**Introduction to Strategic Cost Management**

**Traditional Cost Management**
Traditional cost management system involves allocation of costs and overheads to the production and focuses largely on cost control and cost reduction.

**Strategic Cost Management**
Strategic Cost management is the application of cost management techniques so that they improve the strategic position of a business as well as control costs.

It is not limited to controlling costs but using cost information for management decision making.

The basic aim of Strategic Cost Management is to help the organization to achieve the sustainable competitive advantage through product differentiation and cost leadership.

**Value Chain Analysis**
Value chain analysis is a process by which a firm identifies and analyses various activities that add value to the final product. The idea is to identify those activities which do not add value to the final product/service and eliminate such non-value adding activities. The analysis of value chain helps a firm obtain cost leadership or improve product differentiation. Resources must be deployed in those activities that are capable of producing products valued by customers.

The idea of a value chain was first suggested by Michael Porter (1985) to depict how customer value accumulates along a chain of activities that lead to an end product or service.
Support Activities

Core Competencies Analysis
Core Competency is a distinctive or unique skill or technological knowhow that creates distinctive customer value. The core competency of Google is its capability to deliver excellent search results which could not be imitated by its competitors. The core competencies are a function of the collective skill set of people, organisation structure, resources & technological knowhow. A core competency is the primary source of an organisation’s competitive advantage. The competitive advantage could result from cost leadership or product differentiation. There are three tests useful for identifying a core competency.

Strategic Framework For Value Chain Analysis

The Value Chain Analysis requires strategic framework for arranging varies information. The following three are generally accepted strategic framework for value chain analysis.

Industry Structure Analysis: An industry might not yield high profits just because the industry is large or growing. The five forces suggested by Porter’s play an important role in determining profit potential of the firms in an industry. Factors which influence profitability are:

- Threat Of New Rivals
- Bargaining Power Of Suppliers
- Rivalry Among Existing Competitors
- Threat Of Substitute Products or Services
- Bargaining Power Of Buyers

Value Shop Model or Service Value Chain: This concept aims to serve companies from service sector. In value shop principle, no value addition takes place. It only deals with the problem, figure-out the main area requires its service and finally comes with the solution. This approach is designed to solve customer problems rather than creating value by producing output from an input of raw materials. Ne model has the same support activities as Porter’s Value Chain but the primary activities are described differently. In the value shop they are:

- Problem finding and acquisition.
- Problem solving.
- Choosing among solutions.
- Execution and control/evaluation.

The Value Chain Approach for Assessing Competitive Advantage

Identify segmentation variables and categories
Construct a segmentation matrix
Analysis segment attractiveness
Identify key success factors for each segment
Analysis attractiveness of broad versus narrow segment scope

Assessing competitive advantage

Internal cost analysis
Internal differentiation analysis
Vertical linkage analysis

Infrastructure
Human-resource management
Technology development
procurement
Control/evaluation
Execution
Choice
Today's business environment is that of a buyer's market. This trend is the result of international transitions and macroeconomic, technological, political, and social changes. The challenge for businesses today is to satisfy their customers through the exceptional performance of their processes.

**COST OF QUALITY (COQ)**

Mr. Philip B. Crosby in his book Quality is Free referred to the COQ costs in two broad categories namely ‘Price of Conformance’ and ‘Price of Non-conformance’. These two can be bifurcated further in to prevention & appraisal costs and internal & external failure costs. Hence, COQ is often referred as PAF (Prevention, appraisal & failure) model. In other words, ‘Price of Conformance’ is known as ‘Cost of Good quality’ and ‘Price of Non-conformance’ is often termed as ‘Cost of Poor Quality’.

**Prevention Cost**

The costs incurred for preventing the poor quality of products and services may be termed as Prevention Cost. These costs are incurred to avoid quality problems. They are planned and incurred before actual operation and are associated with the design, implementation, and maintenance of the quality management system. Prevention costs try to keep failure and appraisal cost to a minimum.

**Appraisal Costs**

The need of control in product and services to ensure high quality level in all stages, conformance to quality standards and performance requirements is Appraisal Costs. These are costs associated with measuring and monitoring activities related to quality. Appraisal Cost incurred to determine the degree of conformance to quality requirements (measuring, evaluating or auditing). They are associated with the supplier’s and customer’s evaluation of purchased materials, processes, products and services to ensure that they are as per the specifications.

**External Failure Costs**

External failure costs are incurred to mediate defects discovered by customers. These costs occur when products or services that fail to reach design quality standards are not detected until after transfer to the customer. After the product or service is delivered and then the defects is found then it is an external failure. Further external failure costs are costs that are caused by deficiencies found after delivery of products and services to external customers, which lead to customer dissatisfaction. They could include: Repairing, Warranties, Specification Loss, Product Liabclaim.

**Optimal COQ**

It is generally accepted that an increased expenditure in prevention and appraisal is likely to result in a substantial reduction in failure costs. Because of the trade off, there may be an optimum operating level in which the combined costs are at a minimum. Hence it is further argued that striving for zero defects through a program of continuous improvements is not good for the economic interest of the company.

**Modern Business Environment**

This is that of a buyer’s market. This trend is the result of international transitions and macroeconomic, technological, political, and social changes. The challenge for businesses today is to satisfy their customers through the exceptional performance of their processes.
**TOTAL QUALITY MANAGEMENT (TQM)**

Total Quality Management (TQM) is a management strategy aimed at embedding awareness of quality in all organizational processes. TQM requires that the company maintain this quality standard in all aspects of its business. This requires ensuring that things are done right the first time and that defects and waste are eliminated from operations.

TQM is a comprehensive management system which:

1. Focuses on meeting owner's/customer's needs, by providing quality services at a reasonable cost.
2. Focuses on continuous improvement.
3. Recognizes role of everyone in the organization.
4. Views organization as an internal system with a common aim.
5. Focuses on the way tasks are accomplished.
6. Emphasizes teamwork.

**Six C’s of TQM**

- **Commitment**
- **Control**
- **Culture**
- **Customer Focus**
- **Co-operation**

**The Business Excellence Model**

**THEORY OF CONSTRAINT**

**The Plan–Do–Check–Act (PDCA) Cycle**

**THE BUSINESS EXCELLENCE MODEL**

**Six C’s of TQM**

- **Commitment**
- **Control**
- **Culture**
- **Customer Focus**
- **Co-operation**

**The Plan–Do–Check–Act (PDCA) Cycle**

**Operational Measures**

- **Throughput**
- **Investment**
- **Operating Expenses**

**Principles of Deming (TQM)**

1. **Move towards Single Supplier (Multiple supplier mean Variation between feed stock)**
2. **Institute training on Job:** If Peoples are not trained, they will not do all work in same way (Variation)
3. **Institute education (self improvement)**
4. **Drive out fear**
5. **Institute, Leadership not super vision**
6. **Permit Pride of Workmanship (Confidence)**
7. **Eliminate slogans/Exhortations**
8. **Transformation is everyone job (Every employee will get work according to his quality/change)**
9. **Create Constancy for Improvement (Short term replace with Long Term)**
10. **Break Down Barriers between department (each can shares its idea openly)**
11. **Eliminate MBO (Production Target: Encourage Poor Delivery)**
12. **Cease Dependency on Inspection (If Variation is Reduced, No inspection is Required)**
13. **Improve constantly & Forever :Reduce variations /Wastage (Cost Reduction)**
14. **Adopt new Philosophy (Innovation/reject tradition)**

**The Plan–Do–Check–Act (PDCA) Cycle**

1. **Plan:** Establish objectives and develop action plans.
2. **Do:** Implement the process planned.
3. **Check:** Measure the effectiveness of the process.
4. **Act:** Take corrective action.

**Throughput**

Throughput as a TOC measure is the rate of generating money in an organization through sales. Throughput = (Sales Revenue – Unit Level Variable Expenses)/Time

**Operating Expense**

Money spent in turning Investment into Throughput and therefore, represent all other money that an organisation spends. Includes direct labour and all operating and maintenance expenses.

**Investment**

This is money associated with turning materials into Throughput and do not have to be immediately expensed. Includes assets such as facilities, equipment, fixtures and computers.

**The Plan–Do–Check–Act (PDCA) Cycle**

1. **Plan:** Establish objectives and develop action plans.
2. **Do:** Implement the process planned.
3. **Check:** Measure the effectiveness of the process.
4. **Act:** Take corrective action.

**THE BUREAUCRACY OF QUALITY**

**The Plan–Do–Check–Act (PDCA) Cycle**

1. **Plan:** Establish objectives and develop action plans.
2. **Do:** Implement the process planned.
3. **Check:** Measure the effectiveness of the process.
4. **Act:** Take corrective action.
**SUPPLY CHAIN MANAGEMENT**

Customer Relationship Management, to manage and analyze customer’s interaction and data throughout the life cycle with the main motive of improving business relations.

Supplier Relationship Management, provides the structure for how relationships with suppliers are developed and maintained.

Customer Service Management, provides the key points of contact for administering product and service agreements.

Demand Management, provides the structure for optimizing the customer’s requirements with supply chain capabilities.

Order Fulfillment, includes all activities necessary to define customer requirements, design the logistics network, and fill customer orders.

Manufacturing Flow Management, includes all activities necessary to move products through the plants and to obtain, implement and manage manufacturing flexibility in the supply chain.

Product Development and Commercialization, provides the structure for developing and bringing to market new products jointly with customers and suppliers.

Returns Management, includes all activities related to returns, reverse logistics, gatekeeping, and avoidance.

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**Concept of Supply**

Imagine a (Simplified) supply chain for a large, national baker who makes and sells bread through a chain of supermarkets.

Farmer → Mill → Wholesaler → Baker → Supermarket → Consumer

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**Types of Supply Chain - Push and Pull Model**

- **Push Model**
  - Supplier
  - Manufacturer
  - Distributor
  - Retailer
  - Customer

- **Pull Model**
  - Supplier
  - Manufacturer
  - Distributor
  - Retailer
  - Customer

---

**Gain Sharing Arrangements**

Gain sharing is an approach to the review and adjustment of an existing contract, or series of contracts, where the adjustment provides benefits to both parties.

1. It’s an arrangement between Supplier & Customer.
2. Both Will be benefited.
3. Supplier receive higher huge return when benefit to the customer are very high. Supplier receive low return when benefit from customer are very low. No guarantee payment will be made to supplier.
4. If supplier act adversial behavior, hiding the contract, No reward will be given to supplier.

A gain sharing arrangement must possess the following components:

(i) Mutual interdependence and trust between the parties (as opposed to a blame culture).

(ii) Identification of common goals for success.

(iii) Agreed decision-making and problem-solving procedures.

(iv) Commitment to continuous improvement.

(v) Team working down the entire product and supply chain.

(vii) Gain-sharing and pain share arrangements established in advance.


(ix) Targets that provide continuous measurable improvements on performance.
Lean System is an organized method for waste minimization without sacrificing productivity within a manufacturing system. Lean implementation emphasizes the importance of optimizing work flow through strategic operational procedures while minimizing waste and being adaptable. Waste is any step or action in a process that is not required to complete a process successfully (called “Non-Value Adding”). When Waste is removed, only the steps that are required (called “Value-Adding”) to deliver a satisfactory product or service to the customer remain in the process. There are generally 7 type of wastes:

1. Overproduction
2. Waiting
3. Downtime
4. Defects
5. Transportation
6. Inventory
7. Overprocessing

**Seven Wastes**

**Back-flushing**

Back Flush required no data entry of any kind until a finished product is completed. At that time the total amount finished is entered into the computer system, which multiplies it by all the components listed in the bill of material for each item produced. This yields a lengthy list of components that should have been used in the production process and which are subtracted from the beginning inventory balance to arrive at the amount of inventory that should now be left on hand. Given the large transactions volumes associated with JIT, this is an ideal solution to the problem.

**Just-in-Time**

A just in time approach is a collection of ideas that streamline a company’s production process activities to such an extent that wastage of all kinds viz., of time, material, and labour is systematically driven out of the process. JIT has a decisive, positive impact on product costs. A complete JIT system begins with production, includes deliveries to a company’s production facilities, continues through the manufacturing plant, and even includes the types of transactions processed by the accounting system.

**Kaizen Costing Principles**

The system seeks gradual improvements in the existing situation, at an acceptable cost. It encourages collective decision making and application of knowledge. There are no limits to the level of improvements that can be implemented. Kaizen involves setting standards and then continually improving these standards to achieve long-term sustainable improvements. The focus is on eliminating waste, improving systems, and improving productivity. Involves all employees and all areas of the business.

**Kaizen Costing**

1. Cost reduction technique.
2. Small Investment/Continuous improvement.
3. Require trainee procedure on regular basis.
4. Not restricted to shop floor employee but to Top management to low level (every employee must participate).
5. No Compromise with the quality crystal clear, duties & responsibility.
6. Different from Target Costing (Design) (Production Stage)
7. Standards are being set on very shortly weekly/Daily.
8. Management should interact with staff/Labour to reduce the Labour cost per unit/Variable Cost.
10. Consumption of Per unit low, Labour & Labour related cost can be reduce on continuous basis.

**Back-flushing**

Back-flushing required no data entry of any kind until a finished product is completed. At that time the total amount completed is entered into the computer system, which multiplies it by all the components listed in the bill of material for each item produced. This yields a lengthy list of components that should have been used in the production process and which are subtracted from the beginning inventory balance to arrive at the amount of inventory that should now be left on hand. Given the large transactions volumes associated with JIT, this is an ideal solution to the problem.
TOTAL PRODUCTIVE MAINTENANCE (TPM)

Total Productive Maintenance (TPM) is a system of maintaining and improving the integrity of production and quality systems. This is done through the machines, equipment, processes, and employees that add to the value in Business Organisation. This concept was first introduced by M/s Nippon Denso Co. Ltd. of Japan, a supplier of M/s Toyota Motor Company.

TPM helps in keeping all equipment in top working condition so as to avoid breakdowns and delays in manufacturing processes.

SIX SIGMA

‘Sigma’ is a statistical term that measures how far a process deviates from perfection. The higher the sigma number, the closer the process is to perfection. The values of Defect Percentage Six Sigma are 3.4 defects per million opportunities or getting things right 99.99966% of the time. It is possible to develop ways of reducing defects by measuring the level of defects in a process and discovering the causes.

Limitations of Six Sigma

Six Sigma focuses on quality only. Six sigma does not work well with intangible results. Substantial infrastructure investment is required. Six sigma is complicated for some tasks. Not all products need to meet Six Sigma standards. Six sigma focuses on specific type of process only. There are lot of real time barriers which needs to be resolved while translating the theoretical concepts into practical applications.

Implementation of Six Sigma

1. Define the problem, the project goal and the customer requirements.
2. Measure the process to determine current performance.
3. Analyse the process to determine root causes of variation and poor performance (defects).
4. Improve the process by addressing and eliminating the root causes.
5. Control means maintaining the improved process and future process performance.
6. Verify the design performance and ability to meet customer need.
7. Design (detailed) the process to meet customer needs.
BUSINESS PROCESS REENGINEERING

Principles of BPR

- Organize around outcomes
- Have those who need the result of the process perform the process
- Integrate the processing of information into the work process that produces the information
- Treat geographically dispersed resources as though they were not dispersed
- Lead parallel activities instead of integrating their results
- Put the decision point where the work is performed, and build controls into the processes
- Capture information only and at the resource

Main Stages of BPR

- Process reassembly: re-engineered processes are implemented in the most efficient manner
- Process redesign: Remaining processes are redesigned

Difference Between DMAIC and DMADV

<table>
<thead>
<tr>
<th>DMAIC</th>
<th>DMADV</th>
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</thead>
<tbody>
<tr>
<td>Review the existing processes and fixes problem(s)</td>
<td>Emphases on the design of the product and processes.</td>
</tr>
<tr>
<td>More reactive process</td>
<td>Proactive Process</td>
</tr>
<tr>
<td>Increase the capability</td>
<td>Increase the capacity</td>
</tr>
<tr>
<td>Rupee benefits quantified rather quickly.</td>
<td>Rupee benefits more difficult to quantify and tend to be much more long term.</td>
</tr>
</tbody>
</table>

Examples of DMAIC problem-solving methods:
- Reduce the cycle time to process a patent.
- Reduce the number of errors in sales list.
- Improve search time for critical information.

Examples of procedures that the DMADV development method is designed to address:
- Add a new service
- Create a real-time system.
- Create a multiple-source lead tracking system.

Examples of procedures that the DMADV development method is designed to address:
- Add a new service
- Create a real-time system.
- Create a multiple-source lead tracking system.
- Increase the capability
- Increase the capacity

Business Process Re-engineering

- Principles of business process re-engineering
- End-to-End Business Processes
- Dramatic Improvement
- Radial Redesign
- Fundamental Restraining

Process identification: Each task is performed being re-engineered into series of processes
Process rationalization: Processes which are not value adding to be discarded

CH-4 Cost Management Techniques

Advantages of Target Costing
Proactive approach to cost management.
It reinforces top-to-bottom commitment to process and product innovation, and is aimed at identifying issues to be resolved, in order to achieve some competitive advantage.
Target costing starts with customer’s study or market study. It helps to create a company’s competitive future with market-driven management for designing and manufacturing products that meet the price required for market success.
It uses management control systems to support and reinforce manufacturing strategies; and to identify market opportunities that can be converted into real savings to achieve the best value rather than simply the lowest cost.
Target costing ensures proper planning well ahead of actual production and marketing.
Implementation of Target Costing enhances employee awareness and empowerment.
Foster partnership with suppliers.
Minimize non-value-added activities.
Encourages selection of lowest cost value added activities.
Reduced time to market.
Target Costing takes a market – driven approach towards cost, in which value is defined not only by what customers demand but also by what they are willing to pay for. This strategy introduces a discipline in which planning focus shifts to those costs that create value and meet the needs of the customer. By involving and educating customers, target costing provides a process that allows teams to make intelligent trade-offs between features, functionality and cost, resulting in designs that are better suited to customer’s quality and price expectations.

Target Costing Concepts

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Target Costing
It can be defined as a structures approach to determining the cost at which a proposed product with specified functionality and quality must be produced, to generate a desired level of profitability at its anticipated selling price”. In Target Costing, we first determine what price we think the consumer will pay for our product. We then determine how much of a profit margin we expect and subject that from the final price. The remaining amount left is what is available as budget to be used to create the product.

Value Analysis is a planned, scientific approach to cost reduction which reviews the material composition of a product and production design so that modifications and improvements can be made which do not reduce the value of the product to the customer or to the user.

Value Engineering is the application of value analysis to new products. Value engineering relates closely to target costing as it is cost avoidance or cost reduction before production. Value analysis is cost avoidance or cost reduction of a product already in production; both adopt the same approach i.e. a complete audit of the product.
Pareto Analysis

Pareto Analysis is a rule that recommends focus on the most important aspects of the decision making in order to simplify the process of decision making. It is based on the 80: 20 rule that was a phenomenon first observed by Vilfredo Pareto, a nineteenth century Italian economist. He noticed that 80% of the wealth of Milan was owned by 20% of its citizens. This phenomenon, or some kind of approximation of it say, (70: 30 etc.) can be observed in many different business situations. The management can use it in a number of different circumstances to direct management attention to the key control mechanism or planning aspects. It helps to clearly establish top priorities and to identify both profitable and unprofitable targets.

Application of Pareto Analysis

Life Cycle Costing

Life Cycle Costing involves identifying the costs and revenue over a product’s life i.e. from inception to decline. Life cycle costing aims to maximize the profit generated from a product over its total life cycle. Understanding this can be a useful analysis tool and can help to suggest which strategies the organization needs to adopt in order to compete successfully.

Product Life Cycle

Each product has a life cycle. The life cycle of a product varies from a few months to several years. Product life cycle is thus a pattern of expenditure, sales level, revenue and profit over the period from new idea generation to the deletion of product from product range. The life cycle of a product consists of four phases/stages viz., Introduction; Growth; Maturity; Decline.

<table>
<thead>
<tr>
<th>Price</th>
<th>Introduction</th>
<th>Growth</th>
<th>Maturity</th>
<th>Decline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting Price</td>
<td>Setting Price in alignment with competitive realities of the market</td>
<td>Find ideal balance between Price &amp; demand as per elasticity Value based Pricing</td>
<td>Price may have to be reduced to attract Price sensitive customer</td>
<td>At reduce price to loyal customer / Reduce drastically.</td>
</tr>
</tbody>
</table>

| Distribution Channel | Expending/spending boosting channel by availability of Product (Support to Product) | Strong distribution channel (Max. availability of product) | To maintain distribution channel, Channel become intensive/incentive may be offered | New features may be added, Offer at low cost |

| Sales/Promotion | Through Promotional activities, attract customer/awareness of product | Through sale promotion establish clear brand identity. | Sales Promotion Incentive are necessary. | Better to nil. |

| Customer | Effort to buy the product | Maintain control over product quality to assure customer satisfaction/ Long term relation with customer /Partner | Strong marketing efforts are needed, to win over competitor customer/ Differentiation Policy | Use the product as replacement product for launching another product/firm even discontinues the product. |

Uses of Product Life Cycle (PLC)
EMA is the process of collection and analysis of the information relating to environmental cost for internal decision making. EMA identifies and estimates the costs of environment-related activities and seeks to control these costs. The focus of EMA is not on financial costs but also considers the environmental cost or benefit of any decisions made. EMA is an attempt to integrate best management accounting thinking with best environmental management practice.

EMA can be viewed as a part of the environmental accounting framework and is defined as using monetary and physical information for internal management use. Though EMA information can be used in any management decision making process, it is particularly useful for environmental decision making. EMA aims to make a better use of or to modify sources of information and management accounting techniques and to evaluate sustainability and/or environmental efficiency of a company.

In practice, Environmental Costs can be split into two categories: Internal Costs and External Costs. Internal Costs have direct impact on the income statement of a company. On the other hand, External Costs are imposed by society at large, but not borne by the company that generates the cost in the first instance. Recently, governments of many countries are imposing new environmental taxes and regulations to convert them into internal costs. For example, if the activities of companies lead to forest degradation they might be required to have a tree replacement programme, or they may be granted lower tax allowances on vehicles that cause a high degree of harm to the environment.

### Identification of Environmental Costs

**Input-Output Analysis**

This technique records material inflows and balances with outflows on the basis that, what comes in, must go out. Six to 1000 kg of material have been bought and only 5 kg produced, for example, then the 995 kg difference must be accounted for. It may be, for example, that 10% of what has been sold is as waste, and 90% of it is waste. By accounting for outflows in this way, both in terms of material and costs, the waste stream is identified.

**Flow Cost Accounting**

This technique assigns costs to each unit of product, not just to raw materials. It identifies all elements of cost that enter into the production process and includes all of the costs that are incurred during the production process, both direct and indirect.

**Life Cycle Costing**

This approach considers the costs and revenues of a product over its whole life cycle, including production costs, operating costs, and disposal costs. This approach helps organizations to make informed decisions about the environmental impacts of their products and processes.

**Activity-Based Costing (ABC)**

ABC allocates internal costs to cost centres and cost drivers on the basis of the activities that give rise to the costs. It identifies the activities that are performed, the resource consumption associated with each activity, and the cost objects impacted by each activity. This approach helps organizations to understand the costs associated with environmental activities and to identify opportunities for cost savings and environmental improvements.

**Techniques for Identification and Allocation**

- Conventional Costs: These costs are considered in the traditional way, focusing on the direct costs associated with production processes.
- Hidden Costs: These costs are not considered in the traditional way, focusing on the indirect costs associated with environmental activities.
- Environmental Costs: The costs are calculated to ensure that the environmental cost is an integral part of the production process.
- Allocatable Costs: These costs are allocated to specific activities or products based on environmental performance.

**Identification of Environmental Costs**

- Cost of raw material purchased and wasted
- Direct labour hours and wages
- Raw material inventory and payment
- Indirect labour costs
- Indirect material costs
- Equipment depreciation and maintenance

**Environmental Costs**

- **Environmental Prevention Costs** - These costs are associated with preventing adverse environmental impacts.
  - Examples include: evaluating and picking pollution control equipment, creating environmental policies, environmentally driven R&D and feasibility studies, and investment in protective equipment.

- **Environmental Appraisal Costs** - The cost of activities required to determine whether products, process and activities are in compliance with environmental standards, policies and laws.
  - Examples include: monitoring, testing, inspection and reporting, improved systems and checks in order to prevent fines and penalties, regulatory compliance, performing contamination tests, and audit of environmental activities.

- **Environmental Internal Failure Costs** - Costs incurred from activities that have been produced but not discharged into the environment.
  - Examples include: recycling scrap, disposing toxic material, and back and costs such as decommissioning costs on project completion.

- **Environmental External Failure Costs** - Costs incurred from activities performed after discharging waste into the environment.
  - Examples include: cleaning up contaminated soils, reusing land to its natural state.
Power Sector

- Key Risks
- A Complex Network
- Features
- Application of Cost Management Techniques
- Value Chain Analysis

Features of Power Sector

- Limited number of suppliers of electricity.
- Tariff determination is based upon the rationality to determine the cost incurred at various points of operation.
- Stakeholders are existing and future consumers, industries, government, regulators, and investors.
- Continuous growing demand of electricity.
- Flexible Cost allocation.
- Distribution loss and inefficiency gaps between generation and consumption of electricity.
- In-disciplined consumer.
- Continuous network between generators, transmitters, distributors, and consumers.
- Mostly public sector undertakings closely regulated by government.
- Energy subsidies having direct impact on national treasury affecting long term growth potential of the economy.

Agriculture Sector

- Features
- Cost Management
- Engagement Model
- Cost Optimization Framework

Features

- Challenges associated with structure of the industry which is fragmented and unorganized
- Lack of understanding of costs
- Understanding the potential of working collaboratively
- Use of target costing techniques for price determination
- Imbalance of power across the supply chain

Fragmented Structure of the Industry

The structure of the agriculture sector is seen to be unorganized and fragmented in nature and thus lack of effective regulation in the given sector is also seen as one of the reasons why farmers seem to be exploited and have been operating at very low margins.

Lack of understanding of costs and prices by the farmers

One of the key reasons seen for the lack of appropriate cost management in the given sector is with regards to the lack of prioritization of the cost management among farmers because of lack of knowledge with regards to the same.

Understanding the potential to work collaboratively

The farmers need to be open to innovation in cost management and contracting techniques. Though there is scope for cost reduction in order to bring about improvement in the profit margins for the farmers, it is seen that generally the profits tend to get transferred to the customers and the only point of negotiation is in the contract pricing with the retailers which the farmers fail to reach.

Target Cost Management

The target costing technique involves determining the cost by subtracting the required margin from the anticipated price for the agricultural produce. However, the anticipated price for the agricultural products fluctuates making the process of cost management using the target cost management system ineffective in the case of the agricultural sector.
Short Run Decision Making

CH-6 DECISION MAKING

Non-Financial Considerations
With increase in competition, dynamic market changes and changing needs of customers, non-financial information have gained relevance in the decision-making process. Information to which monetary value can be attached is in the nature of financial information. Information of an organization like number of employees, employee morale, customer satisfaction that cannot be expressed in monetary terms is termed non-financial in nature. Non-financial information is long term focused and ensures profitability and sustainability in long term for an organization thereby evaluating the internal performance of the company. Non-financial information which a company should focus that would turn out to be advantageous while making decisions for a company are:

- Quality, Employee Satisfaction, Customer Satisfaction, Corporate Social Responsibility, Environmental Factors, Intellectual Property, Intangible Assets, Competitor’s Movements, Brand Name

SOME APPLICATIONS OF CVP ANALYSIS AND COST CONCEPTS

Short run decisions are many and varied but some of the more important ones, we shall look in this chapter include: Outsourcing Decision, Sell or Further Process Decision, Minimum Pricing Decision, Keep or Drop Decision, Special Order Decisions, Product Mix Decision.

Outsourcing Decision
Outsourcing decision is often called a ‘make or buy’ decision. It involves a decision of whether to continue ‘making’ a product versus ‘buying’ it from an external firm. Outsourcing enables a firm to reduce costs or benefit from supplier efficiencies

Outsourcing decision requires incremental analysis. The incremental amounts are based on the difference in the cost of buying a product or service compared to the cost of producing the item or providing the service in house.

Keep or Drop Decisions
Another type of operating decision that management must make is whether to keep or drop unprofitable segments, such as product lines, services, divisions, departments, stores, or outlets. The decision is based on whether or not the segment’s revenue exceeds the costs directly traceable to the segment, including any direct fixed costs.

Special Order Decisions
Special order decisions focus on whether a special priced order should be accepted or rejected. These orders often can be attractive, especially when the firm is operating below its maximum productive capacity. Price discrimination laws require that firms sell identical products at the same price to competing customers in the same market. This law does not apply to:

- Noncompeting customers from the same market. Potential customers in markets not ordinarily served.

Decision - Accept or Reject?

- If incremental revenue < incremental cost, reject the special order, unless qualitative characteristics fiercely impact the decision.
- If incremental revenue = incremental cost, qualitative effects must be used to make the decision.
- If incremental revenue > incremental cost, accept the order, unless qualitative characteristics fiercely impact the decision.
CH-7 Pricing Decision

**Pricing under different Market Structures**

- Predatory Pricing (Reduce cost to unseat competition)
- Cost Plus
- Perfect Competition
  - Large no. of sellers
  - Homogeneous product
  - Identical production process
  - Freely enter, freely exit
- Monopolistic Competition
  - Only one seller
  - Exclusivity (single commodity)
- Monopoly
  - Only one seller
  - No close substitute
  - No price discrimination

**Price Customization**

- Based on Demographics
  - Different pricing may be based on characteristics of target market such as age, sex, or income level
- Based on Time Difference
  - Pricing for a product or service is done on the basis of time difference, e.g., different prices for different time periods
- Based on Customer’s past behaviour
  - Customer with good purchase history may be given more discounts than the others

**Price Sensitivity Concept**

- Price Quality Effect: Higher the perceived quality of the product, lower the price sensitivity
- Price Sensitivity Effect: Price sensitivity is low in products which are used along with assets previously bought
- Total Expenditure Effect: If high expenditure on the product represents a large component of the average consumer income, the price sensitivity will be low for such a product
- Slack Investment Effect: Price sensitivity will be low if there are two or three close substitutes
- Price Sensitivity: It is the measure of how much the demand for a product changes in response to a change in its price
- Price Discrimination: Price discrimination is the practice of charging different prices for the same product or service to different groups of consumers
- Price Setting: Price setting is the process of determining the price for a product or service

**Strategic Pricing of New Products**

- Pricing Methods
  - Competition Based
  - Cost Based
  - Value Based
- Strategic Pricing of New Products
  - Skimming
  - Penetration
- Pricing and Product Life Cycle
  - Pricing of Services
  - Key Issues
Concept of Skimming Pricing & Penetration Pricing

**Skimming Pricing**

It is a policy of high prices during the early period of a product’s existence. This can be synchronized with high promotional expenditure and in the later years the prices can be gradually reduced. The reasons for following such a policy are:

- The demand is likely to be inelastic in the earlier stages till the product is established in the market.
- The change of high price in the initial periods serves to skim the cream of the market that is relatively insensitive to price. The gradual reduction in price in the later year will tend to increase the sales.
- The demand for the product is not known the price covers the initial cost of production.
- High initial capital outlays, needed for manufacture, results in high cost of production.

**Penetration Pricing**

Penetrating pricing, means a pricing suitable for penetrating mass market as quickly as possible through lower price offers. This method is also used for pricing a new product. In order to popularize a new product penetrating pricing policy is used initially. The company may not earn profit by resorting to this policy during the initial stage Later on, the price may be increased as and when the demand picks up. Penetrating pricing policy can also be adopted at any stage of the product life cycle for products whose market is approached with low initial price. The use of this policy by the existing concerns will discourage the new concerns to enter the market. We must distinguish penetration pricing from Predatory Pricing. Predatory Pricing (loss leading) is the practice of selling a product or service at a very low price, intending to drive competitors out of the market or create barriers to entry for potential new competitors.

**Pricing and Product Life cycle**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Skimming Policy with high prices, but low profit margin due to high fixed costs</th>
<th>Growth Stage</th>
<th>Maturity Stage</th>
<th>Decline stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction Stage</td>
<td>Reduce price to penetrate market further.</td>
<td>Price to match or beat competitor.</td>
<td>Cut price if not repositioning.</td>
<td></td>
</tr>
<tr>
<td>Growth Stage</td>
<td>Retain higher prices in some market segments.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maturity Stage</td>
<td>Some increases in prices may occur in the late decline stage.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Perceived value pricing is that value which customers are willing to pay for a particular product or service based on their perception about the product. Perceived value pricing is not based on the cost of the product, but it is the value which the customer thinks that he/she is deriving from consuming a product or a service.

Perceived value pricing is an important marketing strategy which helps firms to price a particular product in the markets. Generally, marketers position the product in such a way that it will make the product unique.

Customers usually compare the value that they derive after using the product or service and end up paying more. Marketers need to show the customers the true value they would get after using the product.

Let's understand perceived value pricing with the help of some examples: If you have to reach the airport you have multiple options given by the cab rental company. They will give you a choice between multiple car segments for the same destination.

Usually, prices are higher for a sedan, a sports utility vehicle or a multi-purpose vehicle, as compared to a hatchback. Although, the distance remains the same, but customers pay a higher value per kilometer for higher category of cars.

The comparison that customers can draw is that sedan vehicles are more spacious, cleaner, more comfortable, and there is space for more passengers as compared to a hatchback.

Another example is luxury watches. The production cost is usually low even if it is studded with diamonds. But, some watch companies usually sell their products for over Rs 1 lakh. Here the customers are not concerned about the cost of the product, but pay for the brand (it might be associated with a celebrity), the experience, and how it will add to the social status of the person.
**CH-8 PERFORMANCE MEASUREMENT & INNOVATION**

**Environmental** - measures the impact on resources, such as air, water, ground and waste emissions.

**Social** - relates to corporate governance, motivation, incentives, health and safety, human capital development, human rights and ethical behaviour.

**Economic** - refers to measures maintaining or improving the company’s Success.

### ENVIRONMENT (Planet)
- Material, Water energy, Fuel, Land consumption
- Disposal of Waste
- Whether Company use paper bag instead of plastic bag
- To Preserve natural resources

### SOCIAL (People)
- Training/education provided to employee
- Human Right Practices
- -( No Child labour appointed)

### ECONOMICAL (Project)
- Whether Company paying their tax on Regular basis.
- Proper health/safety measures adopted

### Balanced Scorecard

The balanced scorecard is a method which displays organisation's performance into four dimensions namely financial, customer, internal and innovation. The four dimensions acknowledge the interest of shareholders, customers and employees taking into account of both long-term and short-term goals.

**Financial Perspective**: Financial performance measures indicate whether the company’s strategy implementation and execution are contributing to its revenue and earnings.

**Customer Perspective**: In this stage, companies identify customers and market segments in which they compete and also the means by which they provide value to these customers and markets.

**Internal Business Perspective**: In this stage companies identify processes and activities which are necessary to achieve the objectives as identified at financial perspectives and customer perspective stage. These objectives may be achieved by reassessing the value chain and making necessary changes to the existing operating activities.

**Learning and Growth Perspective**: In the learning and growth perspective, Companies determine the activities and infrastructure that the company must build to create long term growth, which are necessary to achieve the objectives set in the previous three perspectives.
The Performance Prism is an approach to performance management which aims to effectively meet the needs and requirements of all stakeholders. This is in contrast with the performance pyramid which tends to concentrate on customers and shareholders and is also in contrast with value based management, which prioritizes the needs of shareholders.

Performance Measures – Problems

- Tunnel vision
- Sub-optimization
- Myopia
- Misrepresentation
- Misinterpreting
- Classification
- Under focus on measurement at the detriment of others
- Focus on one measurement at the detriment of others
- Focusing too much on short-term measures and not looking long term
- Not presenting the data correctly
- Keeping out of date measures

Performance Measurement Process

The performance measurement process typically starts with identification of the overriding objectives and mission of the not-for-profit organization. This includes evaluating the mission, vision and strategy on a continuous basis.

The various objectives/mission of the organization are broken down and mapped with key strategies: Stakeholder (Customer), Financial, Internal Process and Learning & Growth.

The actual outcome is measured and evaluated against the performance measures defined.

Any changes which are required to the performance measures are carried out after analysis of the outcome on a periodic basis.

The Building Block Model

- Fitzgerald & Moon: Building Block Model
  - Standards
  - Dimensions
  - Rewards
  - Results
  - Determinants
  - Quality
  - Flexibility
  - Innovation
  - Resource Utilization
  - Controllability
  - Clear
  - Financial Performance
  - Operative Performance

Performance Prism

- Stakeholders Satisfaction: The organization needs to focus on who are the stakeholders? What are the needs and wants of the stakeholders?
- Strategies: What are the strategies required by the organization to fulfill the wants and needs of the stakeholders?
- Capabilities: What capabilities does the organization need for operating and enhancing the process?
- Stakeholders Contributions: A further takes into account what contribution does the organization need from its stakeholders?
**Value for Money (VFM) Framework**

A framework which can be used for measurement of performance in not-for-profit sector is the Value for Money framework. Not-for-profit organisations are expected to provide value for money which is demonstrated by:

- **Effectiveness** (Are the Organizational objectives achieved)
- **Efficiency** (Whether Resources/Funds have been utilized effectively)
- **Economy** (Assess the Financial aspect of Activity)

**Types of Benchmarking:**

- **Competitive Benchmarking:** It involves the comparison of competitors products, processes and business results with own. Benchmarking partners are drawn from the same sector. However, to protect confidentiality it is common for the companies to undertake this type of benchmarking through trade associations or third parties.
- **Strategic Benchmarking:** It is similar to the process benchmarking in nature but differs in its scope and depth. It involves a systematic process by which a company seek to improve their overall performance by examining the long term strategies. It involves comparing high level aspects such as developing new products and services, core competencies etc.
- **Global Benchmarking:** It is a benchmarking through which distinction in international culture, business processes and trade practices across companies are bridged and their ramification for business process improvement are understood and utilised. Globalisation and advances in information technology leads to use this type of benchmarking.
- **Process Benchmarking:** It involves the comparison of an organization critical business processes and operations against best practice organization that performs similar work or deliver similar services. For example, how do best practice organizations process customers’ orders.
- **Functional Benchmarking:** This type of benchmarking is used when organizations look to benchmark with partners drawn from different business sectors or areas of activity to find ways of improving similar functions or work processes. This sort of benchmarking can lead to innovation and dramatic improvements.
- **Internal Benchmarking:** involves seeking partners from within the same organization, for example, from business units located in different areas. The main advantages of internal benchmarking are that access to sensitive data and information are easier; standardised data is often readily available; and, usually less time and resources are needed. There may be fewer barriers to implementation as practices may be relatively easy to transfer across the same organization. However, real innovation may be lacking and best in class performance is more likely to be found through external benchmarking.
- **External Benchmarking:** involves seeking help of outside organizations that are known to be best in class. External benchmarking provides opportunities of learning from those who are at the leading edge, although it must be remembered that not every best practice solution can be transferred to others. In addition, this type of benchmarking may take up more time and resource to ensure the comparability of data and information, the credibility of the findings and the development of sound recommendations.

**Benchmarking Stages:**

- **Identifying**
- **Understanding**, and
- **Adapting best practices**

Understand current Performance
Comparison with Leaders
Learn from Leaders
Implement to close performance Gap
**TRANSFER PRICING**

Most business organizations in today's world have a decentralized organization structure. The top management delegates daily operations and decision-making responsibilities to appropriate personnel in the senior, middle, and lower management levels. This gives rise to responsibility centres or divisions within the organization structure. Divisions either could be departments within a company or a group companies of a parent organization. Divisional managers are responsible for their assigned division's operations and results. While each division works towards achieving its individual objective, holistically, their goals have to align with the organization's overall business objectives. This concept is called goal congruence.

**Market Based Transfer Price**: Transfer price is based on market price of goods or services similar to the ones transferred internally within divisions. The transfer can be recorded at the external market price, adjusted for any costs that can be saved by internal transfer e.g. selling and distribution expenses, packaging cost.

**Cost Based Transfer Price**: Cost based pricing models are based on the internal cost records of the company. They may be used when the management wants to benchmark performance with the cost targets set within the company or may be an alternative when market prices for the goods cannot be determined due to lack of comparable market. Cost based transfer price may consider variable cost, standard cost, full cost and full cost plus mark-up. Therefore, the basis for cost price may be subjective and has to adapted based on its suitability to the entity.

**Marginal Cost Based Transfer Price**: Transfer price is recorded marginal cost required to produce one additional unit.

**Standard Cost Based Transfer Price**: Transfer price is recorded at a predetermined cost, which is based on budgets and certain assumptions regarding factors of productions like capacity utilization, labor hours etc. Any variance between the cost absorbed using standard cost and the actuals, is either absorbed by the supplying unit or in some cases could be passed to the purchasing unit as well.

**Full Cost Based Transfer Price**: Behavioral Consequences

Budgeted costs are generally based on historic records. Therefore, little incentive exists to make costs more efficient to improve profitability. Transfer price is based on full product cost. It includes cost of production plus a share of other costs of the value chain like selling and distribution, general administrative expense, research and development etc.

**Cost plus a Mark-up Based Transfer Price**: Transfer price is based on full product cost plus a mark-up. Mark-up could be a percentage of cost or of capital employed.

**Negotiation Based Transfer Price**: This is a go-between between market and cost methods. Managers of the purchasing and supplying divisions independently negotiate and arrive at a mutually agreeable transfer price.
CH-10 Strategic Analysis of Operating Income

**Strategic Analysis of Operating Profit**

- **Revenue Component**
  - Revenue Effect
- **Cost Component**
  - Cost Effect
  - Fixed Costs
  - Variable Costs

**Activity Based Cost Management (ABM)**

- **Activity-Based Management Model**
  - Cost Assignment View
  - Process View
  - Performance View
  - Cost Drivers
  - Activities
  - Performance Measures
  - Cost Objects
  - Resources

**Continuous Improvement Process**

**Value-Added Activities**

- Is the activity necessary?
- Is the activity efficiently performed?
- Is an activity sometimes VA and sometimes NVA?
- Measures for determining whether an activity adds value.

**Non-Value-Added Activities**

- Needless movement of raw materials.
- Waiting Time: The amount of time raw materials, WIP, or finished goods spend waiting for the next operation.
- Storage Time: The time during which materials, partially completed products, or finished goods are held in stock before further processing or shipment.
- Delivery Cycle Time: The average time between the receipt of a customer order and delivery of the goods.

**Manufacturing Cycle Efficiency**

- Process Time: The time during which a product is undergoing conversion activity.
- Inspection Time: The amount of time spent confirming that the product is of high quality.
- Move Time: The time spent moving raw materials, WIP, or finished goods between operations.

**Business Applications of ABM**

- Activity Based Budgeting
- Business Process Re-engineering
- Benchmarking
- Performance Measurement

**Activity Based Budgeting (ABB)**

- Activity-Based Costing (ABC)
- Activity-Based Budgeting (ABB)
  - Resources
  - Activities
  - Cost objects: products and services produced and customers served
  - Forecast of products and services to be delivered to customers served
**Budgetary Control**

Budgetary Control is “Systematic control of an organization’s operations through establishment of standards and targets regarding income and expenditure, and a continuous monitoring and adjustment of performance against them.”

**Feedback and Feed-forward Control**

Performance Levels, System Objectives etc:

- Controller (Comparisons, Analysis, Decision)
- Feedback Information
- Controlled Variables (System Inputs)
- Non-controllable Variables (Environmental Disturbances)
- System being Controlled
- Outcomes (System Outputs)

**Beyond Budgeting (BB)**

**Limitations of Traditional Budgets**

- Time-consuming and costly to put together
- Constrain responsiveness and flexibility
- Often a barrier to change
- Rarely strategically focused and are often contradictory
- Add little value, especially given the time required to prepare
- Concentrate on cost reduction and not on value creation
- Developed and updated too infrequently, usually annually
- Are based on unsupported assumptions and guesswork
- Reinforce departmental barriers rather than encourage knowledge sharing
- Make people feel undervalued.

**Characteristics of Beyond Budgeting**

- The rolling budgets may incorporate KPIs.
- Benchmarking can be incorporated in budgets.
- Here the focus of the managers shift to improving future results.
- Allow operational managers to react to the environment.
- Encourage a culture of innovation.
- More timely allocation of resources.

**4 types of Feedback**

- Primary control
- Secondary control
- Positive control
- Negative control
Implementation of Beyond Budgeting

Define the Case for Change and Provide an Outline Vision

Link the Role of Finance

Be Prepared to Convince the Board

Train and Educate People

Get Started

Design and Implement New Processes

Evaluate the Benefits

Consolidate the Gains

Leadership Principles

Customer

Information

Accountability

Performance

Freedom to Act

Goals

Set aspirational goals aimed at continuous improvement, not fixed annual targets.

Rewards

Reward shared success based on relative performance, not on meeting fixed annual targets.

Planning

Make planning a continuous and inclusive process, not an annual event.

Controls

Base controls on relative key performance indicators (KPIs) and performance trends, not variances against a plan.

Resources

Make resources available as needed, not through annual budget allocations.

Coordination

Co-ordinate cross-company interactions dynamically, not through annual planning cycles.

Goals

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Resources

- Make resources available as needed, not through annual budget allocations.

Coordination

- Co-ordinate cross-company interactions dynamically, not through annual planning cycles.

Customer

Focus everyone on improving customer outcomes, not on meeting internal targets.

Accountability

Create a network of teams accountable for results, not centralised hierarchies.

Performance

Champion success as winning in the marketplace, not on meeting internal targets.

Freedom to Act

Give teams the freedom and capability to act, don’t merely require adherence to plan.

Governance

Base governance on clear values and boundaries, not detailed rules and budgets.

Information

Promote open and shared information, don’t restrict it to those who ‘need to know’.

Traditional vs Beyond Budgeting Model

Beyond Budgeting – Principles for Adaptive Performance Management

Goals

- Set aspirational goals aimed at continuous improvement, not fixed annual targets.

Rewards

- Reward shared success based on relative performance, not on meeting fixed annual targets.

Planning

- Make planning a continuous and inclusive process, not an annual event.

Controls

- Base controls on relative key performance indicators (KPIs) and performance trends, not variances against a plan.

Resources

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Planning

Make planning a continuous and inclusive process, not an annual event.

Controls

Base controls on relative key performance indicators (KPIs) and performance trends, not variances against a plan.

Resources

Make resources available as needed, not through annual budget allocations.

Coordination

Co-ordinate cross-company interactions dynamically, not through annual planning cycles.

Vision

- Champion success as winning in the marketplace, not on meeting internal targets.

Strategy

- Create a network of teams accountable for results, not centralised hierarchies.

Budget

- Make planning a continuous and inclusive process, not an annual event.

Keeping on Track

- Base controls on relative key performance indicators (KPIs) and performance trends, not variances against a plan.

Incentives

- Make resources available as needed, not through annual budget allocations.

Control

- Co-ordinate cross-company interactions dynamically, not through annual planning cycles.

Objective: High Degree of Enterprise Adaptability and Constant Innovation

Self Governance Management Culture

Objective: Efficient Utilization of Financial Capital and other Resources

“Budget Model”

- Vision

- Strategy

- Budget

“Beyond Budget Model”

- Keeping on Track

- Incentives

- Control (vs. Budget)

- Objective: High Degree of Enterprise Adaptability and Constant Innovation

SHEET-2
CH-12 STANDARD COSTING

ANALYSIS OF ADVANCED VARIANCES

Variance analysis is examinable both at Intermediate Level (Cost and Management Accounting) and at Final Level (Strategic Cost Management and Performance Evaluation). One main difference in syllabus between the two papers is that the Final Level syllabus includes analysis of advanced variances, as follows:

- Planning and Operational Variances
- Variance Analysis in Activity Based Costing
- Learning Curve Impact on Variances
- Relevant Cost Approach to Variance Analysis
- Variance Analysis and Throughput Accounting
- Variance Analysis in Advanced Manufacturing Environment
- Variance Analysis in Service Industry
- Variance Analysis in Public Services

Planning & Operational Variances

When the current environmental conditions are different from the anticipated environmental conditions (prevailing at the time of setting standard or plans) the use of routine analysis of variance for measuring managerial performance is not desirable/suitable. The variance analysis can be useful for measuring managerial performance if the variances computed are determined on the basis of revised targets/standards based on current actual environmental conditions.

In order to deal with the above situation i.e. to measure managerial performance with reference to material, labour and sales variances, it is necessary to compute the Planning and Operational Variances.

Standard ex ante

Before the event. An ex ante budget or standard is set before a period of activity commences.

Standard, ex post

After the event. An ex post budget, or standard, is set after the end of a period of activity, when it can represent the optimum achievable level of performance in the conditions which were experienced. Thus, the budget can be flexed, and standards can reflect factors such as unanticipated changes in technology and in price levels. This approach may be used in conjunction with sophisticated cost and revenue modelling to determine how far both the plan and the achieved results differed from the performance that would have been expected in the circumstances which were experienced.
### Sales Variances (Marginal Costing)

**Sales Contribution Variance**

(Actual Contribution) Less (Budgeted Contribution)

\[(AQ \times AC) - (BQ \times SC)\]

**Sales Contribution Price Variance**

(Actual Contribution) Less (Standard Contribution)

\[(AC \times AQ) - (SC \times AQ)\]

Or

\[AQ \times (AC - SC)\]

**Sales Contribution Volume Variance**

(Standard Contribution) Less (Budgeted Contribution)

\[(SC \times AQ) - (SC \times BQ)\]

Or

\[SC \times (AQ - BQ)\]

**Sales Contribution Mix Variance**

(Standard Contribution) Less (Revised Standard Contribution)

\[(RAQ \times SC) - (BQ \times SC)\]

Or

\[SC \times (RAQ - BQ)\]

**Alternative Formula**

\[\text{Total Actual Qty. (units)} \times \frac{\text{Average Standard Contribution per unit of Actual Mix}}{\text{Less Average Budgeted Contribution per unit of Budgeted Mix}}\]

**Alternative Formula**

\[\frac{\text{Average Budgeted Contribution per unit of Budgeted Mix} \times (\text{Total Actual Qty. (units)} \text{Less Total Budgeted Qty. (units)})}{\text{Less}}\]

### Market Size Variance

\[\text{Budgeted Market Share} \% \times (\text{Actual Industry Sales Quantity in units} - \text{Budgeted Industry Sales Quantity in units}) \times \text{Average Budgeted Contribution per unit}\]

**Note:**

- BQ = Budgeted Sales Quantity
- AQ = Actual Sales Quantity
- RAQ = Revised Actual Sales Quantity
- SC = Standard Contribution
- AC = Actual Contribution
- SCM = Standard Cost (variable) per Unit
- AP = Actual Sales Price per Unit

### Market Share Variance

\[\text{Required Sales Quantity in units} - \text{Total Budgeted Quantity in units} \times \text{Average Budgeted Contribution per unit}\]

Add

\[\text{Total Actual Quantity in units} - \text{Required Sales Quantity in units} \times \text{Average Budgeted Contribution per unit}\]

Equals to

\[\text{Total Actual Quantity in units} - \text{Total Budgeted Quantity in units} \times \text{Average Budgeted Contribution per unit}\]

### Market Size Variance + Market Share Variance

\[\text{Required Sales Quantity in units} - \text{Total Budgeted Quantity in units} \times \text{Average Budgeted Contribution per unit}\]
<table>
<thead>
<tr>
<th>Sales Margin Volume Variance</th>
<th>Standard Margin Per Unit × (Actual Quantity – Budgeted Quantity) Or</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales Margin Volume Variance</td>
<td>[(Standard Contribution Per Unit × Standard Fixed Overheads Per Unit) × (Actual Quantity – Budgeted Quantity)] Or</td>
</tr>
<tr>
<td>Sales Margin Volume Variance</td>
<td>Sales Contribution Volume Variance – Fixed Overhead Volume Variance Or</td>
</tr>
<tr>
<td>Sales Margin Volume Variance</td>
<td>Sales Contribution Volume Variance + Fixed Overhead Volume Variance</td>
</tr>
</tbody>
</table>

**Note:** Production units equals to Sales units for both actual & budget.

### Sales Variances (Turnover or Value)

#### Sales Price Variance

(Actual Sales) Less (Standard Sales)

\[
\frac{[(AP \times AQ) – (SP \times AQ)]}{(SP \times AQ) – (SP \times BQ)}
\]

Or

\[
[SP \times (AQ – BQ)]
\]

#### Sales Volume Variance

(Standard Sales) Less (Budgeted Sales)

\[
[SP \times (AQ – BQ)]
\]

#### Sales Mix Variance

(Standard Sales) Less (Revised Standard Sales)

\[
[SP \times (AQ – RAQ)]
\]

#### Sales Quantity Variance

(Revised Standard Sales) Less (Budgeted Sales)

\[
[SP \times (RAQ – BQ)]
\]

#### Alternative Formula

**Market Size Variance**

\[
[(SP \times AQ) – (SP \times BQ)]
\]

**Market Share Variance**

\[
[(SP \times AQ) – (SP \times BQ)]
\]
### Direct Material Total Variance

**[Standard Cost – Actual Cost]**

(The difference between the Standard Direct Material Cost of the actual production volume and the Actual Cost of Direct Material)

\[\text{[(SQ} \times \text{SP}) – (\text{AQ} \times \text{AP})]\]

### Direct Material Price Variance

**[Standard Cost of Actual Quantity – Actual Cost]**

(The difference between the Standard Price and Actual Price for the Actual Quantity)

\[\text{[(SP – AP) \times AQ]}\]

Or

\[\text{[(SP \times AQ) – (AP \times AQ)]}\]

### Direct Material Usage Variance

**[Standard Cost of Standard Quantity for Actual Production – Standard Cost of Actual Quantity]**

(The difference between the Standard Quantity specified for actual production and the Actual Quantity used, at Standard Purchase Price)

\[\text{[(SQ – AP) \times SP]}\]

Or

\[\text{[(SQ \times SP) – (AP \times SP)]}\]

### Direct Material Mix Variance

**[Standard Cost of Actual Quantity in Standard Proportion – Standard Cost of Actual Quantity]**

(The difference between the Actual Quantity in standard proportion and Actual Quantity in actual proportion, at Standard Purchase Price)

\[\text{[\text{[(RAQ – AQ) \times SP]}}\]

Or

\[\text{[\text{(RAQ \times SP) – (AQ \times SP)]}}\]

### Direct Material Yield Variance

**[Standard Cost of Standard Quantity for Actual Production – Standard Cost of Actual Quantity in Standard Proportion]**

(The difference between the Standard Quantity specified for actual production and Actual Quantity in standard proportion, at Standard Purchase Price)

\[\text{[\text{[(SQ – RAQ) \times SP]}}\]

Or

\[\text{[\text{(SQ \times SP) – (RAQ \times SP)]}}\]

### Alternative Formula

**[Total Actual Quantity (units) \times \{\text{Average Standard Price per unit of Standard Mix Less Average Standard Price per unit of Actual Mix}\]}**

### Alternative Formula

**[Average Standard Price per unit of Standard Mix \times \{\text{Total Standard Quantity (units) Less Total Actual Quantity (units)}\]}**

### Market Size Variance

**Budgeted Market Share % \times (Actual Industry Sales Quantity in units – Budgeted Industry Sales Quantity in units) \times (Average Budgeted Price per unit)**

Or

**((Budgeted Market Share % \times Actual Industry Sales Quantity in units) – Budgeted Market Share % \times Budgeted Industry Sales Quantity in units) \times (Average Budgeted Price per unit)**

Or

**((Required Sales Quantity in units – Total Budgeted Quantity in units) \times (Average Budgeted Price per unit)**

### Market Share Variance

**((Actual Market Share % – Budgeted Market Share %) \times (Actual Industry Sales Quantity in units) \times (Average Budgeted Price per unit)**

Or

**((Actual Market Share % \times Actual Industry Sales Quantity in units) – Budgeted Market Share % \times Actual Industry Sales Quantity in units) \times (Average Budgeted Price per unit)**

Or

**((Total Actual Quantity in units – Required Sales Quantity in units) \times (Average Budgeted Price per unit)**

**Market Size Variance + Market Share Variance**

**Add**

**((Total Actual Quantity in units – Required Sales Quantity in units) \times (Average Budgeted Price per unit)**

**Equals to**

**((Total Actual Quantity in units – Total Budgeted Quantity in units) \times (Average Budgeted Price per unit)**

### Sales Quantity Variance
Direct Labour Variance

- **Direct Labour Efficiency Variance**
  
  \[(SR - AR) \times AH^*\]
  
  Or
  
  \[[SR \times AH^*] - (AR \times AH^*)\]

- **Direct Labour Rate Variance**
  
  \[[SR - AR] \times AH^*\]
  
  Or
  
  \[[SR \times AH^*] - (AR \times AH^*)\]

- **Direct Labour Idle Time Variance**
  
  \[(AH^* - AH\#) \times SR\]
  
  Or
  
  \[[AH^* \times SR] - (AH\# \times SR)\]

### Fixed Production Overhead Variance

- **Fixed Overhead Total Variance**
  
  \[(Absorbed Fixed Overheads) Less (Actual Fixed Overheads)\]

- **Fixed Overhead Expenditure Variance**
  
  \[(Budgeted Fixed Overheads) Less (Actual Fixed Overheads)\]

- **Fixed Overhead Volume Variance**
  
  \[(Absorbed Fixed Overheads) Less (Budgeted Fixed Overheads)\]

- **Fixed Overhead Efficiency Variance**
  
  \[(Budgeted Fixed Overheads for Actual Hours\#) Less (Budgeted Fixed Overheads)\]

- **Fixed Overhead Capacity Variance**
  
  \[(Budgeted Fixed Overheads for Actual Hours\#) Less (Possible Fixed Overheads)\]

- **Fixed Overhead Calendar Variance**
  
  \[(Budgeted Fixed Overheads for Actual Hours\#) Less (Budgeted Fixed Overheads)\]

- **Fixed Overhead Capacity Variance**
  
  \[(Budgeted Fixed Overheads for Actual Hours\#) Less (Budgeted Fixed Overheads)\]

- **Fixed Overhead Efficiency Variance**
  
  \[(Absorbed Fixed Overhead) Less (Budgeted Fixed Overheads for Actual Hours\#)\]

- **Alternate Formula**
  
  \[
  \frac{\text{Total Actual Time Worked (hours) \times [Average Standard Rate per hour of Standard Gang - Average Standard Rate per hour of Actual Gang]}}{\text{On the basis of hours worked}}
  \]

- **Alternate Formula**
  
  \[
  \text{[Average Standard Rate per hour of Standard Gang]} \times \text{[Total Standard Time (hours) Less Total Actual Time Worked (hours)]]}
  \]
**Fixed Production Overhead Variances**

**Fixed Overhead Total Variance**
(Absorbed Fixed Overheads) Less (Actual Fixed Overheads)

- **Fixed Overhead Expenditure Variance**
  (Budgeted Fixed Overheads)
  Less
  (Budgeted Fixed Overheads)

- **Fixed Overhead Volume variance**
  (Absorbed Fixed Overheads)
  Less
  (Budgeted Fixed Overheads)

- **Fixed Overhead Capacity Variance**
  (Budgeted Fixed Overheads for Actual Hours)
  Less
  (Budgeted Fixed Overheads)

- **Fixed Overhead Efficiency Variance**
  (Absorbed Fixed Overheads)
  Less
  (Budgeted Fixed Overheads for Actual Hours)

Or

- **Fixed Overhead Capacity Variance**
  (Budgeted Fixed Overheads for Actual Hours)
  Less
  (Possible Fixed Overheads)

- **Fixed Overhead Calendar Variance**
  (Possible Fixed Overheads)
  Less
  (Budgeted Fixed Overheads)

- **Fixed Overhead Efficiency Variance**
  (Absorbed Fixed Overhead)
  Less
  (Budgeted Fixed Overheads for Actual Hours)
**Fixed Overhead Variance Formulas**

### Fixed Overhead Efficiency Variance

\[
\text{Fixed Overhead Efficiency Variance} = (\text{Absorbed Fixed Overheads}) - (\text{Budgeted Fixed Overheads for Actual Hours})
\]

\[
= (\text{Standard Fixed Overhead Rate per Hour} \times \text{Standard Hours for Actual Output}) - (\text{Standard Fixed Overhead Rate per Hour} \times \text{Actual Hours})
\]

\[
= \text{Standard Fixed Overhead Rate per Hour} \times (\text{Standard Hours for Actual Output} - \text{Actual Hours})
\]

### Fixed Overhead Capacity Variance

\[
\text{Fixed Overhead Capacity Variance} = (\text{Budgeted Fixed Overheads for Actual Hours}) - (\text{Budgeted Fixed Overheads})
\]

\[
= (\text{Standard Fixed Overhead Rate per Hour} \times \text{Standard Hours for Actual Output}) - (\text{Standard Fixed Overhead Rate per Hour} \times \text{Budgeted Hours})
\]

\[
= \text{Standard Fixed Overhead Rate per Hour} \times (\text{Standard Hours for Actual Output} - \text{Budgeted Hours})
\]

\[
= \text{Standard Fixed Overhead Rate per Hour} \times (\text{Standard Hours per Unit} \times \text{Actual Output} - \text{Standard Hours per Unit} \times \text{Budgeted Output})
\]

\[
= \text{Standard Fixed Overhead Rate per Unit} \times (\text{Actual Output} - \text{Budgeted Output})
\]

### Fixed Overhead Volume Variance-I

\[
\text{Fixed Overhead Volume Variance-I} = (\text{Absorbed Fixed Overheads}) - (\text{Budgeted Fixed Overheads})
\]

\[
= (\text{Standard Fixed Overhead Rate per Unit} \times \text{Actual Output}) - (\text{Standard Fixed Overhead Rate per Unit} \times \text{Budgeted Output})
\]

\[
= \text{Standard Fixed Overhead Rate per Unit} \times (\text{Actual Output} - \text{Budgeted Output})
\]

### Fixed Overhead Volume Variance-II

\[
\text{Fixed Overhead Volume Variance-II} = (\text{Absorbed Fixed Overheads}) - (\text{Budgeted Fixed Overheads})
\]

\[
= (\text{Standard Fixed Overhead Rate per Unit} \times \text{Actual Output}) - (\text{Standard Fixed Overhead Rate per Unit} \times \text{Budgeted Output})
\]

\[
= \text{Standard Fixed Overhead Rate per Unit} \times (\text{Actual Output} - \text{Budgeted Output})
\]
**Variable Production Overhead Variances**

**Variable Overhead Total Variance**
(Standard Variable Overheads for Production – Actual Variable Overheads)

**Variable Overhead Expenditure Variance**
(Budgeted Variable Overheads for Actual Hours) – Less (Actual Variable Overheads)

**Variable Overhead Efficiency Variance**
(Standard Variable Overheads for Production) – Less (Budgeted Variable Overheads for Actual Hours)

**Variable Overhead Expenditure Variance**
(Budgeted Variable Overheads for Actual Hours) – (Actual Variable Overheads)

**Variable Overhead Efficiency Variance**
(Standard Variable Overheads for Production) – (Budgeted Overheads for Actual Hours)

Or

(Standard Variable Overhead Rate per Hour × Standard Hours for Actual Output) – (Standard Variable Overhead Rate per Hour × Actual Hours)

Or

Standard Variable Overhead Rate per Hour × (Standard Hours for Actual Output – Actual hours)

**Variable Overhead Expenditure Variance**
(Standard Variable Overheads for Production) – (Actual Variable Overheads)

Or

(Standard Rate per Hour × Actual Hours) – (Actual Rate per Hour × Actual Hours)

Or

Actual Hours × (Standard Rate per Hour – Actual Rate per Hour)

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**STANDARD COSTING IN CONTEMPORARY BUSINESS ENVIRONMENT**

- Products in these environments tend not to be standardised
- Variance reports may arrive too late to solve problems
- Standard costs become outdated quickly
- Production is highly automated
- Modern environments often use ideal standards rather than current standards
- Variance analysis may not give enough detail
- The emphasis is on continuous improvement so pre-set standards become less useful
- Modern environments often use ideal standards rather than current standards

**Modern Production Environment**