" i.e. very less service time. Efficiency means less time in providing service
2. Calculability:- Objective should be quantifiable (e.g. Sales in numbers) rather than being subjective (e.g. taste). McDonaldization assumes quantity as equal to quality. If more units sold then it automatically means high quality.
3. Predictability:- It means no matter where a person goes, he will receive same taste in burger everywhere.
4. Control:- Standardize the process by replacement of human by non-human technology. It focuses on use of more machines.

Methods to decide whether start Investigation of Variances or Not

Finding out exact reasons for adverse variance is very good thing. But it is beneficial or not. Sometimes cost incurred in investigation of adverse var. is more than adverse var. itself so in such case it is not beneficial to start investigation.

Following methods are used to take decision whether start investigation or not?
1. Non-Statistical model (Also called Simple Rule of thumb method)
2. Statistical model

Non-Statistical Model

Meaning
Under this method, investigation of variances starts when it exceeds limit of acceptable variance.

Example
Adverse direct material cost variance shall be investigated only when adverse variance is more than 5% of standard direct material cost.

Statistical Model

Statistics Formula & Graphs are used under this. Following 3 methods are there

1. Probability & Normal distribution curve Method
2. Statistical control charts method
3. Mathematical Rule Method

Probability & Normal distribution curve Method

Meaning
Here probability (%) is calculated of getting adverse variance. Normal distribution curve table & Following formula is used.

$$Z = \frac{x-\mu}{\sigma}$$

Whereby μ = mean
σ = Standard Deviation

Example
- Avg. Production time p.u. = 2.50 Hour
- Std. Deviation = 15 Minute i.e. 0.25 Hour (Means actual production time p.u. may be more by maximum 15 minute or may be less by maximum 15 minute)
- Calc. of probability that 1 unit gets produced in 3 hour?

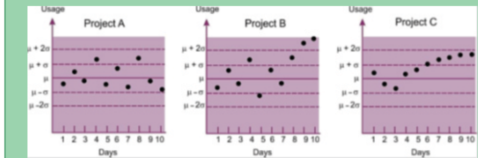
$$Z = \frac{3 \text{ hour} - 2.50 \text{ hour}}{0.25 \text{ hour}} = 2$$

- If we check value of Z in normal distribution curve table then we will find value as 0.9772
- We get 97.72% if we multiply it by 100
- Conclusion:- There are 97.72% chances that 1 unit will get produced in 3 hour. It means there are 2.28% chances that 1 unit will be produced in more than 3 hour. Less chances for idle time adverse variance

Statistical control charts method

Control charts are used under this method to decide whether initiate investigation or not.
Principles of normal distribution theory are used where μ =Mean and σ = Standard Deviation, we have -
(a) 68.27% of the observations are expected to fall within the range $\mu + \sigma$ from the Mean.
(b) 95.45% of the observations are expected to fall within the range $\mu + 2\sigma$ from the Mean.
(c) 99.8% of the observations are expected to fall within the range $\mu + 3\sigma$ from the Mean.

If company accept 1 standard deviation, it means there are 68.27% chances that actual outcome will fall within acceptable variation limit and If company accept 2 standard deviation, it means there are 95.45% chances that actual outcome will fall within acceptable variation limit.
For Example company accepted 2 times standard deviation limit so let us plot actual outcome of 3 different projects and decide whether variance is "in control" or "out of control". Actual outcomes are shown with the help of dots.



- If we check out project "A", all actual outcome is within acceptable limit of variation hence variance is "in control" so investigation need not to be started.
- If we check out project "B", last 2 outcomes are beyond acceptable limit of variation hence variance is "out of control" so investigation should be started.
- If we check out project "C", all actual outcome is within acceptable limit of variation but outcomes are gradually increasing hence company may treat it as "out of control" & may start investigation

Mathematical Rule Method

Meaning
Start Investigating the variance if
PB > C Whereby
P means Probability of getting variance "out of control" e.g. in our example probability of doing work beyond 3 hour was 2.28%.
B means benefit to be received from being "out of control" to "in control" situation i.e. benefit means cost saving in future by avoiding unacceptable variances. Let us assume B as Rs.100
C means cost to be incurred to investigate variances e.g. manager time. Let us assume C as Rs.25

Example
On reading above 3 things together, company will need to incur 25 rupees to convert "out of control" variance in "in control" variance & thereby will get future benefit of 100 rupees but the chances of getting "out of control variance" is only 2.28%.
Formula PB > C
2.28% x Rs.100 > Rs.25
2.28 > 25
Above equation is not true since 2.28 is not greater than 25 hence in above situation company should not start investigation even if variance is "out of control".

Interdependence of variances

Meaning
Variances are inter-dependent on each other. Hence interpretation of variances should be done with regard to its dependent variance
Example
Purchase of "High Quality" material at high price may lead to adverse direct material price variance but "high Quality" may save some material consumed thereby leading to favourable direct material usage variance.

Interpretation Of Variances

Interpretation means identifying possible causes of variances.Cause of Direct Material price variance may be

1. Purchase from different supplier at high price.
2. Ordering at low order size may reduce bargaining power & thereby increase material price.
3. Unexpected increase in purchase related cost such as transportation cost.
4. Inefficient buying procedure i.e. buying without doing proper research in market.
5. Purchasing material in emergency at high price

Budget Slacks

Creating variance reports and taking action on adverse variances does have impact on behaves of employees. If an organization is too strict about adverse variances then employees of that organization may attempt for "budget slacks".
Budget slack means deliberately under- estimation of budgeted revenue or over-estimation of budgeted expenditure.

Variance Report

It aims at reporting of computed variances to relevant executive responsible for this variance. It starts with computation of variances, reporting of variances to executive and ends with finding out the exact reasons for occurrence of variance.

After knowing the exact reasons, it becomes responsibility of executive to take necessary steps to stop re-occurrence of adverse variances. The report on which executive starts analyzing reasons is called "Variance report".