M.COM SEMESTER- IV, C. NO. M.COM-FE 453

DIRECTORATE OF DISTANCE & ONLINE EDUCATION

UNIVERSITY OF JAMMU

JAMMU

SELF LEARNING MATERIAL

OF

MANAGEMENT CONTROL SYSTEM

FOR M.COM SEM IV

COURSE NO. M.COM-FE 453 **UNIT : I - IV**

LESSON : 1 - 20

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Management Control System

COURSE NO. M.COM-FE 453

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DIRECTORATE OF DISTANCE AND ONLINE EDUCATION

UNIVERSITY OF JAMMU

M.COM. FOURTH SEMESTER (NON CBCS)

MANAGEMENT CONTROL SYSTEM

(Core Course)

Course: MCOMFE453	**Max Marks: 100 Marks**
Credit: 4	**External: 80 Marks**
Time: 3.00 Hrs	**Internal: 20 Marks**

(Syllabus for the examination to be held in May 2024, 2025, 2026)

COURSE OBJECTIVES

1. To provide knowledge, insight & analytical skills related to how a corporation's senior executives design & implement the ongoing management systems that are used to plan & control the firm performance

2. To acquire knowledge and skills to excel in the area of management control systems.

3. To equip the students with analytical and evaluation abilities to evaluate the management controls and budgetary systems.

4. To make the students to apply different management styles in the organization for an efficientand effective control.

COURSE OUTCOMES

After the completion of the course the student will be able to:

1. describe models and methods relating to reporting, communication, decision making and accountability in the management control area;

2. apply models and methods of management control in different area and will be able to show how models and methods in management control can be used to implement organizational changes;

3. understand how the managers of different responsibility centres creates a balance between benefits and costs in making the decisions which are important for the company;

4. understand how transfers occurs between different subsidiaries of the same parent company and how transfer pricing helps in avoiding or reducing tax thereby decreasing cost of production and increasing profit;

5. evaluate two or more alternatives such as make or buy, own or lease, retain or replace, repair or renovate, now or later etc., leading to a final choice, popularly known as alternative choice decisions.

UNIT I FUNDAMENTALS OF MANAGEMENT CONTROL

Nature of Management Control Systems – Basic concepts – Boundaries of Management Control – Impact of the Internet on Management Control – Management control environment- Goal congruence – Informal factors that influence goal congruence – Formal control systems- types of organizations – Functions of the controller – Performance measurement – Difficulties in implementing performance measurement systems – interactive control.

UNIT II STRATEGIC PLANNING AND MANAGEMENT CONTROL

Basics of responsibility accounting; Steps involved in responsibility accounting; Responsibility centres – Revenue centres – Expenses centres- Administrative and support centres – Research and Development centres – Marketing centres- Profit centres- General considerations- - Business units as profit centres – Other profit centres- Measuring profitability – Transfer pricing – Basics of transfer pricing , Methods of transfer pricing

UNIT III BUDGETING AS A TOOL FOR MANAGEMENT CONTROL SYSTEM

Budgeting basics; Budgeting and forecasting; Budgetary control; Budgeting process; Organization for budgeting; Elements of a successful budgeting plan; Budget centres; Limiting or principal budgeting factor; Types of budgets-sales budget, production budget, production cost budget, direct material budget, direct labour budget, factory overhead budget, ending inventories budget, cost of goods sold budget, selling expenses budget, administrative expenses budget, capital expenditure budget, research and development budget, cash budget, Zero base budgeting (ZBB); Revision of budgets; Preparation of flexible budget and cash budget.

UNIT IV ALTERNATE CHOICE DECISIONS

Alternate choice decisions: Differential cost analysis-basics; Types of choice decisions—make or buy decisions, add or drop product decisions, sell or further process decisions, operate or shut down decisions; Pricing of special orders; Replace or retain plant &equipments; Practical problems- evaluation of alternate choice decisions.

Suggestive Readings

1. Robert, N. A. & Vijay G. Management Control Systems. The McGraw-Hill, New Delhi.

2. Maciariello, J. A. & Kirby, C. J. Management Control System. Prentice Hall of India, New Delhi.

3. Sharma, S. Management Control System. Tata Mc Graw Hill Publishing Co., New Delhi.

4. Lal, J. Accounting for Management. Himalaya Publishing House, New Delhi.

Note: Latest edition of the books may be preferred.

NOTE FOR PAPER SETTING

The paper consists of two sections. Each section will cover the whole of the syllabus without repeating the question in the entire paper.

Section A: It will consist of eight short answer questions, selecting two from each unit. A candidate has to attempt any six and answer to each question shall be within 200 words. Each question carries four marks and total weightage to this section shall be 24 marks.

Section B: It will consist of six essay type questions with answer to each question within 800 words. One question will be set atleast from each unit and the candidate has to attempt four. Each question will carry 14 marks and total weightage shall be 56 marks

Model Question paper

Management Control System

Time: 3.00 Hours
M.Marks: 80

Section-A

Note: Attempt any Six questions. Each question carries 04 marks. Answer to each question should be within 200 words.

1. Discuss the impact of internet on Management control System.
2. Elaborate the functions of a controller.
3. Define responsibility accounting and discuss its process.
4. How profitability can be measured? Discuss.
5. What are the elements of a successful budgeting plan?
6. How budgeting is different from forecasting?
7. Elucidate differential cost analysis with the support of an example.
8. What is pricing of special order?

Section-B

Note: Attempt any Four questions. Each question carries 14 marks. Answer to each question should be within 800 words.

1. Elucidate the term Goal Congruence. Discuss the role of informal factors having influence over the Goal Congruence in organizational control system.
2. Analyse the term 'Transfer Pricing'. Explain the important contribution of Transfer Pricing with the illustrative reference.
3. What are responsibility centres? Discuss the various responsibility centres and explain how units of an organisation are designated as responsibility centres?
4. Explain the terms:
    a) Zero base budgeting
    b) Cash budget
    c) Sales budget
    d) Budgetary control

5. TATA Co. Ltd. is to start production on 1st January 2019. The prime cost of a unit is expected to be Rs. 40 (Rs. 16 per materials and Rs. 24 for labour). In addition, variable expenses per unit are expected to be Rs. 8 and fixed expenses per month Rs. 30,000. Payment for materials is to be made in the month following the purchase. One third of sales will be for cash and the rest on credit for settlement in the following month. Expenses are payable in the month in which they are incurred. The selling price is fixed at Rs. 80 per unit. The number of units to be produced and sold is expected to be: January 900; February 1200; March 1800; April 2000; May 2,100; June 2400 Draw a Cash Budget indicating cash requirements from month to month.

6. Elaborate the various types of choice decisions with suitable examples.

CONTENTS

FUNDAMENTALS OF MANAGEMENT CONTROL

UNIT-I **Lesson No. 1**

NATURE OF MANAGEMENT CONTROL SYSTEMS

STRUCTURE

1.1 INTRODUCTION

Management controls are used daily by managers and employees to accomplish the identified objectives of an organization. Simply put, management controls are the operational methods that enable work to proceed as expected. Most controls can be classified as preventive or detective. Preventive controls are designed to discourage errors or irregularities. For example:

- A manager's review of purchases prior to approval prevents inappropriate expenditures of office funds.

- A computer program which asks for a password prevents unauthorized access to information.
- Detective controls are designed to identify an error or irregularity after it has occurred. Examples include the following:
- An exception report that detects and lists incorrect or incomplete transactions.
- A manager's review of long distance telephone charges will detect improper or personal calls that should not have been charged to the account.

The importance of the subject matter covered in the courseware has been felt on the collapse of companies such as Tyco, Global crossing, World Com, and Enr on because of the lapse in controls. CEO and top management compensation in these companies were so heavily tied up with stock options that executives were motivated to manipulate financials to buoy the short-term stock price. Similarly long-term success of world class companies such as Emerson electric, Lincoln Electric, New York Times, Worthington Industries, 3 M Corporation, Nucor Corporation, Dell Computer, Wal-Mart, South West Airlines, Cisco Systems and Analog Devices were not just because they have developed good strategies, but more importantly, they have designed system sand processes that energize their employees to execute these strategies effectively.

1.2 OBJECTIVES

After studying this unit, you will be able to:

- Explain the meaning of management control system
- Discuss the basic concepts involved in management control system
- Recognize the nature of management control system
- Identify the process of management control
- Discuss the factors responsible for management control system
- Explain the scope of management control system

1.3 MEANING OF MANAGEMENT CONTROL SYSTEM

A Management Control System (MCS) is a system. A system can be described as a series of steps or phases consisting of an input phase, a processing phase, and an output phase. A control system aids measurement, analysis and reporting phases to the system. Accounting methods are often implemented and evaluated as part of a management control system. To control financial activities within a company, the area may be broken down into financial and managerial accounting. Financial accounting generally focuses on internal issues, such as reporting sales costs, while managerial accounting may focus on methods for determining product costs.

While both areas cover business accounting issues, their methods of application generally differ, and separate systems implemented by a management control system may aid in ensuring reports remain accurate and impartial. Managerial accounting is typically responsible for providing management with information on controlling costs and improving the production process. Managerial accountants may also provide cost information on new products, make pricing decisions and monitor actual and budgetary costs. General financial accounting within management control systems aims to focus on a company's internal accounting issues. Financial accounting typically handles payroll and human resource issues affecting employees within the company. Accounts in this area may also manage employee costs and reimbursements under a control system.

Thus, management control system (MCS) is a system which gathers and uses information to evaluate the performance of different organizational resources like human, physical, financial and also the organization as a whole in light of the organizational strategies pursued. It influences the behavior of organizational resources to implement organizational strategies. Management control system might be formal or informal. It is a process of assuming that resources are obtained and used effectively and efficiently in the accomplishment of the organizations objectives.

Some leading definitions of managing control are as follows:

"Management Control seeks to compel events to conform to plans"

-Billy, E. Goaz

"Some sort of systematic effort to compare current performance to a predetermined plan or objective, presumably in order to take any remedial action required"

-William Travers Jerome

"Control, in its managerial sense, can be defined as, „the presence of that force in a business which guides it to a predetermined objective by means of predetermined policies and decisions"

-Mc Farland, D.E.

"Control is that function of the system which provides direction in conformance to the plans"

-Rosen, J.K.

Thus, the term 'Management Control Systems' emphasizes on two distinct, but highly interrelated and sometimes indistinguishable, subdivisions of controls systems:

I. Structure or organization structure or relationships among the units in the organization, more specifically the responsibility centers, the relationship among responsibility centers, performance measures and the information that flows among these responsibility centers.

ii. Process or set of activities, or steps or decisions that are taken by an organization or managers to establish purposes, allocate resources and achieve organizational purposes.

iii. The process consists of interrelated phases of programming (programme selection), budgeting, execution, measurement and evaluation of actual performance.

iv. The structure of a management control system indicates what the system "is" and process of a management control system indicates what the system "does." The management control systems knit the organization together so that each part, by exercising the autonomy given to it, fulfills a purpose that is consistent with and contributes to the fulfillment of the overall purpose of the organization.

1.4 NATURE OF MANAGEMENT CONTROL SYSTEM

The role of the management is to organize, plan, integrate and interrelate organizational activities to achieve organizational objectives. The achievement of these activities is facilitated by management control systems. Management control, of course, is a core business function and exists as a separate, well-established discipline within the management field. Management Control Systems (MCS) theory is a useful integrative tool for organizing, explaining, and understanding the jargon and concepts of performance measurement.

Management control systems consist of all organization structures, processes and subsystems designed to elicit behavior that achieves the strategic objectives of an organization at the highest level of performance with the least amount of unintended consequences and risk to the organization. A management control system is designed to assist managers in planning and controlling the activities of the organization. A management control system is the means by which senior managers ensure that subordinate managers, efficiently and effectively, strive to attain the company's objectives.

Every MCS has certain generic components. There must be a reliable performance measurement system. Realistic standards should be planned and maintained. The standards should be consistently and regularly compared with performance measurement data. Any variances that exceed predetermined thresholds should be enthusiastically investigated and reported to the people who have responsibility and authority to make appropriate and timely adjustments. All adjustments should be controlled, especially any adjustments that affect predetermined standards and thresholds. If the management monitors the activities of the business units frequently, then it is exercising tight control. Limited monitoring of the business units' activities can be termed as lose control.

The difference between tight and lose control thus relates to the degree to which the management monitors the activities of a unit. When there is tight control by the management, there is extensive involvement of the management in the day-to-day operations of the business unit. The budget is considered a binding constraint with a strong emphasis on meeting the budgeted targets. Deviations from the budget are generally not considered acceptable. Loose control is characterized by limited involvement by the management in day-to-day operations. Under loose control, the budget is regarded more as a tool for planning and communication than as a binding commitment.

Management control systems involve a number of activities in an organization, including:

- **i.** Planning the future course of action;
- **ii.** Coordinating and communicating the various activities of the organization to different departments;
- **iii.** Evaluating information and deciding the various activities; and finally,

iv. Influencing people to work in accordance with the goals of the organization.

However, nature of management control system is concerned with three words management, control and systems.

1.4.1 Management

An organization consists of a group of people who work together to achieve certain common goals (in a business organization an important goal is to earn a satisfactory profit). In an organization you have hierarchy of managers, with the Chief Executive Officer (CEO) at the top, the managers of the business units, departments, sections and other sub units below the CEO. Depending on the size and complexity of the organization, there may be several layers in the hierarchy. Except for CEO, each manager is both a superior and a subordinate. Each one supervises people in his own organization unit and is a subordinate of the manager to whom he reports. The CEO (or in some organization, a team of senior managers) decides on the overall strategies that will enable the organization to meet its goals. Subject to the approval of the CEO, the various business and managers formulate additional strategies for their respective units to further these goals. The management control process is the process by which managers at all levels ensure that the members of the organization implement these strategies.

The Management Control Process is more complicated than what has been described in detectors, assessors, effectors and a communication system. These are as follows:

1. **The standard is not preset:** Rather it is a result of conscious planning process where management decides what the organization should be doing and as part of control process it is also comparison of actual with these plans.
2. **Like controlling an automobile, management control is not automatic:** Some of the detectors are mechanical (i.e. routine comparison of actual with standard), but important information is detected through the managers' own eyes, ears and other senses (specially the judgment whether the difference between actual and standard performance is significant to warrant action). Action taken to change organizations behaviour involves human beings.

3. **Management control system requires co-ordination:** Unlike controlling an automobile (a function performed by a single individual), management control requires co-ordination among individuals. An organization consists of many separate parts and management control must ensure that each part works in a harmony with the others.
4. **Lack of Clarity :** The connection from perceiving the need for action and the action required to obtain the desired result may not be clear. In the function, as an assessor manager may decide that "costs are too high" but there is no easy or automatic action or a series of action that will bring costs down to what the standards say.
5. **Control includes self control as well:** Control in an organization does not come about solely or even primarily as a consequence of actions. Much control is self control i.e. people act in the way they do, not primarily because they are given specific instructions by their superiors, rather their own judgment tells them what action is appropriate.

1.4.2 Control

The control process is similar to control process in an automobile. In an automobile if an accelerator is pressed it goes faster, when the brake pedal is pressed it slows or stops, when the steering wheel is rotated it changes its direction. With these devices, the driver controls the speed and direction of the vehicle. If any of these devices does not work, the automobile will be out of control.

An organization must also be controlled i.e. there must be devices to ensure that it goes where the leaders want it to go. But control in an organization is much more complicated than controlling a vehicle.

Every control system has at least four elements:

1. A detector or sensor – a device that measures what is actually happening in the situation being controlled.

2. An assessor i.e. a device for determining the significance of what is happening i.e. comparison with some standard or expectation.

3. An effector i.e. a device that alters behaviour if the assessor indicates the need. This device is often called "feedback."

4. A communication network, i.e. devices that transmit information between the detector and the assessor and between the assessor and the effector.

These four basic elements of any control system are given in Figure 1.1.

Further consider a situation of an automobile driver of a highway where the speed limit is 65 kph. The control system in this case acts as follows:

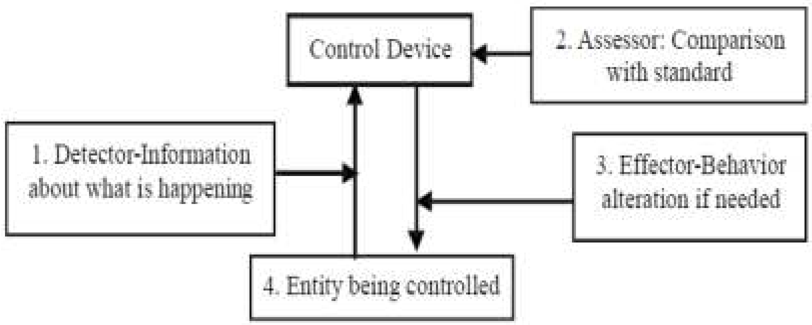

Figure 1.1 Elements of Control System

1. The eyes (sensors) measures actual speed by observing the speedometer.
2. The Brain (assessor) compares actual speed with desired speed and upon detecting a deviation from the standard.
3. Directs the foot (effector) to ease up or press down on the accelerator and
4. The nerves from the communication system that transmits information from eyes to brain and brain to foot.

It would be seen that regulation of a car is a complicated since there can be no certainty as to what action the brain will direct after receiving and evaluating information from the detector.

The functioning of these four basic elements is described in three examples of increasing complexity; the *thermostat*, which regulates room temperature; the biological process that regulates *body temperature;* and the *driver* of an automobile, who regulates the direction and speed of the vehicle.

Thermostat: The components of the thermostat are (i) a thermometer (the detector), which measures the current temperature of a room; (ii) an assessor, which compares the current temperature with the accepted standard for what the temperature should be; (iii) an effector, which prompts a furnace to emit heat (if the actual temperature is lower than the standard) or activates an air conditioner (if the actual temperature is higher than the standard) and which also shuts off these appliances when the temperature reaches the standard level; and (iv) a communications network, which transmits information from the thermometer to the assessor and from the assessor to the heating or cooling element.

Body Temperature: Most mammals are born with a built-in standard of desirable body temperature; in humans that standard is 98.6°F. The elements of the control mechanism by which the body strives to maintain that standard are (i) the sensory nerves (detectors) scattered throughout the body; (ii) the hypothalamus centre in the brain (assessor), which compares information received from detectors with the 98.6°F standard; (iii) the muscles and organs (effectors) that reduce the temperature when it exceeds the standard (via panting and sweating, and opening the skin pores) and raise the temperature when it falls below the standard (via shivering and closing the skin pores); and (iv) the overall communications systems of nerves.

This biological control system is homeostatic – that is, self-regulating. If the system is functioning properly, it automatically corrects for deviations from the standard without requiring conscious effort.

The body temperature control system is more complex than the thermostat, with body sensors scattered throughout the body and hypothalamus directing actions that involve a variety of muscles and organs. It is also more mysterious; scientists know what the hypothalamus does but not how it does it.

Automobile driver: Assume you are driving on a highway where the legal (i.e., standard) speed is 65 mph. your control system acts as follows: (i) Your eyes (sensors) measure actual speed by observing the speedometer; (ii) your brain (assessor) compares actual speed with desired speed, and, upon detecting a deviation from the standard, (iii) directs your foot (effector) to ease up or press down on the accelerator; and as in body temperature regulation, your nerves form the communication system that transmits information from eyes to brain and brain to foot.

But just as body temperature regulation is more complicated than the thermostat, so the regulation of a car is more complicated than the regulation of body temperature. This is because there can be no certainty as to what action the brain will direct after receiving and evaluating information from the detector.

For example, once they determine that the car's actual speed exceeds 65 mph, some drivers, wanting to stay within the legal limit, will ease up on the accelerator, while others, for any number of reasons, will not. In this system, control is not automatic; one would have to know something about the personality and circumstances of the driver to predict what the actual speed of the automobile would be at the end point of the process.

1.4.3 System

A system is a prescribed way of carrying out an activity or set of activities, usually the activities are repeated. Most systems are less precise than computer programs, their instructions do not cover all eventualities and the user of the system must make judgments when these eventualities occur. Nevertheless, a system is characterized by more or less rhythmic, recurring, coordinated series of steps that are intended to accomplish a specific purpose.

1.5 BASIC CONCEPTS

A control system is a set of formal and informal systems to assist the management in steering the organization towards its goals. Controls help in guiding employees effectively towards the accomplishment of the organization's goals. Establishing a control system in an environment of distributed accountability, reengineered processes, and local autonomy and empowerment is a challenging task.

1.5.1 Important Features of Management Control Systems

1. **Nature of Decisions:** Management control decisions are based on the framework established by the organization's strategies. Management control decisions also take into account the quantity and quality of resources available. Within the constraints of the available resources and the policies of the organization, a manager should be able to implement activities that are best suited for a particular business unit. Decisions are made at the highest level, but their actual implementation may require sometime. For instance, employees need time to adapt to a new technology.
2. **Decisions are Systematic and Rhythmic:** Decisions in management control process are systematic and rhythmic i.e. they are in accordance with the strategies and procedures laid down by the top management. Plans developed for a unit must encompass the whole organization, and the plans for each of the organization's units must be coordinated with one another, so that there is a balance between different activities. For example, operations and distribution should be balanced with the sales program.

3. **Strategy Implementation Tool:** Management control helps an organization to move towards its strategic objectives. It is an important vehicle for the execution of strategy. It explains how strategies are implemented through management controls, organizational structures, human resource management, and culture. Effective execution can take place with the help of an efficient organizational structure, human resource management and culture. All these are influenced by the system of management control, and hence it is an important aspect of strategy implementation.

1.6 FACTORS AFFECTING MANAGEMENT CONTROL SYSTEM

There are several factors that have a direct influence on the designing of a management control system. These are –

1. **Size and spread of an entity:** A small firm is very different from a larger one in terms of size and spread. The content and nature for a management control system hence will also be different to suit individual purposes.
2. **Types of responsibility centers**: You cannot have one MCS for different types of responsibility centers as identifying, measuring, and comparing individual centers is not possible; hence, you need its implementation accordingly.
3. **Decentralization and delegation:** The extent of decentralization and delegations differs from company to company so that it can meet the necessary challenges head-on.
4. **Nature of operations in terms of divisibility:** The MCS is affected by the nature of operations in terms of divisibility within an organization. In some companies, the division is as per the products whereas in others it can be something else.
5. **Perceptions of people:** The perception of every individual is different about his job satisfaction or work ethics. While designing the management control system, it is necessary to keep this factor in mind.

1.7 SCOPE OF MCS

Managerial Control, as we know, is an important process in which accounting information is used as to accomplish the organizations objectives. Therefore, the scope of control is very wide that covers a broad range of management activities. According to Holden, Fish and Smith the main areas of control are as follows:

1. **Policies Control:** The success of a business hangs on formulation of sound policies and their proper implementation. There is a great need of control over policies.

2. **Control over Organization:** For the control over organization the management uses organization's manual and organizational chart. Designing and organizing various departments for the smooth running of the business is very essential. If any problem or conflict arises the management control attempts to remove the causes of such frictions and rationalize the organizational structure as to ensure its efficient working.

3. **Control over Personnel:** Anything that the business accomplishes is the result of the action of those people who work in the organization. It is the people, not figures that get things done. The personnel manager is responsible to draw a control plan for having control over the personnel of the concern.

4. **Control over Wages and Salaries:** Control over wages and salaries are sometimes assigned to the personnel department or a specially constituted wage and salary committee.

5. **Control over Costs:** The cost accountant who is responsible to control costs sets cost standards, labour material and overheads. He makes comparisons of actual cost data with standard cost. Cost control is a delicate task and is supplemented by budgetary control systems.

6. **Control over Techniques:** It implies the use of best methods and techniques so as to eliminate all wastage in time, energy and material. The task is accomplished by periodic analysis and checking of activities of each department with a view to avoid and eliminate all non-essential motions, functions and methods.

7. **Control over Capital Expenditure:** Various projects entailing huge amounts require control. This is exercised through a system of evaluation of projects in terms of capital. Capital budget is prepared for the whole concern. Every project is evaluated in terms of the advantages accruing to the firm. For this purpose, capital budgeting, project analysis, breakeven analysis, study of cost of capital etc. are carried on extensively.

8. **Production Control:** The function of production control is to plan, organize, direct and control the necessary activities to provide products and services. Once the production system is designed and activated the problems arise in the areas of production, planning and control. Market needs and attitudes of consumers are studied minutely for revision in product lines and their rationalizing. Routing, scheduling, dispatching, follow up, Inventory control, Quality control are the various techniques of production control.

9. **Overall Control:** A master plan is prepared for overall control and all the concerned departments are made to involve in this procedure.

10. **Control over External Relations:** Public relations department should always be alert in improving external relations. It may also prescribe norms and measures for other operating departments to insist on cordial relations with all the parties.

11. **Control over Research and Development:** Research activities, being technical in nature, cannot be controlled directly. But it should be seen that all facilities are provided to the research staff to improve their ability and keeping in touch with the up-to-date techniques and devices. Training facilities should also be provided by having a research budget in the business.

1.8 SUMMARY

1. Management control system is an important system which is set of interrelated communication structure which facilitates the purpose of an organization on a continuous basis.

2. The management control process is the process by which managers at all levels ensure that the members of the organization implement the departmental strategies to achieve the goals.

3. Every control system has at least four elements, viz. a detector or sensor, an assessor, an effector and a communication network.

4. Management Control does not necessarily mean that actions should correspond to a plan such as budget.

5. Management control systems consist of all organization structures, processes and subsystems designed to elicit behavior that achieves the strategic objectives of an organization at the highest level of

performance with the least amount of unintended consequences and risk to the organization.

1.9 KEYWORDS

- **Management Control Systems (MCS):** A MCS is a set of interrelated communication structures that facilitates the processing of information for the purpose of assisting managers in coordinating the parts and attaining the purpose of an organization on a continuous basis.
- **Detector:** The device that detects observes and measures the activities or phenomenon being controlled.
- **Effector:** A device that modifies or effects changes in the performance to achieve the desired state.
- **Selector:** A device that assesses or evaluates the performance of an activity in relation to a pre-determined standard and identifies deviations.

1.10 LESSON END EXCERSICE

1. Discuss the concept of Management Control. Give the essential elements of a Management Control System.
2. Explain the nature and scope of the management control process.
3. What factors are responsible for Management Control system?
4. "Control is a fundamental management function that ensures work accomplishment according to plans". Analyze the statement describing the scope of control in management.

1.11 SUGGESTED READINGS

- D.K. Sinha, *Management Control System*, Excel Books, 2008
- RavindhraVadapalli, *Management Control System*, Excel Books, 2008
- Rober N. Anthony and V. Govindarajan, *Management Control Systems*, McGrawHill/Irwin, 2000
- Keneth Merchant, Wim Van der Stede, *Management Control Systems*, PearsonEducation, 2007

FUNDAMENTALS OF MANAGEMENT CONTROL

UNIT-I **Lesson No. 2**

BOUNDARIES OF MANAGEMENT CONTROL

STRUCTURE

2.1 INTRODUCTION

Management Control Systems are tools to implement strategies. Strategies differ between organizations and controls should be tailored to the requirements of specific strategies. Different strategies require different task priorities, different key success factors and different skills, perspectives and behaviours. Management team needs both planning and control which lengthen the boundaries of management control. Management Control is one of the several types of planning and control activities in an organization. The other two control and planning activities are: (a) strategic planning and(b) task or operational control.

2.2 OBJECTIVES

After studying this unit, you will be able to:

- Discuss the Boundaries of Management Control
- Identify the distinction between strategy formulation and management control
- Identify the distinction between task control and management control
- Study the impact of Internet on management control
- Explain the Domain of management control

2.3 CONCEPT OF BOUNDARIES OF MANAGEMENT CONTROL

Management control is distinguished from two other systems or activities that also require both planning and control: strategy formulation and task control. Management control fits between strategy formulation and task control in several respects. Strategy formulation is the least systematic of the three, task control is the most systematic, and management control lies in between. Strategy formulation focuses on the long run, task control focuses on short run activities, and management control is in between. Strategy formulation uses rough approximations of the future, task control uses current accurate data, and management control is in between.

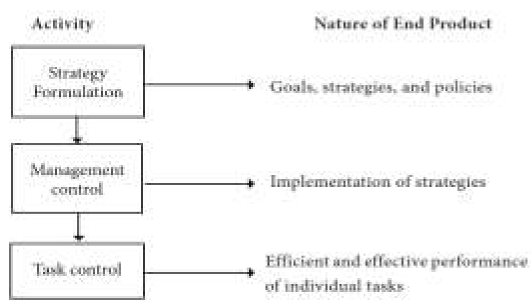

Figure 2.1 General Relationship among Planning and Control Functions

Each activity involves both planning and control, but the emphasis varies with the type of activity. The planning process is much more important in strategy formulation, the control process is much more important in task control, and planning and control are of approximately equal importance in management control.

2.3.1 Management Control

Management control is the process by which managers influence other members of the organization to implement the organization's strategies.

i. **Management Control Activities:** Management control involves a variety of activities including:

   a) Planning what the organization should do.

   b) Coordinating the activities of several parts of the organization.

   c) Communicating information.

   d) Evaluating information.

   e) Deciding what, if any, action should be taken.

   f) Influencing people to change their behavior

ii. **Conforming to a budget is not necessarily good, and departure from a budget is not necessarily bad:** Budgets or plans are based on circumstances believed to exist at the time they were formulated. If these circumstances have changed at the time of implementation, the actions dictated by the plan may no longer be appropriate. If a manager discovers a better approach one more likely than the predetermined plan to achieve the organization's goals the management control systems should not obstruct its implementation.

iii. **Goal Congruence:** Organizational goals explain how an organization intends to go about achieving its mission. For example, a car manufacturer might identify its mission as increasing market share and making a profit. Establishing goals of introducing a new model of car each year and providing the highest-quality spare parts to customers will enable it to achieve that mission. Goal congruence means the goals of an organization's individual members should be consistent with the goals of the organization itself. The management control system should be designed and operated keeping in mind the principle of goal congruence.

iv. **Tool for Implementing Strategy:** Management control systems help managers move an organization toward its strategic objectives.

Therefore, management control focuses primarily on strategy execution.Apart from management controls, strategies are also implemented through the organization's structure, its management of human resources, and its particular culture. This is indicated in the figure 2.2.

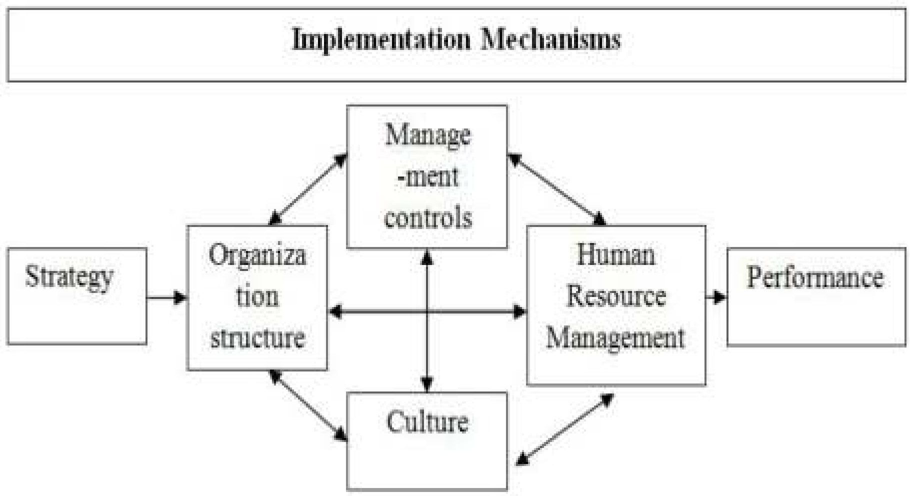

Figure 2.2 Framework for Strategy Implementation

a) **Organizational structure:** An organizational structure is a mostly hierarchical concept of subordination of entities that collaborate and contribute to serve one common aim. It allows the expressed allocation of responsibilities for different functions and processes to different entities. Ordinary description of such entities is as branch, site, department, work groups and single people. Contracting of individuals in an organizational structure normally is under timely limited work contracts or work orders or under timely unlimited employment contracts or program orders. It specifies the roles, reporting relationships, and division of responsibilities that shape decision-making within an organization.

b) **Human Resource Management (HRM):** Human Resource Management is the strategic and coherent approach to the management of an organization's most valued assets the people working there who individually and collectively contribute to the achievement of the objectives of the business. In simple sense, Human Resource Management means employing people, developing their resources, utilizing, maintaining and compensating their services in tune with the job and organizational requirement. HRM is the selection, training, evaluation, promotion, and termination of employees so as to develop the knowledge and skills required to execute organizational strategy.

c) **Organizational Culture:** Every organization has an unwritten culture that defines standards of acceptable and unacceptable behavior for employees. After a few months, most employees understand their organization's culture. They know things like how to dress for work, whether rules are rigidly enforced, what kinds of questionable behaviors are sure to get them into trouble and which are likely to be overlooked, the importance of honesty, integrity and the like. While many organizations have sub cultures – often created around the work groups – with an additional and modified set of standards, they still have dominant culture that conveys to all employees those values the organization holds dearest. Members of work groups have to accept the standards implied in the organization's dominant culture if they are to remain in good standing.

d) **Organizational climate:** Perhaps one of the most important and significant characteristics of a great workplace is its organizational climate. Organizational climate, while defined differently by many researchers and scholars, generally refers to the degree to which an organization focuses on and emphasizes on Innovation, Flexibility, Appreciation and recognition, Concern for employee well-being, Learning and development, Citizenship and ethics, Quality performance, Involvement and empowerment and Leadership.

Organizational climate, manifested in a variety of human resource practices, is an important predictor of organizational success. Numerous studies have found positive relationships between positive organizational climates and various measures of organizational success, most notably for metrics such as sales, staff retention, productivity, customer satisfaction, and profitability.

ii. **Financial and Non-Financial Emphasis:** Management control systems encompass both financial and nonfinancial performance measures. The financial measures are focused on the monetary "bottom line" net income, return on equity, etc. But all organizations have nonfinancial objectives product quality, market share, customer satisfaction, on-time delivery, and employee morale.

iii. **Aid in Developing New Strategies:** In industries that are subject to rapid environmental changes, management control systems can also provide the basis for considering new strategies. This function, referred to as interactive control, draws management's attention to both positive and negative developments that indicate the need for new strategic initiatives. Interactive controls are an integral part of the management control system. This is illustrated in figure 2.3.

Figure 2.3 Interactive Controls

2.3.2 Strategy Planning & Formulation

Strategic planning is an organization's process of defining its strategy, or direction, and making decisions on allocating its resources to pursue this strategy, including its capital and people. Various business analysis techniques can be used in strategic planning, including SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats) and PEST analysis (Political, Economic, Social, and Technological analysis) or STEER analysis involving Socio-cultural, Technological, Economic, Ecological, and Regulatory factors and EPISTEL (Environment, Political, Informatics, Social, Technological, Economic and Legal)

Strategic planning is the formal consideration of an organization's future course. All strategic planning deals with at least one of three key questions:

1. "What do we do?"
2. "For whom do we do it?"
3. "How do we excel?"

In many organizations, this is viewed as a process for determining where an organization is going over the next year or more -typically 3 to 5 years, although some extend their vision to 20 years. In order to determine where it is going, the organization needs to know exactly where it stands, then determine where it wants to go and how it will get there. The resulting document is called the "strategic plan". It is also true that strategic planning may be a tool for effectively plotting the direction of a company; however, strategic planning itself cannot foretell exactly how the market will evolve and what issues will surface in the coming days in order to plan your organizational strategy. Therefore, strategic innovation and tinkering with the 'strategic plan' have to be a cornerstone strategy for an organization to survive the turbulent business climate.

- **Strategy formulation** is the process of deciding on the goals of the organization and the strategies for attaining these goals.

- **Goals** describe the broad overall aims of an organization and objectives describe specific steps to accomplish the goals within a given time frame.

- **Goals are timeless;** they exist until they are changed, and they are changed only rarely. For many businesses, earning a satisfactory return on investment is an important goal; for others, attaining a large market share is equally important. Non-profit also have goals to provide maximum services possible with available funding. In the strategy formulation process, the goals of the organization are usually taken as given, although on occasion strategic thinking can focus on the goals themselves. Strategies are big plans, important plans. They state in a general way the direction in which senior management wants the organization to move. A decision by a automobile manufacturer to produce and sell an electric automobile would be a strategic decision.

  The need for formulating strategies usually arises in response to a perceived threat (e.g., a shift in customer tastes, or new government regulations, or market inroads by competitors) or opportunity (e.g., technological innovations, new perceptions of customer behaviour, or the development of new applications for existing products). A new CEO usually perceives both threats and opportunities differently from how his predecessor did. So changes in strategies occur when a new CEO takes over.

  Strategies to address a threat or opportunity can arise from anywhere in an organization and at any time. New ideas do not emanate solely from the R&D team or the head quarters staff. Anyone might come up with a bright idea, which after analysis and discussion can form the basis for a new strategy.

Complete responsibility for strategy formulation should never be assigned to a particular person or organizational unit.

2.3.3 Task Control

Task control is the process of ensuring that specified tasks are carried out effectively and efficiently. It is transaction-oriented i.e., it involves the performance of individual tasks according to rules established in the management control process. Task control often consists of seeing that these rules are followed, a function that in some cases does not even require the presence of human beings. Numerically controlled machine tools, process control computers, and robots are mechanical task control devices. Their function involves humans only when the latter proves less expensive or more reliable; this is likely to happen only if unusual events occur so frequently that programming a computer with rules for dealing with these events is not worthwhile.

Many task control activities are scientific; i.e., the optimal decision or the appropriate action for bringing an out-of-control condition back to the desired state is predictable within acceptable limits. For instance, the rules for economic order quantity determine the amount and timing of purchase orders. Task control is the focus of many management science and operations research techniques. Most of the information in an organization is task control information: the number of items ordered by customers, the pounds of material and units of components used in the manufacture of products, the number of hours worked by employees, and the amount of cash disbursed. Many of an organization's central activities including procurement, scheduling, order entry, logistics, quality control, and cash management are task control systems.

2.4 DISTINCTION BETWEEN STRATEGIC FORMULATION AND MANAGEMENT CONTROL

1. Strategic formulation is essentially unsystematic. Whenever a threat is perceived or when a new idea surfaces, strategic formulation takes place. By contrast, the management control process takes place according to a more or less fixed timetable and the steps occur one afteranother.

2. Strategic formulation involves only part of the organization; it may result in a change in one or a few existing strategies. The management control process, necessarily involves the whole organization and more important various parts are coordinated with one another.

3. Analysis of a proposed strategy usually, involves relatively few people the sponsor of the idea, headquarters staff and senior management. By contrast, the management control process involves managers and their staff at all levels in the organization.

4. Because relatively few people are involved in strategic formulation, communication among them is relatively simple. In the management control process, many more people are involved and communication, therefore, is much more complicated.

5. Behavioural considerations are less important in the strategic formulation process. In the management control process, managers interact with one another and behavioural considerations are very crucial.

2.5 DISTINCTION BETWEEN TASK CONTROL AND MANAGEMENT CONTROL

1. Many task control systems are scientific, whereas, management control can never be reduced to science.

2. In task control, either human beings are not involved at all or the interaction is between a manager and a non-manager. Whereas, in management control system, managers interact with other managers.

3. Task control requires a different task control system for each type of task, whereas, the management control system is basically similar throughout the organization.

4. In task control, focus is on specific task performed e.g. manufacturing Job No. 59268 or ordering 100 nos. of part 3009. In management control, the focus is on organization units.

5. Management control relates to the broad type of activities and managers decide what is to be done within the general constraints of the strategies. Task control relates to specified tasks and for most of these tasks, little or no judgment is required as to what is to be done.

2.6 IMPACT OF THE INTERNET ON MANAGEMENT CONTROL

The pace of information revolution accelerated with the invention of the computer, is gaining momentum in the 1990s with the advent of the Internet. The Internet provides major benefits in the following ways:

1. **Instant access use:** On the web, the huge amount of data can be sent to anyone anywhere in the world in a matter of seconds.
2. **Multi-targeted communication:** The Internet has a vastly expanded one-to-many reach; one web entry can reach millions of people.
3. **Costless communication:** Communication with customers via the internet avoids the costs of salaries of telephone operator.
4. **Ability to display images:** The Web enables the customers to see the products being offered for sale.
5. **Shifting power and control to the individual:** The individual is the "king". Consumers are in control and can use the web 24 hours a day at their own conveyance without being interrupted or unduly influenced by sales representatives or tele marketers.

With these changes, the Internet has changed the rules of the game in the business to individual custom sector. The impact of the Internet on the world of business has been significant. Management control systems involve information, and organizations require an infrastructure to process that information. The Internet provides that infrastructure making the processing of information easier and faster with fewer errors. On the web, a manager can collect huge amounts of data, store that data, analyze it in different forms and send it to anyone in the organization. Managers can also use this information to customize and personalize their reports.

The Internet facilitates co-ordination and control through efficient and effective processing of information but the internet cannot substitute for the fundamental process that is involved in management control, i.e., the judgements required to design and operate in Optimal Control System. Such judgements involve:

1. Understanding the relative importance of the various and sometimes competing goals that drive individuals to act e.g. personal achievement versus collective achievement, value creation for customers and shareholders rather than oneself.
2. Aligning various individual goals with those of the organization.

3. Developing specific objectives by which business units, functional areas and individual departments will be appraised.
4. Communicating strategy and specific performance objectives throughout the organization.
5. Determining the key variables to be measured in assessing an individual's contribution to strategic goals.
6. Evaluate actual performance relative to the standard and making inferences as to how well the manager has performed.
7. Conducting productive performance review meetings.
8. Designing the right reward structure.
9. Influencing individuals to change their behaviours.

In sum, though the Internet has vastly improved information processing, the fundamental elements of management control what information to collect and how to use it are essentially behavioural in nature and thus, not amenable to a formula approach.

2.7 THE DOMAIN OF MANAGEMENT CONTROL SYSTEM

There is a difference of opinion about the proper domain of control systems among experts in the field. There are many views: Antony and Govindarajan in their book "Management Control System", Eleventh Edition, consider strategic planning, management control and task control as three separate interrelated process of planning and control. Management control is seen by them as the process by which managers influence the other members of the organization to implement the organization strategies. In their views, the proper domain for management control system is the successful implementation of strategy. They do not consider adaptation and innovation as an integral part of the Management Control Process.

William Newman in his book Constructive Control Design and Use of Control Systems, considers the domain of control systems to be the control function of management and believes that "control is one of the basic phases of managing along with planning, organizing and leading." Control is seen as an essential part of the management process and a part of all the managerial efforts of an organization.

Stafford Beer in his two books, Cybernetics and Management, and Decision and

Control, Katz and Kahn in their important work Social Psychology of organizations and Griesinger in his paper “Towards a Cybernetic theory of the firm”, have viewed the entire organization as a Control System. “Control” is seen as a characteristic or attribute of a Control System, it occurs when the organization is attaining its purpose. Purpose and attainment of purpose are central to the work of control system.

Joseph A. Maciarello and Calvin Kirvy in their book Management Control System, 2nd Edition, define management control both as the control of strategy and the control of operations. Moreover, as it is concerned with the design of management systems used to steer organization towards its purpose, it includes the aspects of the planning, organizing and leading the functions of management, thus, distinguishing it from Newman's definition. It describes a management control framework which, when implemented will enhance organizational adaptability and thus, accelerate productivity and quality improvements. The framework is a part for resolving inadequacies in current control system, for making organization work towards optimal performance and for enhancing competitiveness.

2.8 SUMMARY

- Management control is the process by which managers influence other members of the organization to implement the organization's strategies.
- Organizational structure: An organizational structure is a mostly hierarchical concept of subordination of entities that collaborate and contribute to serve one common aim.
- Strategy formulation is the process of deciding on the goals of the organization and the strategies for attaining these goals.
- Task control is the process of ensuring that specified tasks are carried out effectively and efficiently.
- Management control systems involve information, and organizations require an infrastructure to process that information. The Internet provides that infrastructure making the processing of information easier and faster with fewer errors.

2.9 GLOSSARY

- **Goal Congruence**: It is a goal of an organization where the goals of individual members are consistent with those of the organization itself.

- **Goals** describe the broad overall aims of an organization.
- **Objectives** describe specific steps to accomplish the goals within a given time frame.
- **Human Resource Management (HRM):** HRM is the selection, training, evaluation, promotion, and termination of employees so as to develop the knowledge and skills required to execute organizational strategy.

2.10 LESSON END EXCERSISE

1. Is there any significant difference between strategic planning and management control?
2. What is the difference between task/operational control and management control?
3. "Strategies are developed by marketing its core competencies with industry opportunities". Discuss the statement.
4. Discuss the impact of internet on Management Control System.

2.11 SUGGESTED READINGS

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UNIT-I **Lesson No. 3**

MANAGEMENT CONTROL ENVIRONMENT

STRUCTURE

3.1 INTRODUCTION

The COSO (The Committee of Sponsoring Organizations of the Treadway Commission) framework describes the control environment as setting the tone of an organization and influencing the control consciousness of its people. An effective control environment supports and strengthens the other control elements, whereas a weak control environment undermines the other elements, rendering them useless. In an effective control environment, employees know that doing the right thing is expected and will be supported by upper level management, even if it hurts the bottom line. In a weak environment, control procedures are frequently overridden or ignored, providing an opportunity for fraud.

The Institute control environment definition states that the control environment is the "foundation on which an effective system of internal control is built and operated in an organization that strives to (1) achieve its strategic objectives, (2) provide reliable financial reporting to internal and external stakeholders, (3) operate its business efficiently and effectively, (4) comply with all applicable laws and regulations, and (5) safeguard its assets."

A control environment is made up of a compilation of an entity's organizational structure, processes, policies, and standards that are utilized to maintain control across the organization. The board of directors and executive management of a business establish the company culture and attitude regarding the importance of maintaining controls and set the expectations of standards of conduct within the organization often referred to as "the tone at the top."

3.2 OBJECTIVES

After studying this unit, you will be able to:

- Discuss the Management Control Environment
- Identify the elements of Internal Control
- Study the factors in the Evaluation of Effective Control Environment

3.3 CONCEPT OF MANAGEMENT CONTROL ENVIRONMENT

The control environment is the comprehensive set of actions taken by management that set the tone for how employees engage in their day-to-day activities. The control environment is comprised of all policies and procedures, the actions taken by management to deal with issues, and the values they espouse. Taken as a whole, the control environment shows the level of support that management has for the system of internal controls. A strong control environment is needed to reduce the number and severity of control failures within an organization. The control environment is one of the key components of an entity's internal control; it sets the tone of an entity, influences the control consciousness of people within all organization and is the foundation for all other components of the internal control system.

A control environment, also called "Internal control environment", is a term of financial audit, internal audit and Enterprise Risk Management. It means the overall attitude, awareness and actions of directors and management regarding the internal control system and its importance to the entity. Management is responsible for evaluating and reporting on a company's controls. The external auditors are responsible for auditing management's assertion and independently coming to their own conclusions about the company's internal control effectiveness. They must evaluate management's assessment and also perform their own, independent tests in many areas, including the control environment.

I. The control environment has a pervasive structure that affects many business process activities. It includes elements such as management's integrity and ethical values, operating philosophy and commitment to organizational competence.

ii. Adding to the difficulty of the task is the fact that the control environment is not transaction-oriented. Tests of controls that auditors are accustomed to performing, such as walk-through or the re-performance of the control for a sample of items will not be possible. And focusing solely on activity-level controls is inappropriate.

iii. Tests of the Control Environment will consist of a combination of procedures, including a review of relevant documentation of the design, inquiries of management and employees and direct observation.

iv. Auditors will have to probe for understanding and awareness and try to understand the company's attitude toward internal control over financial reporting. They also should ask management for a self-assessment.

3.4 INTERNAL CONTROL ENVIRONMENT

Each organization must start by establishing its internal control environment. It has been said that five things are needed to successfully effect change vision, skills, incentives, resources, and a plan. Efforts to change without a vision create confusion. Experience has shown that a lack of skills, incentives, resources, or a plan will result in anxiety, resistance, frustration, and failure. Interestingly, when it comes to implementing or improving internal control within an organization, the control environment is a pervasive factor that impacts all of the other aspects of internal control. Consequently, a poor “tone at the top” by the board of directors or executive management will likely hinder or damage the other components of internal control.

3.4.1 Elements of Internal Control

Internal control systems operate at different levels of effectiveness. Determining whether a particular internal control system is effective is a judgement resulting from an assessment of whether the five components Control Environment, Risk Assessment, Control Activities, Information and Communication, and Monitoring are present and functioning. Effective controls provide reasonable assurance regarding the accomplishment of established objectives.

i. **Control Environment:** The control environment, as established by the organization's administration, sets the tone of an institution and influences the control consciousness of its people. Leaders of each department, area or activity establish a local control environment. This is the foundation for all other components of internal control, providing discipline and structure. Control environment factors includes Integrity and ethical values:

a) The commitment to competence;

b) Leadership philosophy and operating style;

c) The way management assigns authority and responsibility, and organizes and develops its people;

d) Policies and procedures.

ii. **Risk Assessment:** Every entity faces a variety of risks from external and internal sources that must be assessed. A precondition to risk assessment is establishment of objectives, linked at different levels and internally consistent. Risk assessment is the identification and analysis of relevant risks to achievement of the objectives, forming a basis for determining how the risks should be managed. Because economics, regulatory and operating conditions will continue to change, mechanisms are needed to identify and deal with the special risks associated with change. Objectives must be established before administrators can identify and take necessary steps to manage risks. Operations objectives relate to effectiveness and efficiency of the operations, including performance and financial goals and safeguarding resources against loss. Financial reporting objectives pertain to the preparation of reliable published financial statements, including prevention of fraudulent financial reporting. Compliance objectives pertain to laws and regulations which establish minimum standards of behavior.

The process of identifying and analyzing risk is an ongoing process and is a critical component of an effective internal control system. Attention must be focused on risks at all levels and necessary actions must be taken to manage. Risks can pertain to internal and external factors. After risks have been identified they must be evaluated. Managing change requires a constant assessment of risk and the impact on internal controls. Economic, industry and regulatory environments change and entities' activities evolve. Mechanisms are needed to identify and react to changing conditions.

iii. **Control Activities:** Control activities are the policies and procedures that help ensure management directives are carried out. They help ensure that necessary actions are taken to address risks to achievement of the entity's objectives. Control activities occur throughout the organization, at all levels, and in all functions. They include a range of activities as diverse as approvals, authorizations, verifications, reconciliations, reviews of operating performance, security of assets and segregation of duties. Control activities usually involve two elements: a policy establishing what should be done and procedures to effect the policy. All policies must be implemented thoughtfully, conscientiously and consistently.

iv. **Information and Communication:** Pertinent information must be identified, captured and communicated in a form and time frame that enables people to carry out their responsibilities. Effective communication must occur in a broad sense, flowing down, across and up the organization. All personnel must receive a clear message from top management that control responsibilities must be taken seriously. They must understand their own role in the internal control system, as well as how individual activities relate to the work of others. They must have a means of communicating significant information upstream.

v. **Monitoring:** Internal control systems need to be monitored - a process that assesses the quality of the system's performance over time. Ongoing monitoring occurs in the ordinary course of operations, and includes regular management and supervisory activities, and other actions personnel take in performing their duties that assess the quality of internal control system performance. The scope and frequency of separate evaluations depend primarily on an assessment of risks and the effectiveness of ongoing monitoring procedures. Internal control deficiencies should be reported upstream, with serious matters reported immediately to top administration and governing boards. Internal control systems change over time. The way controls are applied may evolve. Once effective procedures can become less effective due to the arrival of new personnel, varying effectiveness of training and supervision, time and resources constraints, or additional pressures. Furthermore, circumstances for which the internal control system was originally designed also may change. Because of changing conditions, management needs to determine whether the internal control system continues to be relevant and able to address new risks.

3.5 EVALUATION OF EFFECTIVE CONTROL ENVIRONMENT

But how do you evaluate an organization's control environment? You first need to understand what factors are included in internal control environment. The internal control environment includes five factors.

1. **Integrity and ethical value**: Many organizations seek a high level of integrity and ethical value. But how do organizations obtain them? Usually, those organizations have a clear Code of Conduct and/or Conflict of Interests policies. They periodically communicate these polices to employees to promote honesty and integrity. In addition, some organizations adopt business best practices and emphasize internal controls, which is also clear evidence that the organizations are striving to integrate the integrity and ethical value into the daily business operations.

2. **Competence of the entity's people:** Competence is the knowledge and skills necessary for particular functions. So does an organization set up the tone of hiring only competent employees? First, management determines the knowledge and skills required for each position, then establishes the job descriptions for these positions. Furthermore, there is a well-designed hiring process and performance review process to ensure that new hires and employees are competent to perform their assigned tasks and assist the organization in achieving their objectives.

3. **Management's philosophy and operating style**: Management may not achieve its business objectives if it does not introduce and maintain a philosophy and operating style that supports the business objectives and strategies. Management's philosophy and operating

style include management's attitudes towards the organization objectives, the approaches to minimize the business risks and attitude toward internal controls over financial reporting. For example, if management sets up an unrealistic financial goal and aggressively persuades employees to achieve the goal, what will happen? The chance of misstatement in financial statements becomes higher.

4. **Authority and responsibility**: The control environment is greatly influenced by the extent to which individuals recognize that they will be held accountable. Accountability plays a critical role in carrying out internal controls in an organization. Sections 302 and 404 of the Sarbanes-Oxley Act (SOX) hold management in an organization accountable for financial reporting to ensure financial reporting is accurate and timely. In the organization, management holds employees accountable for all activities and business practices to ensure the organization is in compliance with SOX. To have an accurate, effective and timely financial reporting system, management must ensure that adequate

5. **Direction provided by the board of directors**: An effective Board of Directors and Audit Committee provide an important oversight function and, because of management's ability to override controls, they play an important role in the control environment, helping to set a positive tone at the top. For private companies, often there is no Audit Committee. However, to have the Board of Directors is very important for private companies as well. It oversees the organization's plans and performance, provides management directions with experiences, and oversees the organization's internal control function.

3.6 SUMMARY

Organizations that establish effective control environments can improve their efficiency in delivering value and achieving its strategic objectives. Effective human resource policies and procedures enhance an organization's control environment. These policies and procedures should address its hiring, orientation, training, promotion, compensation and much more. The management environment is greatly influenced by the extent to which individuals recognize that they will be held accountable. In the event that an employee does not comply with an organization's policies and procedures or behavioral standards, an organization must take appropriate disciplinary action to maintain an effective control environment.

3.7 GLOSSARY

- **Monitoring:** It is a process that assesses the quality of the system's performance over time.
- **Control Environment**: It is comprised of all policies and procedures, the actions taken by management to deal with issues, and the values they espouse.
- **Control activities:** They include a range of activities as diverse as approvals, authorizations, verifications, reconciliations, reviews of operating performance, security of assets and segregation of duties.
- **Risk assessment**: It is the identification and analysis of relevant risks to achievement of the objectives, forming a basis for determining how the risks should be managed.

3.8 LESSON END EXERCISE

1. Explain the relevance of management Control Environment in present scenario.
2. Discuss the various factors that are included in internal control environment.
3. "Internal control systems operate at different levels of effectiveness". Explain the statement highlighting the various elements of control system.

3.9 SUGGESTED READINGS

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FUNDAMENTALS OF MANAGEMENT CONTROL

UNIT-I **Lesson No. 4**

GOAL CONGRUENCE

STRUCTURE

4.1 INTRODUCTION

People are important assets for an organization. Without the cooperation of the employees, managers cannot implement their decisions. To manage people effectively, control systems are required for the following three reasons lack of direction, motivational problems and personal limitations. Poor performance in organizations can be attributed to lack of direction among employees. Giving employees the required support and direction to accomplish organizational goals is one of the important functions of management control systems. Management Control System influences human behaviour good management control systems influence behaviour in a goal congruent manner that is, they ensure that individual actions taken to achieve personal goals also help to achieve the organization's goals.

Motivation is important to help employees perform to their full potential. Most of the organization's problems occur because individual goals and organizational goals do not match.

This results in de-motivated performance by the employees. At the managerial level too, lack of motivation will result in employees taking decisions that are harmful to the organization. The decisions may be made in order to advance the personal interests of the employees involved. In extreme cases, this could lead to employee fraud and theft. In IT companies, computer-relatedcrime can result in huge losses for the organization. Hence, there is a need to control such behavior in an organization.

Another behavioral problem that can have serious consequences for an organization is personal limitations. In spite of high motivation to perform, certain employees may be unable to perform because of their personal limitations. These limitations are specific to individuals, and could also be because of inadequate training, lack of knowledge or information, and inexperience. Job design also plays an important role in performance. Some jobs are designed in a manner that creates stress. This can lead to accidents and errors in decision-making. Training plays an important role in reducing the severity of limitations at the individual level. Finding effective tools for control of such limitations is an important part of control systems.

4.2 OBJECTIVES

After studying this unit, you will be able to:

- Discuss the goal congruence
- Explain the informal organization

- Explain the formal control systems and informal control systems
- Formulate the objectives of various functions

4.3 GOAL CONGRUENCE

Goal Congruence means consistency or agreement of actions with organizational goals. It identifies the managerial principle that all of a firm's sub goals must be congruent to achieve one central set of objectives. Goal congruence means that as far as feasible, the goals of organization individual members should be consistent with the goals of the organization itself. The management control system should be designed and operated keeping in mind the principle of goal congruence.

Organizational goals explain how an organization intends to go about achieving its mission. For example, a car manufacturer might identify its mission as increasing market share and making a profit. Establishing goals of introducing a new model of car each year and providing the highest-quality spare parts to customers will enable it to achieve that mission.

Senior management wants the organization to attain the organization's goals but the individual members of the organizations have their own personal goals and they may not necessarily be consistent with those of the organization. The central purpose of a management control system is to ensure in so far as is feasible a high level of goal congruence.

Integration of goals and effectiveness when team building

The extent that individuals and groups perceive their own goals as being satisfied by the accomplishment of organizational goals is the degree of integration of goals. When organizational goals are shared by all, the term goal congruence can be used. To illustrate this concept, we can divide an organization into two groups, management and subordinates. The respective goals of these two groups and the resultant attainment of the goals of the organization to which they belong are illustrated in the figure 4.1

Figure 4.1 Direction of Goals

In this instance, the goals of management are somewhat compatible with the goals of the organization but are not exactly the same. On the other hand, the goals of the subordinates are almost at odds with those of the organization. The result of the interaction between the goals of management and the goals of subordinates is a compromise, and actual performance is a combination of both. It is at this approximate point that the degree of attainment of the goals of the organization can be pictured. This situation can be much worse when there is little accomplishment of organizational goals, as illustrated in the figure 4.2.

Figure 4.2 Direction of Goals

In this situation, there seems to be a general disregard for the welfare of the organization. Both managers and workers see their own goals conflicting with those of the organization. Consequently, both morale and performance will tend to be low and organizational accomplishment will be negligible. In some cases, the organizational goals can be so opposed that no positive progress is obtained. The result often is substantial losses, or draining off of assets. In fact, organizations are going out of business every day for these very reasons.

The hope in an organization is to create a climate in which one of two things occurs. The individuals in the organization (both managers and subordinates) either perceive their goals as being the same as the goals of the organization or, although different, see their own goals being satisfied as a direct result of working for the goals of the organization. Consequently, the closer we can get the individual's goals and objectives to the organization's goals, the greater will be the organizational performance, as illustrated in the figure 4.3.

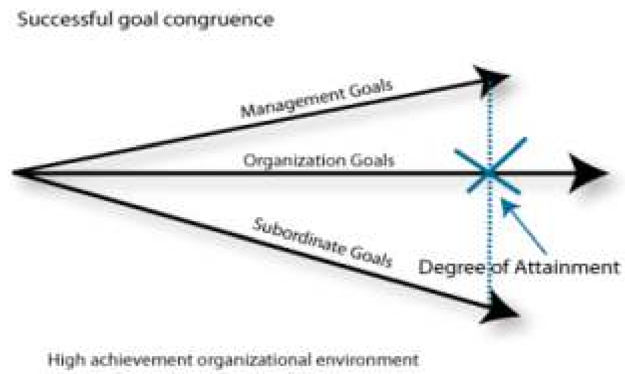

Figure 4.3 Direction of Goals

One of the ways, in which effective leaders bridge the gap between the individual's and the organization's goal is by creating a loyalty to themselves and among their followers. They do this by being an influential spokesperson for followers with higher management. These leaders have no difficulty in communicating organizational goals to followers and these people do not find it difficult to associate the acceptance of these goals with accomplishment of their own need satisfaction. The next three sources of tension are central to the problem of control systems. The issues directly emanate from our philosophic understanding that every person has a right to choose to live one's life. Secondly, it is incorrect to attempt to govern the personal thinking of any person.

Most achievement arises from the combining efforts of people. Different sets of stakeholders in an organization have goals and values which have to be respected. Efforts must be made to identify and operate in areas where we find congruence of goals. It would then operate on the overlapping belief systems of the different constituents who have to cooperate in the organization to keep it under control. Occasionally, one may want to set up boundary systems to discipline the constituents. This integration of belief systems and boundary systems is the articulation of the harmony between the two foci of control and coordination.

4.3.1 Informal Factors that Influence Goal Congruence

Both formal systems and informal processes influence human behaviour in organization, consequently they affect the extent of achievement of goal congruence. Formal systems include strategic plans, budgets and reports. Informal process takes into account work ethic, management style and culture, which are again external and internal to the organization.

i. External Factors

External factors are norms of desirable behaviour that exist in the society of which organization is a part. These norms include a set of attitudes, often collectively referred to as the work ethic, which is manifested in employee's loyalty to the organization, their diligence, their spirit, and their pride in doing a good job (rather than just putting in time). Some of these attitudes are local that is, specific to the city or region in which the organization is located. In encouraging entrepreneurs to locate in their city or state, chambers of commerce and other promotional organizations, often claim that their location has a loyal diligent work force. Other attitudes and norms are industry specific e.g. rail road industry has norms different from airlines industry.

ii. Internal – Culture

Culture is one of most important internal factor (internal to the organization) the common belief, shared values, norms of behaviour and assumptions that are implicitly accepted and explicitly manifested throughout the organization. Cultural norms are extremely important since they explain why two organizations, with identical formal management control systems, may vary in terms of actual control.

4.4 MANAGERIAL STYLES

Managerial style is something that we associate with Individual Managers. It is related to corporate culture, which is pervasive and is an organizational concept. The style of top management has a slow but steady influence upon the style of other managers and upon the culture of the organization. On the other hand, culture influences the prevailing styles of management.

Managerial Style is Influenced by the Managers

I. **Background:** Background includes things like Manager's Age, Manager's formal education and Manager's experience in a given function such as Manufacturing, Technology, Marketing or Finance.

ii. **Personality characteristics:** Personality characteristics include such variables as Manager's willingness to take risk and tolerance for ambiguity.

Managerial style is important to the design of Control System because:

1. Control Systems influence the behaviour of those controlled in that the controlee focuses his energies centralized on the matters “that count”, because this is the manner in which his performance is evaluated.
2. The precise manner in which Control System influences behaviour depends on how the systems are used by the managers.
3. Managers differ in the use of Control Systems i.e.; they have different styles of control.

Though there is infinite number of Managerial Control Styles, it is possible in principle to describe three pure types of Managerial Styles in terms of their influence on the design of Control Systems. These are:

1. **External Control Style:** Under the External Control Style, the decision-making mechanism is managed by top executives after data are gathered at lower levels in the organization. The external style uses a rather mechanical, authoritative, control system whereby goals are set at a demanding level, comprehensive formal measures are developed so as to cover all the areas of performance, the measurement system is designed to prevent manipulation on the part of controlees and rewards are tied closely to performance measures. This style is likely to produce considerable tension and will limit the flow of negative information from subordinates to the superiors. Design a control system in the external control style, the following characteristics has been identified.

   a) **Infrastructure:** Powerful Central Management Group, semi-autonomous divisions and highly refined formal systems of goals and controls. Product managers are used to do worldwide product planning and marketing. Normally such situation develops a strong controller organization. Controllers directly report to the divisional controllers and the corporate controller checks the movement of inventories, payables, receivables and detects the first sign of incipient loss, excessive stocks or unprofitable products.

b) **Rewards:** Positive incentives and big bonuses are used effectively to motivate superior performance. Sometimes the bonuses are 30% or more of their salary. This results in intensive competition among executives and always there is a tendency to show higher performance than what is actually achieved.

c) **Communication and integration:** Here subordinates are scrutinized through the use of staff and through the use of frequent meetings. Parallel channels of information are used from the line and staff to monitor operations.

d) **Control Process:** A highly detailed formal planning and control process is used to provide the facts in a variety of ways. Managers submit 5 years and 1 year plans. Weekly, monthly and quarterly reports measure progress against plans. Internal controls, monthly management reviews, constant pressures and samplings, are used to measure progress. Comprehensive analysis is done on policies and plans as to sales, returns and capital requirements.

2. **Internal Control Style*:*** The internal style is more participative and attempts to capitalize upon the internal needs and motivation of the subordinates, such as the need to accomplishment mastery, socialization, power and self-esteem in an attempt to build internal commitment for organizational goals. The formal and informal controls then emphasize self-control and steering control. The internal control style reduces dysfunctional "game playing" and encourages quick reporting of problems, since a more open atmosphere is created. On the other hand, this style may lead to establishment of goals that can easily be met and therefore there is no outward pressure for above average performance. The internal control style leads to the following control system characteristics:

a) **Infrastructure:** Responsibilities are pushed down the organization to those closest to problems and cuts "red tape" out of organization. In this style there is no necessary of centralized control but confidence is placed in the trustworthiness and motives of the managers. This style also leads to development of profit center concept.

b) **Rewards:** Bonuses are paid in relation to performance against plan and competition is encouraged among executives.

c) **Communication and Integration:** This style leads to extensive performance communications and consultative approach to knit the organization together. Emphasized teamwork in problem solving and harmony in conflict resolution. Top managers are rotated to eliminate boredom and provincial vision.

3. **Mixed Control Style:** Mixed Control Style includes a wide spectrum of styles consisting of combination of the two extreme styles. It seeks participation without abandoning central direction. The rewards are based on performance both objective and subjective measures. The atmosphere is open but there is also insistence that performance attain certain levels. This style has the following characteristics:

   a) **Infrastructure:** Normally analytical approach to decision-making and management is used. In such a situation, this is considerable latitude given to the operating divisions. But the top management possesses strong analytical power and chooses subordinates with similar analytical and strategic skills. Normally, in such a situation, there is relatively small staff at headquarters and therefore they don't seek multiple sources of inputs on operations.

   b) **Rewards:** In this case the best people are hired and promoted.

   c) **Communication and integration:** Numerous small meetings are used to obtain all the information required by the top management and to solve problems.

   d) **Control Process:** Normally, financial plans are made yearly and updated monthly and quarterly. Weekly performance reports against plan and cash flow statements are also prepared. Some top management makes extensive use of return on investment, as performance criteria but number of reports sought is less.

   e) **Comments and conclusions:** From the above, it can be seen each control style has a set of mutually supportive systems that are consistent with it. Management must ensure that it attains a certain level of internal consistency between its control styles and the remainder of the control system.

Finally, managerial style should be adapted to the type of people who are being controlled. If the employees show a high level of commitment, or if the task is very complex and difficult to measure appropriately, it would probably be dysfunctional to use external style exclusively.

4.5 INFORMAL ORGANIZATIONS

The lines/boxes on an organization chart depict the formal relationships i.e. the official authority and responsibility of each manager. The chart may show that production manager of Division X reports to the General Manager of that division. But while fulfilling his responsibilities the production manager of Division X has to communicate with other people in the organization as well as with other managers, support units, the corporate office staff and people who are friends and acquaintances. In extreme situation, the production manager may not give adequate attention to messages received from the General Manager if he is evaluated in production efficiency rather than on an overall performance. The realities of the management control process cannot be understood without recognizing the importance of relationships that constitute the informal organization.

Perception and communication*:* In working towards the goals of the organization, operating managers must know in clear terms what these goals are and what actions are needed to achieve them. Managers receive the information through various channels both formal (e.g. budgets and other official documents) and informal (e.g. conversation). Despite these channels, the managers are not very clear "what the senior management wants. In reality sometimes, messages received from different sources may conflict with each other. For example, the budget document may aim that managers are supposed to aim for the highest profits possible in a given year whereas the senior management does not want them to skip on maintenance or employee training since such actions may increase current profits but will have adverse long term effect.

4.6 FORMAL CONTROL SYSTEM

The Formal Control Systems have a major influence on the effectiveness of an organization's management control. These systems can be classified as (1) The management control system itself and (2) rules.

Rules: The word rules denote all type of formal instructions and controls including standing instructions, job descriptions, standard operating procedures, manuals and ethical guidelines. Rules range from most trivial like requisitions to the most important (e.g. capital expenditure over 5 crores must be approved by the Board of Directors).Unlike the directives implicit in budget numbers, which may change from month to month, most rules once laid down, are in force indefinitely unless they are changed/modified.Some rules act as guides, which allow the organization members to depart from either under specific circumstances or as per their own judgment that a departure would be in the best interests of the organization. Such departure may require the approval of higher authority. Some rules are positive requirements that certain actions should be taken (e.g. fire drills at prescribed intervals). Others are prohibited against unethical, illegal or other undesirable actions. Finally, there are rules that never be broken under any circumstances.

Some specific types of rules are given below:

1. **Physical control:** Security guards, locked storerooms, vaults, computer passwords, television surveillance and other physical controls may be part of the control process.
2. **Manuals:** Manuals in bureaucratic organizations are more detailed than are those in other organizations. Large organizations have more manuals than small organizations; centralized organizations have more than decentralized ones and organization with geographically dispersed units performing similar function (such as fast food restaurant chains) have more than do single-site organizations. With passage of time, some rules become outdated hence manuals and other sets of rules should be re-examined periodically to see that are still consistent with the senior managements wishes.
3. **System safeguards:** Various safeguards are built into the information processing system to ensure that information flowing through the system is accurate and to prevent fraud of any sort. These include cross checking totals with details, requiring signature and other evidence that the transaction has been authorized, separating duties, counting cash and other movable assets at frequent intervals and other procedures mentioned in auditing. This also includes checks of the system performed by the external and internal auditors.
4. **Task Control System:** Many of the tasks are covered by rules. In case of automation, the system itself provides the control.

4.7 Types of Structure in an Organization

A firm's strategy has a major influence on its structure. The type of structure in turn influences the design of the organizations management control system. Although organizations come in all shapes and sizes their structures can be grouped into following:

4.7.1 Entrepreneurial Structure

The entrepreneurial structure is the most elementary form of structure and is appropriate for an organization that is owned and managed by one person. A small-scale industrial unit, a small proprietary concern, or a mini service outlet may exhibit the characteristics of organizations which are based on an entrepreneurial structure. The owner manager looks after all decisions, whether they are day-to-day operational matters or strategic in nature.

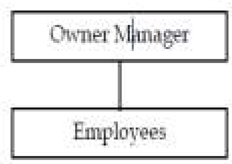

Figure 4.4 Entrepreneurial Structure

The advantages of this type of structure are:

1. Quick decision making as power is centralized.
2. Timely response to environmental changes.
3. Informal and simple organization systems.

The disadvantages are:

1. Excessive reliance on the owner-manager and so proves to be demanding for the owner manager.
2. May be fully busy with day-to-day matters and ignore strategic decision.
3. Increasingly inadequate for future requirements if volume of business expands.

4.7.2 Functional Structure

As the volume of business expands, the entrepreneurial structure outlines its usefulness. The need arises for specialized skills and delegation of authority to managers who can look after different functional areas. The rationale for the functional form of organization involves the notion of a manager who brings specialized knowledge to bear on decisions related to a specific function as contrast to general purpose manager who lacks that specialized knowledge. A skilled marketing manager should make better marketing decisions and a skilled production manager should make better production decisions than that made by a generalist who is responsible for both marketing and production. Further in terms of need satisfaction a functional organization tends to bring together people with similar skills and interests and these groups are more congenial and more likely to recognize individual's skills. Thus, an important advantage of functional organization is its efficiency.

There are several disadvantages to a functional structure:

1. There is no unambiguous way of determining the effectiveness of the separate functional managers e.g. the managers of marketing and of production contributes to the final output. There is no precise way of determining how much of the profit is earned by each function.
2. Co-ordination becomes difficult between different functions for example: the marketing department may want to satisfy a customer's need for a certain quantity of product even if it involves over time work by the production which the latter is not willing to bear.
3. Functional structures are inadequate for a firm which has diversified products and markets. Since the emphasis has to be different.
4. Functional organizations are inadequate for a firm which has diversified products and markets since the emphasis has to be different.
5. Functional organization tends to create 'silos' for each function thereby preventing cross functional organization in areas such as new product development.

The management control process in a functional organization works as follows:

1. The senior managers are responsible for developing the company's overall strategy to compete, in its chosen industry as well as its functional strategies in such areas as research and development, manufacturing and marketing.
2. The plans for the organization as a whole must be made at the very top (CEO's level) because these plans necessarily involve co-ordination of all the functions that contribute to the final output. For example, plans

for marketing department, must take into account the ability of the production departments to produce goods as per specification.

3. The strategic plan/long term planning involves only senior executives and a planning staff. In a very small organization the process may involve only CEO assisted by the controller.
4. The operating budget shows the details of revenues and expenses for the budget year for each responsibility area and for the organization as a whole. The figure 4.5 shows the functional organization.

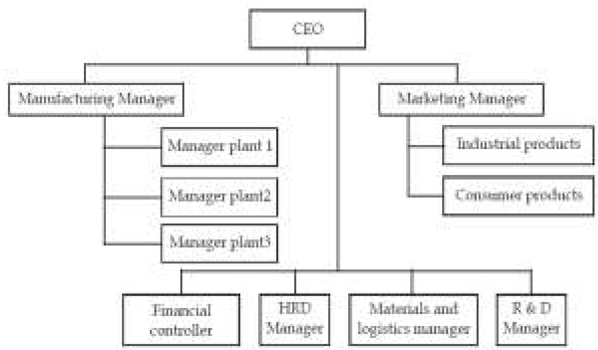

Figure 4.5 Functional Organization Structure

4.7.3 Business Unit Organization Structure

The business unit form of organization is designed to solve problem inherent in its functional organization. A business unit also called a division is responsible for all its functions involved in producing and marketing a specified product line or group of product lines. Business unit managers act as if their units are separate companies. Figure 4.6 shows a summary form of divisional organization. They are responsible for planning and co-coordinating the work of the separate functions ensuring that the plans of the marketing department are consistent with production capabilities and for resolving the disputes that arise between these functions. The divisional manager's performance is measured by the profitability of the business unit and this is satisfactory because profit incorporates the activities of both marketing and production. Although business unit managers exercise broad authority over their units, head office reserves certain key factors:

1. Head office is responsible for obtaining funds for the company and for allocating these funds to the various business units in accordance with its

policy of best use.

2. Headquarters also approves budgets and appraise the performance of business unit managers, sets their compensation packing and if situation demands remove them.

3. Head office establishes the charger of each business unit i.e. the produce lines it is permitted to make and sell and/or the geographical territory it can operate and sometimes the customers to which it may sell.

Headquarters also establishes company-wide policies. It may assist the business units in production and marketing activities and in specialized areas such as human resources, legal affairs, public relations and controller and treasury matters. In case of unrelated diversified company, the autonomy of the business unit managers tends to increase, since Head Office senior managers lack the knowledge and expertise to make strategic and operating decisions and there is very little interdependence across business units in a conglomerate. In a single business or a related diversified firm synergy may be important and business units may be given the freedom to make sourcing decisions. In a conglomerate the usual transfer pricing policy is to give sourcing flexibility to business units and to use arm's length market prices.

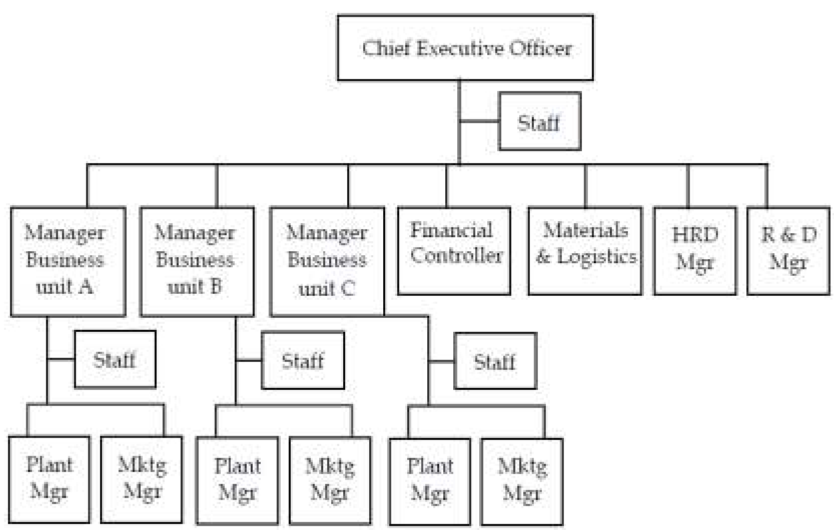

Figure 4.6 Business Unit Organizations

The following are the advantages of business unit form of organization:

1. It provides a training ground in general management.

2. Since business unit is closer to the market for its products its manager may make sounder production and marketing than HO might and the unit as a whole can react to new threats or opportunities more quickly.

The following are the disadvantages of business unit form of organization:

1. Business unit staff may duplicate some work that is done at the headquarters.
2. In some cases, the layers of business unit staff may cost more than the value gained by divisionalization.
3. Disputes may be there between business unit staffs and headquarters, one business unit infringing the charter of another unit. There may also be disputes between business unit personnel and headquarters staff.

Because of the apparently clear cut nature of profit responsibility in a business unit organization, divisional organization structure is preferred since they can be viewed as profit center or investment center.

4.7.4 Matrix Structure

In large organization, there is often a need to work on major products or projects, each of which is strategically significant, hence the requirement of a matrix type of organization structure.Figure 4.7 illustrates a matrix structure. Essentially such a type of structure is created by assigning functional specialists to work on a special project or a new product or service. For the duration of the project, the specialist from different areas forms a group or team and report to the team leader. Once the project is completed the team members revert to their parent departments.

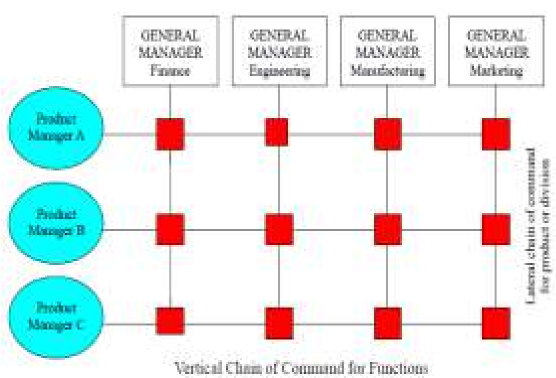

Figure 4.7 Matrix Organization Structure

The matrix structure is a combination of the product and functional organization and is usually created for executing a project which requires the skilled services of a functional man as well as the specialized knowledge of a product man. Large turnkey projects in specialized fields require a matrix structure. The distinguishing characteristic of a matrix structure is that it operates under a dual authority. A person is accountable to two bosses at the same time, one his usual boss and the other his boss for the duration of the project. Obviously the problems emanating from this type of structure relate to conflicting roles and authority arising out of an ambiguous demarcation of authority and responsibility. Matrix structures are increasingly used in organizations as they become more complex and as the pace of change increases. They are similar to project management arrangements, although matrix structures may be a permanent feature.

Matrix structures, like project management, involve the creation and management of multi-disciplinary teams. The team leaders have a dual reporting relationship. For the structures to work effectively they should only be introduced when appropriate and even then after careful planning. An important aspect is the training of multi-disciplinary team leaders. However, it can also be crucial to ensure that those other key members of management who need to monitor and support matrix structures are properly selected and have received appropriate management training.

Since each project is a potential profit center, the power and authority of project managers come directly from the general manager. He is totally responsible and accountable for the project success. Functional departments are responsible to maintain technical excellence. A unified technical information base is maintained and made available and exchanged for each project. Functional departments are expected to keep track of latest technical advances in the industry. Thus, while a project management is a "coordinative" function, a matrix management is a "cooperative" function. In matrix organization, both vertical as well as horizontal communication and information channels must exist for decision making. The horizontal line must be permitted to operate as a separate entity except for administrative purpose. All managers, functional and project, must have an input in the planning process, and a quick and efficient conflict resolution mechanics must be constituted.

The basis for matrix concept is an attempt to create synergism through shared responsibility between project and functional management, there shall be a base of mutual understanding between the two. Since both maintain some authority, responsibility and accountability on a project, they must continuously negotiate. The process is more behavioral than quantitative; the inter-personnel and communicative skills are of paramount importance. Problem solving will be a fragmented and diffused process. There exists a tendency to seek solutions and to identify the problems in terms of duties of the particular unit rather than looking beyond it in the context of entire organization. Such "tunnel vision" can exist at all levels of management. It is, therefore, inevitable that conflicts occur between functional and project managers. The individuals placed at the interface positions, thus become critically important. They have to convince both the functional and project managers to communicate with each other to resolve the problem.

The advantages of matrix structure are:

1. Allows individual specialists to be assigned where their talent is the most needed.
2. Foster creativity because of pooling of diverse talents.
3. Provides good exposure to specialists in general management.

The disadvantages of matrix structure are:

1. Dual accountability creates confusion and difficulty for individual team members.
2. Requires a high level of vertical and horizontal combination.
3. Shared authority may create communication problems.

4.8 FUNCTIONS OF THE CONTROLLER

The term controller refers to the person who is responsible for designing and operating the management control system. In many organizations, the title of the person is chief financial officer. The controller performs the following functions:

1. Designing and operating information and control systems.
2. Preparing financial statements and financial reports (including tax returns) for shareholders and other external parties.
3. Preparing and analyzing performing reports, interpreting these reports for managers and analyzing program and budget proposals from various

segments of the company and consolidating them into an overall annual budget.

4. Supervising internal audit and accounting control procedures to ensure the validity of information, establishing adequate safe guards against theft and fraud and performing operational audits.

5. Development of personnel in his function and participating in the education of management personnel in matters relating to controller function.

It may be noted that Chief Financial Officer (CFO) is responsible for both the controller functions and also the treasury function. The controller and the treasurer report to CFO. Since we have not discussed the treasurer's function, we use the narrower term controller.

- **Relation to Staff Function:** The controller's function is a staff function. Though the controller is usually responsible for the design and operation of the management control system which collects and report information the use of this information to the responsibility of line management CEO or business unit managers. The controller may be responsible for developing and analyzing control measurements and for recommending actions to management. Other possible work may include monitoring adherence to spending limits as laid down by Chief executive, controlling the integrity of the accounting system and safe guarding company assets theft and broad (which is also known as Risk Management).

  The controller does make some decisions primarily those with implementation of policies decided by the line management. For example, a member of the controller organization decides on the propriety of expenses incurred by the salesman either on the cost of meals or why it was necessary to fly first class rather than economy class. Controllers play an important role in the preparation of strategic plan and budgets. They are also called to scrutinize performance reports to ensure accuracy and to call line managers attention to items requiring further inquiry. The difference is that their divisions can be overruled by the line managers to whom the subordinate manager is responsible.

- **Reporting relationship of the business unit controller:** Business unit controllers have divided loyalty. On one hand they are responsible to the corporate controller for the overall operation of the control system. On the other hand, they also owe allegiance to the managers of their respective business units for whom they provide staff assistance. Two possible types of relationships are shown in Figure 4.8.

In some companies, the business unit controller reports to the business unit manager and has "a dotted line" relationship with the corporate controller. Here the business unit general manager is the controller's immediate boss and he has ultimate authority in hiring, training, compensation, promotion and even termination within that business unit. These decisions are rarely made, without input from the corporate controller.

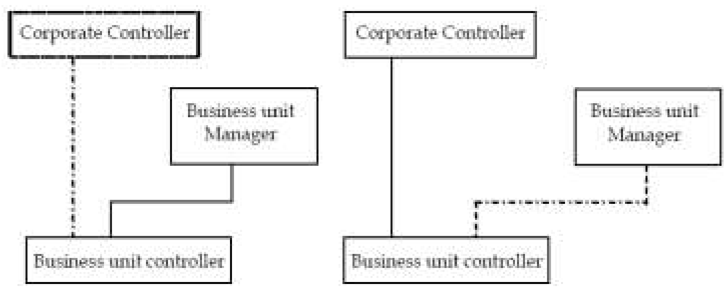

Figure 4.8 Alternative Controller Relationship

In other companies, business unit controller report directly to the corporate controller – as indicated by a sold line on the organization chart.There are problems with each of these reporting relationships. If the business unit controller works primarily for the business unit manager, there is a possibility that he may not provide completely objective reports on business unit budget and business unit performances to senior management. On the other hand, if the business unit controller works primarily for the corporate controller the business unit manager may treat him as "a spy from the front office" rather than as a trusted aide. Regardless of the reporting relationship it is expected that the controller will give objective reports and should not participate in sending misleading information or in the concealment of unfavorable information. The overall ethical responsibility inherent in the position does not support such unethical practices.

4.9 TYPES OF MANAGEMENT CONTROL SYSTEMS

Control systems in an organization fall under two broad areas: formal and informal. Formal controls are laid out in writing by the management, whereas informal controls arise as a result of employees' behavior. Formal controls are framed by the managers, whereas informal controls often originate with employees and are affected by general socio-cultural factors.

1. **Formal Control System:**Formal control systems are written, management-initiated mechanisms that influence the behavior of employees in achieving the organization's goals.Formal controls can be classified into three types, based on the nature of management intervention.They are:

   i. **Input controls:**These are the actions taken by the company before a planned activity is implemented. These measures help the company to select the right way to undertake the activity. Input controls include selection criteria, recruitment and training programs, manpower allotments, strategic plans and resource allocations.

   ii. **Process controls:**Process controls involve tracking certain variables and taking corrective action whenever there is any deviation from specified parameters in the variables.The control action takes place before the process of transformation is completed and the output is produced. Process control is exercised when the firm attempts to influence the ongoing activity to achieve the desired ends.The control is applied to the behavior or activities rather than the end results.

   When the sales begin to decline or there is a dispatch bottleneck, this information is fed forward, and the level of the finished goods inventory is controlled by reducing production.Thus, the inventory levels are prevented from exceeding required levels. Alternatively, the managers may realize that the original standards for sales or dispatch delays are no longer appropriate and must be revised. This again feeds into a loop, which leads to the inventory objectives or plans being updated. Process control can also be illustrated using the example of a salesperson's job. The management may direct the salesperson to follow certain procedures for new market development, but may not hold the salesperson responsible for the extent of new business generated i.e. the end result. In such a case, process control has been exercised.

   iii. **Output controls*:*** Output control is exercised when performance standards are set and monitored, and the results are evaluated. Output control takes place when the control activity is based on the comparison of actual and planned outcomes. Such controls are applicable when it is easy and inexpensive to measure the output and when there are few elements of uncertainty.

2. **Informal Control System:** These are unwritten, typically worker-initiated mechanisms that influence the behavior of individuals or groups in business units. There are three types of informal controls. They are:

   I. **Self-control:**It deals with the establishment of the personal objectives by the individual, monitoring their attainment and adjusting the behavior in the organization to attain the goals. Self-control can be beneficial to an organization if the organization's goals are in congruence with the individual's goals. But if the goals do not match then the performance of the employee can suffer.

   ii. **Social controls:** Social control refers to the prevailing social perspectives and patterns of interpersonal interactions within subgroups in the firm. In this type of control, an organization establishes certain standards, monitors conformity with the standard and takes action when deviations occur. Social control arises out of the internalization of values and mutual commitment towards some common goals.

   iii. **Cultural controls :**According to William G Ouchi, culture is "the broader values and normative patterns that guide worker behavior within the entire organization." Cultural control can be realized by norms of social interaction, and stories, rituals and legends relating to the organization.

4.9.1 Subsystems and Components of Management Control Systems

The subsystems and components of control systems can be discussed on the basis of formal and informal processes.

1. **Formal Control Process:** The formal control process has two dimensions formal planning and formal reporting.

   i. **Formal planning process:** The formal planning process has two dimensions: strategic planning and operations planning. In most organizations there are two budgets one for operations and one for strategy; and, there are two sets of reports one for strategic projects and one for operating activities. The formal planning and control process should support the style and culture of the organization, and should be supported by the infrastructure, the rewards, and the communication systems in the organization.A strategic planning system is necessary to assist the organization in the planning and control of projects. It helps the organization to decide its goals and objectives, and key strategies. An operational planning system undertakes activities that are short term in nature.

ii. **Formal reporting process:**Detailed reports help the organization to assess the progress of its strategic and operational planning. Monthly, quarterly or yearly reports help the organization to analyze its performance periodically, and to decide on the next set of programs to be undertaken.Although planning and reporting appear to be two distinct processes, there should be a certain degree of integration. Strategic programs are funded out of current operations and grow out of current activities. Further, strategic plans and programs have a great impact on current operations and so, these strategic plans should be adjusted from time to time in line with their effect on operations.

2. **Informal Control Process:** Management decisions are based upon experience, intuition and feeling. Informal control processes are formed as a result of interaction between people. The informal control process helps in the development of new goals and objectives. There are a number of mechanisms for control through informal systems. One mechanism is the use of ad hoc teams to solve problems, improve productivity and achieve organizational change. Informal teams usually consist of cross organizational groups which work in coordination to solve problems related to a particular client, product or market. Informal communication systems evolve as people develop work relationships. Informal communication is helpful in supporting the key values of the organization. Fostering informal communication is critical to the development and maintenance of effective informal controls. Informal rewards and recognition are conferred upon the key team members within the informal system. The respect an individual is shown is an

informal reward for performance. Communication systems are not highly guarded in informal systems.

4.10 SUMMARY

In this lesson we have studied the concept of goal congruence and informal factors influencing it. In broad sense individual actions to achieve personal goals should also help to achieve the organization goal. This serves the purpose of Management in achievement of high level of goal congruence. Managerial style is an organizational concept which is related to corporate culture. The prime functions of a controller are the responsibility which involves completely designing and operating the management control system.

4.11 GLOSSARY

- **Business Unit:** Division is responsible for all its functions involved in producing and marketing a specified product line or group of product lines.
- **Controller:** A person responsible for designing and operating Management Control System.
- **Corporate Culture:** A cumulative term consisting of shared values, common perceptions and common premises that members of the organization apply to its activities and problems.
- **External Control Style:** The decision-making mechanism is managed by top executives after data are gathered at lower levels.
- **Formal systems:** Include strategic plans, budgets and reports.
- **Goal Congruence:** Means that as far as feasible, the goals of organization individual members should be consistent with the goals of the organization itself.
- **Informal Process:** Takes into account work ethic, management style and culture.

4.12 LESSON END EXCERCISE

1. What are the informal factors that influence goal congruence. Explain briefly
2. What are the different types of structures in an organisation
3. What are the different types of subsystems and components of management

control system.

4.13 SUGGESTED READINGS

· Anthony, Robert N and Govindrajan, Vijay, "*Management Control System*", Tata McGraw Hill.

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FUNDAMENTALS OF MANAGEMENT CONTROL

UNIT-I **Lesson No. 5**

PERFORMANCE MEASUREMENT SYSTEMS

STRUCTURE

5.1 INTRODUCTION

Management Information System can be developed as an act of interrelated components that collect (or retrieve), process, store and distribute information to support decision making, co-ordinate and control an organization. Information means data have been shaped into a form that is meaningful and useful to human being. Data are stream of raw facts reporting events occurring in organization or physical environment before they have been organized and rearranged into a form that people can understand and use.

5.2 OBJECTIVES

After studying this unit, you will be able to:

- Identified the performance measures.
- Discuss the designing accounting-based performance measures.
- Describe the performance reports: format and essential features.
- Explain the multiple performance measures.
- Establishing the objectives and performance measures.

5.3 PERFORMANCE MEASURES

Performance measures are a central component of management information and reporting system. It deals with performance measures for different levels of an organization and for managers at these levels both financial and non-financial performance measures. Performance measurements of organization units should be a prerequisite for allocating resources within that organization. When a unit undertakes new activities, projections of revenues, costs and investments are made. An ongoing comparison of the actual revenues, costs and investments with the budgeted amounts can help guide top management's decisions about future allocations. Performance measurement of manager is used in decisions about their salaries, bonus future assignments and status, which motivate managers to strive for the goals used in their evaluations.

5.3.1 Five Level Performance Measures

These are given below:

Representative area at whichdata gathered	Financial Measures	Non-Financial Measures
A) Customer / Market level	i) Prices of company's productscompared with competition ii) Prices of company's traded securities	i) Market share held bycompany's products ii) Third party quality ratings for all products in the industry
B) Total organizational level	i) Return on investment (ROI) ii) Residual income (RI)/EVA iii) Return on sales Cost and revenuemeasurements for eachresponsibility center accordingto measure of performance used(that is cost, revenue, profit,and return on investments) thisis known as responsibilityaccounting. Financial measuresincludes flexible budgetvariances)	i) No. of new products introduced ii) No. of new patents filed
C) Individual facility level(includes manufacturing plants,distribution sales, customerservice centers, R & D center)		i) Capacity utilization ii) Throughput time forproducts iii) Percentage of timespromised delivery dates met(schedule attainment)
D) Individual Activity level(e.g. activities in a warehousefacility include receiving,storing, dispatching, etc.	i) Direct material variance anddirect labor variances ii) Manufacturing overheadvariances iii) Cost per activity level	i) Time taken to set upmachinery for new productionrun. ii) No. of accounts receivablesprocessed per hour iii) Inventory level not toexceed certain amounts iv) Abiding by PlantMaintenance schedules. Timeperiod for completion i.e.,break even time is the timefrom initial idea date to thetime when the cumulativepresent value of cash inflows ofthe project equals the presentvalue of total (to market) cashoutflows
E) By Product / Programme	Cost and Revenues andInvestments acrossresponsibility centers as far asthey pertain to program orproduct (compares to budgeted/ target amounts). This issometimes referred to asactivity costing.	

Table 5.1 Five Level Performance Measures

5.4 PERFORMANCE REPORTS: FORMAT AND ESSENTIAL FEATURES

1. **Tailored to the organization structure and controllability:** The performance report system should be structured to the organization structure of the enterprise the same way as budgeting and accounting systems. There should be a separate performance report for each responsibility center, starting with those at the lowest level, which, in turn,

feed into summary reports for each higher level.

2. **Designed to implement the exception principle in management:** Performance report must clearly distinguish between controllable and non-controllable items. Performance measurement required that actual results be compared with plans, objectives and standards so that differences (exceptions) call management attention to high, low and satisfactory performance. The variances from plans signal the need for investigation and possible action. The action may be corrective, commendatory or provisory. Both favorable and unfavorable variances justify investigation. Unfavorable variances may signal danger further investigation generally is necessary to pinpoint the precise cause.

3. **Repetitive and relate to short-time spans:** Performance should be repetitive, generally on a monthly basis, although certain problems may suggest the need for weekly or even daily reports that focus on a particular problem.

4. **Adapted to the requirements of the principal user:** Performance reports serve the evaluation and decision making needs of the user.

   a) Top management must have reports that give a complete and readily comprehensive summary of the overall aspects of operations and an identification of major events. The summaries must be supported by sufficient detail to facilitate tracing unfavorable situation to their source.

   b) Middle management is usually defined as those members of management in charge of major subdivisions of the business such as: sales, production and finance. Middle management is responsible for carrying out the responsibilities assigned to the subdivisions within the broad policies and objectives established by top management. Performance reports for middle management, although including summary data, also are characterized by detailed data on day-to-day operations.

   c) Lower level management (supervisors and foreman) is principally concerned with co-ordination and control of day-to-day operations; therefore, controlled reports must be designed accordingly. Reports to the foreman and supervisors must be detailed, simple, understandable and limited to items having a direct bearing on the supervisor's operational responsibilities.

The presentation media for financial data may be broadly classified as follows:

Written	Formal financial statements
	Tabulated statistics
	Narration and exposition using words
Graphic	Charts
	Diagrams and pictures
Oral	Group meetings
	Conference with individuals

Table 5.2 Presentation Media for Financial Data

Many top executives have a strong preference for narrative summaries of internal reports. Words frequently tell the story much more effectively than base figures. Analysis of the causative factors involved. Example: In a performance report showing significant exceptions, generally should be presented in narrative form. Oral presentation should be a significant part of the internal reporting system in all companies. Controller and budget directors should encourage the use of executive conferences where the performance report is presented, explained and discussed. Oral presentation is important because interpretation and emphasis are possible that are lacking in other forms.

5. **Simple, understandable and report only essential information:** Reports should not be too long; complex tabulations should be avoided. Reports should be carefully screened to eliminate all non-essential information. Many performance reports include too much data rather than too little. Performance reports should be standardized. Executive becomes accustomed to certain terminology, forms and methods of presentation and know where to look to find the specific information. Despite the desirability of standardizing performance reports, constant attention must be given to improving them. Improvement necessarily involves changes, but desirable changes, if made at an opportune time and adequately presented, can be accomplished usually with a minimum of confusion. Reports must be kept relevant.

6. **Prepared and presented promptly:** Consistent with the cost of detailed record keeping and reporting, performance reports should be available on a timely basis. To achieve a realistic balance between immediate reporting and the costs of detailed reporting, monthly performance reports are widely used by industry. When special problem areas are involved, weekly and even daily reporting may be necessary, at least for a time.

7. **Effective management follow-up procedures:** Follow up procedures constitutes a key aspect of effective control. Some companies require written explanations of significant variances.

The follow up procedures preferred by other companies involve constructive conferences where the causes are discussed and correction action is decided upon. Follow-up procedures should begin at the top management level in the executive committee meeting, for example, where both unsatisfactory and satisfactory conditions are discussed and analyzed. Decisions should be made concerning ways and means of correcting unsatisfactory conditions. Favorable variances should be accorded equivalent study: (1) to determine whether the goals were realistic and (2) to give recognition to those responsible for high performances, and (3) possibly to transfer some "know-how" to other subdivisions of the company.

Group and individual conference should be held at various management levels for effective correction action. Follow-up procedures should embody constructive action to correct unfavorable conditions rather than punitive action for failures, the results of which obviously cannot be erased. Another important aspect of follow-up procedure is that the resulting action is strictly a line responsibility rather than a staff responsibility. The budget director, controller or other staff officer should not undertake nor be assigned, the responsibility of enforcing the budget.

The Integrated Performance Report – An Illustration

A comprehensive performance report for Production Department X in S Company is shown below, from which following features are worth noting:

1. Identification of responsibility
2. Distinction between controllable and non-controllable items
3. Specific time dimensions - month and cumulative to date
4. Method of reporting variances
5. Adjustment of the "planned" amounts to actual output (that is flexible/variable budget approach).
6. Detail on each category (including service usage in units) and
7. Explanatory comments and suggestions

Department Performance Report
S Company Performance Report

Dept. Prod. Dept. X Current Month - January					Responsibility of Year to date	
Actual	Planned	Var. Amt.	%	Description Controllable	Actual Planned	Variance Amount %
87,500	1,00,000	12,500*	13*	Dept. output in units		
				Raw Material A:		
1,76,000	1,75,000	1,000*	1*	Units		
32,200	35,000	200*	1*	Cost		
				Direct Labour:		
35,357	35,000	357*	1*	Hours		
₹ 1.96	₹ 2.00	₹ 0.04	2	Avg. wage rate		
69,300	70,000	700	1	Cost		
10,000	10,000	-	-	Salaries		
3,740	3,800	60	2	Indirect materials		
7,550	7,250	300	4*	Indirect labour		
560	1,000	440	44	Miscellaneous		
21,850	**22,050**	**200**	**1**	**Sub-total**		
				Service Usage:		
530	480	50*	10*	Kilowatt hours (000's)		
72	60	12*	20*	Direct repair hours		
1,26,350	**1,27,050**	**700**	**1**	Grand total		
				Non-Controllable		
2,000	2,000	-	-	Depreciation		
500	500	-	-	Insurance		
200	200	-	-	Taxes		
2,700	2,700	-	-	**Total non controllable**		

* Unfavourable variances

Table 5.3 Integrated Performance Report

Comments:

1. Output was 13% below the planned lever due to production scheduling pull back to accommodate 5000 unit unfavorable sales volume variance; the department met its production schedule as adjusted.
2. Unfavorable variances in service usage should be carefully investigated to determine underlying causes. To have the maximum benefit, the monthly report should be designed to indicate the performance of each individual having supervisory responsibility. A well-designed control report should be completely integrated i.e., each schedule should look on a responsibility basis so that (i) major variation may be traced to the source of the problem, and (ii) the various segments comprise within

themselves a complete report. Please, refer to the illustration above. Performance reports SP manufacturing company. Distribution of the monthly performance report (and its segments) should follow essentially the same pattern as the annual profit budget plan. Certain executives need the complete monthly performance report. Other members of the management only need those schedules related to their particular responsibility centers. Lower levels of management may receive only one of the detailed segments. On the other hand, the higher the level of management, the greater the need for summaries, yet these summaries must be supported by adequate detail to identify the particular aspects of operations.

5.5 MULTIPLE PERFORMANCE MEASURES

ROI and EVA have been employed with some success by many large sized undertaking which has resorted to divisionalization. However, exclusive reliance on a single profitability measure may lead to manipulation of the system and consequent distortion in decision-making. Managers of business unit may delay a potentially profitable investment in a bid to enhance short-term return on income at the cost of long-run consequences. In order to overcome the limitation of "sole dependence in a single measure", many firms have developed multiple goal structures. For example, following are the multiple goal structures of General Electric Company:

(i) Profitability, (ii) Market position, (iii) Productivity, (iv) Product leadership, (v) Personnel development, (vi) Employee attitudes, (vii) Public responsibility, (viii) Balance between long range and short-range goals.

The above multiple goal structures reveal the following:

1. Some of the goals are amenable to reasonably objective quantitative measurement while others are not. Profitability and productivity can be reasonably measured whereas employee attitude and public responsibility are not easily quantifiable.
2. There is some internal inconsistency among the goals e.g. efforts to raise productivity may dampen employee morale. Efforts to fulfill somewhat internally inconsistent and inadequately articulated goals can be frustrating and confusing. The optimum balance may be hard to establish.

5.5.1 Balanced Score Card

It is a device of linking financial and non-financial measures and identifies key performance measures that give top management, a first but comprehensive view of the performance of the organization unit (i.e., a division/strategic business unit). The aim of the score card is to provide a comprehensive framework for translating a company's strategic objectives into a coherent act of performance measures. The balance score card was devised by Kaplan and Norton (1992) and refined in later publications. It allows managers to look at the business from four different prospects by seeking to provide answers to the following four basic questions:

1. How do customers see us? (Customer perspective)
2. What must be excelled at? (Internal business process perspective)
3. Can we continue to improve and create value? (Learning and growth perspective)
4. How do we look to shareholders? (Financial perspective)

In order to minimize information overload, the number of measures in each of the boxes to be restricted to three to five measures. The measurement focus of the score card is to accomplish the following critical management procedure:

1. Clarifying and translating vision and strategy into specific strategic objectives and identifying the critical drivers of the strategic objectives.
2. Communicating and linking strategic objectives and measures. Once all the employees understand the high level objectives and measures, they should establish local objectives that support the business unit global strategy.
3. Planning, setting targets and aligning strategic initiative, such targets should be over 3 - 5 year's period broken down on a yearly basis so that progression targets can be set for assessing the progress that is being made towards achieving the longer term targets.
4. Enhancing strategic feedback and learning so that managers may monitor and adjust the implementation of their strategy and if necessary, make fundamental changes to the strategy itself.

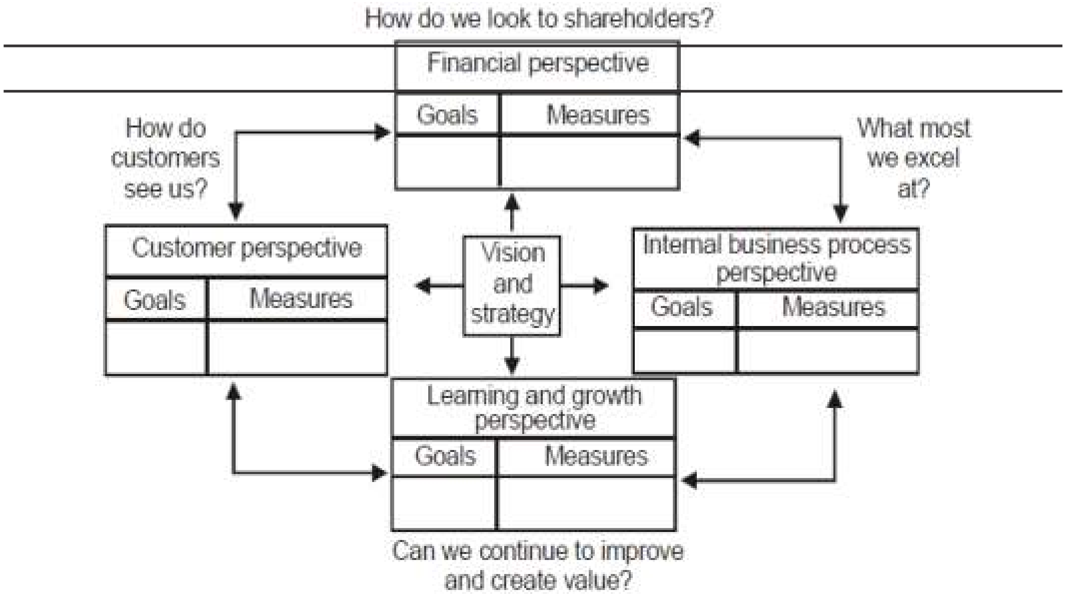

Figure 5.1 Balance Score Card

5.6 ESTABLISHING OBJECTIVES AND PERFORMANCE MEASURES

The Financial Perspective

AT SBU Level: Operating Profit, Return on Investment, Residual Income, and Economic Value

Added are used for measuring the financial objective of the business unit. Other financial objectives include revenue growth, cost reduction and asset utilization.

I. **Customer Perspective:** Market share: It can be measured in terms of sales revenues, unit sales volume or the number of customers. It is a measure of market penetration.

- Customer retention and loyalty:
    1. In terms of average duration of a customer relationship
    2. Number of new customers referred by existing customers
- Customer acquisition: can be measured by:
    1. Number of new customers
    2. Total sales to new customers in the desired market segment

3. Use of 'mystery shoppers' i.e., external agencies sampling the service as customers and formally reporting back on their findings.

- Customer satisfaction:
  1. Examination of letters of complaint.
  2. Feedback from sales representatives.
  3. Use of 'mystery shoppers' i.e., External agencies sampling the service as customers and formally reporting back on their findings.
- Customer profitability:
  1. Profitability should be analyzed by different customer segments and unprofitable segments analyzed.
  2. Newly acquired customers may initially be unprofitable and life-cycle profitability analysis should be used for determining whether the focus should be on retention or on abandoning them.

II. **Measuring value propositions:** Value propositions may be defined as the attributes, the supplying companies provide through their products and services to create loyalty and satisfaction in targeted customer segments. The attributes fall into three categories:

1. Product/service attributes – desirable product/service facilities, price and quality
2. Customer relationship includes the delivery of the product or service to the customer, including the response and delivery time and how the customer feels of the buying experience
3. Image and reputation i.e., intangible factors that attract a customer to a company.

5.6.1 Internal Business Perspective

Innovation Process

1. Percentage of sales from new products
2. New product introduction vs. customers and vs. plan
3. Time to develop new generation of products
4. Number of key items in which the company is first or second in the market

5. Break-even time i.e., time from the beginning of product development till the time the product is introduced and generated enough profit to payback the original investment made.

Operation Process

1. **Financial Measures:** Standard costs, budgets and variance analysis
2. **Non-financial Measures:** Cycle time, quality measures, cost measures of the internal business processes through activity based costing
3. **Post-service sales process:** Warranty and repair activities, the treatment of defects and returns, and the process and administration of customer payments.

5.6.2 Learning and Growth Perspective

Employee Capabilities (i.e., employee satisfaction, employee retention and employee productivity):

(i) Annual percentage of key staff that leave,

(ii) (Measures for measuring employee productivity i.e., sales revenue per employee

(iii) Periodically measuring employee's satisfaction using surveys.

Information system capabilities:

(i) Percentage of processes with real time, quality, cycle time and cost feedback available,

(ii) Percentage of customer, facing employees, having online information about customers.

Motivation, empowerment and alignment:

(i) The numbers of suggested improvements per employee

(ii) The percentage of employees with personal goals aligned to the balance score card and the % of employees who achieved personal goals.

Performance measurement in service organization: There are four unique characteristics, distinguishing service companies from manufacturing organizations:

(i) Most of the services are intangible

(ii) Services output vary from day-to-day since services tend to be provided by individuals, whose performance is subject to variability that significantly affects the service quality, the customer receives

(iii) The production and consumption of many services are inseparable such as, rail journey

(iv) Services are perishable and cannot be stored.

Companies used the following methods to measure performance:

(i) Measure of satisfaction after the services e.g. used questionnaire to ascertain the customer perception of service quality.

(ii) Measures during the service e.g. management's unannounced visits, use of 'mystery shoppers".

(iii) Tangibles as surrogates for intangible e.g. measurement of waiting time and the conditions of the waiting environments as surrogates of customers' satisfaction with the service.

In developing an overall framework for a performance measurement system in the service sector, there is need to conserve three basic questions, when forming the basic building blocks of a performance measurement system:

(i) What are the dimensions of performance that the organization is seeking to encourage?

(ii) How are the appropriate standards to be set?

(iii) What rewards and/or penalties are to be associated with the achievement of performance targets?

	Dimensions of Performance	Types of Measures
Results	Competitiveness	Relative market share and position Sales growth Measures of the customer base
	Financial performance	Profitability Liquidity Capital structure Market ratios
	Quality of service	Reliability Responsiveness Aesthetic/appearance Cleanliness/tidiness Comfort
Determinants		Friendliness Communication Courtesy Competence Access Availability Security
	Flexibility	Volume flexibility Delivery speed flexibility Specification flexibility
	Resource utilization	Productivity Efficiency
	Innovation	Performance of the innovation process Performance of individual innovations

Table 5.4 Dimensions of Performance Measurement

Note:

1. Competitiveness and financial performance reflect the success of the chosen strategy (i.e., ends or results)
2. The remaining four dimensions: quality, flexibility, resource utilization and innovations are the drivers or dimensions that determine competitive success.

5.7 DIFFICULTIES IN IMPLEMENTING PERFORMANCE MEASUREMENT SYSTEMS

Brown's quote well synthesizes the possible problems in the construction of a performance measurement system: “The most common mistake organizations make is measuring too many variables. The next most common mistake is measuring too few” (Brown 1996). In general, the most common difficulties are:

1. Amassing too much (or too little) data. Consequently, data may be ignored or used ineffectively;
2. Focusing on the short-term. Most organizations only collect financial

and operational data, forgetting to focus on the longer-term measures;

3. Collecting inconsistent, conflicting, and unnecessary data. All data should lead to some ultimate measure of success for the company. An example of conflicting measures would be measuring reduction of office space per staff, while, at the same time, measuring staff satisfaction regarding the facilities.

4. Measures may not be linked to the organization's strategic targets;

5. Inadequate balancing of the organization's performances. For instance, the manager of a restaurant may have perfect kitchen efficiency (the ratio of how many dishes sold to the amount thrown away) by waiting until the food is ordered before cooking it. However, the end result of his actions dissatisfied customers, because of the long wait.

6. Measuring progress too often or not often enough. There has to be a balance here. Measuring progress too often could result in unnecessary effort and excessive costs, resulting in little or no added value. On the other hand, not measuring progress often enough puts you in the situation where you don't know about potential problems until it's too late to take appropriate action.

5.8 INTERACTIVE CONTROL

Organization should add Interactive Control System to manage the network between people, teams, customers and suppliers. In managing the interaction between players in the network, one should identify gaps to be improved (e.g. customer preferences, innovation, etc.). Furthermore, the company is advised to influence direction of interaction and learning among teams/persons and across firms. In the network below, groups of four or five interact among themselves and between team leaders within the company. The customer-lines allow coordinating teams to interact with customers and suppliers continuously. The interaction is the two-way process where informations shared between the participating members in the network where learning is achieved. In the value chain, from customer call-ins to manufacturing processes to the end of product, these players continuously interact and hence SNA (Social Network Analysis) and interactive control systems are necessary.

Conditions

1. **Training/Leadership Skills:** In this kind of network, training is

required to increase leadership skills. Leaders and all the employees who assume 8 leadership roles will empathies, collaborate, motivate, communicate and influence one another for effectiveness and efficiency. Furthermore, the rotation of leaders within the team enables all the respective employees to understand what is required from a team leader and respect the leader decisions.

2. **Communication and Information Channels:** This network analysis requires clear communication and information channels in identifying core informal roles in the organization (i.e. personnel that informally possesses a unique and core network essential for the organization to function).

The Cybernetic Paradigm and the Control Process

This is also referred to as micro control framework, since it helps us to establish controls or performance measures for a particular problem area in a specific situation."Cybernetics" is derived from the Greek work "Kybernatics" which means "Steersman".A Steersman is a person who directs or governs a ship and corrects deviations from planned course as they occur. Cybernetics has been defined as the "service of communication and control." The term cybernetics was coined by Norbert Weiner and it aims at the study of the entire field of control and communication theory, whether in the machines or the animal and has been extensively used in control system engineering and in biology."Cybernetics" as a biological phenomenon, has been defined as "how systems regulate themselves, reproduce themselves, explore and learn."The fundamental concern of cybernetics is with negative feedback and the role of negative feedback mechanism to explain purposive and adoptive behaviour. This aspect of cyber neticshas relevance for the financial and economic control of business and other organizational ethics.

The particular version of the paradigm developed by Griesinger (1979) (Griesinger, Donald W. Management Theory - A Cybernetic Perspective, Graduate Management Centre Jan. 86) captures all the elements of the control process, which may be enumerated as follows:

- **a.** Set goals and performance measures
- **b.** Measure achievement
- **c.** Compare achievement with goals
- **d.** Compute the variances as the result of the proceeding

comparison

e. Reporting the variances

f. Determine the cause of the variances

g. Take action to eliminate the variances

h. Follow up to ensure that goals are met

These eight elements of the control process are captured in the cybernetic paradigm. The process operates as follows:

1. Each sub-unit or responsibility center of the organization operates within an environment. The environment includes the "outside world" (i.e., the external environment) as well as other organizational units internal to the firm (i.e. the internal environment).

2. Each responsibility center must be responsive to changes in the external environment as well as to the goals, strategies, policies, decisions and managerial styles of its superior responsibility center (i.e., its internal environment).

3. Each manager of an organizational unit scans the environment either formally or informally, so as to absorb information or feedback pertaining to its state-of-affairs. The manager comes into contact with the environment through the sensors i.e., the mechanism used by managers to collect data, e.g. formal reports as well as informal report that comes to the attention of the manager through his or her sense of hearing and seeing. The sensors collect data on the changes occurring in the external environment as well as the internal performance of the responsibility center.

4. Through the information obtained, the manager constructs certain beliefs concerning performance as well as the state of the external environment. These beliefs are referred to as factual premises. Factual premises are formed by passing these data through a cognitive process referred to as perception. The word 'perception' is used to refer to the psychological process of extracting information from data and interpreting the meaning of that information. Cognitive limitations prohibit decision-makers from collecting all data in the environment.

5. The manager uses the factual premises and compares (a process known as comparator) with organizational goals and performance measures.

When difference is found between what decision makers desire (i.e. value premises) and their beliefs about the environment (i.e. factual premises),they are motivated to search for a set of alternatives (a process known as behavioural repertoire)to close the gap.

6. Alternative solutions are evoked from the behavioural repertoire according to established or learned search procedures. The alternatives are selected that meet general budget and return constraints. The alternative with the highest subjective expected utility that closes the gap willbe chosen. In case no alternative is expected to reduce or close the gap, the decision-maker will expand the search process. The search process is motivated by the presence of a gap and will stop when a feasible alternative is found that will close the gap. This decision-making procedure is termed as satisfying.

7. Decisions require implementation. The effector, a manager activates the decision, thus serving as a change agent. Control is brought about by action taken by the manager, who seeks to determine the effect of the action, which is known as feedback. If new behaviour leads to a reduction or elimination of the gap, the behaviour is likely to be repeated in the future under similar circumstances. If goals are being met routinely, it is likely that the organization will eventually, seek higher levels of performance.

5.9 SUMMARY

Performance measures are a central component of management information and reporting system. In a revenue center, revenues are measured in monetary terms, but expenses are not matched with these revenues. Branch sales offices often are revenue centers. The performance report system should be structured to the organization structure of the enterprise the same way as budgeting and accounting systems. Control of an undertaking consists of seeing that everything is being carried out in accordance with the plan which has been adopted, the orders which have been given, and the principles which have been laid down. Organization should add Interactive Control System to manage the network between people, teams, customers and suppliers.

5.10 GLOSSARY

- **Balanced Score Card:** It is a device of linking financial and non-financial measures and identifies key performance measures that give top management, a first but comprehensive view of the performance of the organization unit.

- **Performance Measures:** Performance measures are a central component of management information and reporting system.
- **Informal Control Process:** The informal control process consists of activities engaged in by members of the organization outside the formal control process while encountering non-routinedecisions such as: realignment of goals or when seeking new information to increase their understanding of the problem area.

5.11 LESSON END EXCERCISE

1. Why is performance measurement required in Management Control System?

2. What are the financial performance measures?

3. What are the non-financial performance measures?

4. What are the information relationships at various levels of management?

5. Briefly explain interactive control system in management control system.

5.12 SUGGESTED READINGS

- Anthony, Robert N and Govindrajan, Vijay, "*Management Control System*", Tata McGraw Hill.
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STRATEGIC PLANNING MANAGEMENT CONTROL

UNIT-II **Lesson No. 6**

RESPONSIBILITY ACCOUNTING

STRUCTURE

6.1 INTRODUCTION

In order to achieve the goal, every organization must establish a good control system. The control system should be framed in the mode of responsibility in respect of all activities, for that each divisional or activity managers are entrusted the authorities according to the organizational structure based on their level and create accountability on their activities. This accountability measures the performance of each activity by the management and it creates spontaneous responsibility to the all persons in the organization. Accountability is the acknowledgment and assumption of responsibility for actions, products decisions, and policies including the administration, governance and implementation within the scope of the role or employment position and encompassing the obligation to report explain and be answerable for resulting consequences. This lesson elaborately explains how to build the responsibility in an organization in the accounting perspective.

6.2 OBJECTIVES

After studying this unit, you will be able to:

- Understand the concept of responsibility accounting
- Discuss the steps involved in responsibility accounting
- Identify the factors responsible for responsibility accounting
- Determine the advantages and disadvantages of responsibility accounting

6.3 CONCEPT OF RESPONSIBILITY ACCOUNTING

Responsibility Accounting helps management with cost and budgetary control. It focuses on the cost drivers but not on who uses or who is responsible for those drivers. On the other hand, responsibility accounting is a control system where responsibility is given to individuals to achieve particular accounting objectives. Responsibility accounting is a kind of management accounting that is accountable for all the management, budgeting, and internal accounting of a company. The primary objective of this accounting is to support all the Planning, costing, and responsibility centers of a company.

The accounting generally includes the preparation of a monthly and annual budget for an individual responsibility center. It also accounts for the cost and revenue of a company, where reports are accumulated monthly or annually and reported to the concerned manager for the feedback. Responsibility accounting mainly focuses on responsibilities centers. **C.I.M.A., London,** defines responsibility accounting as "a system of management accounting under which accountability is established according to the responsibility delegated to various levels of management and management information and reporting system instituted to give adequate feed-back in terms of the delegated responsibility."

In the words of **Charles, T. Horngreen** "Responsibility accounting is a system of accounting that recognizes various responsibility centers throughout the organization and reflects the plans and actions of each of these centers by assigning particular revenues and costs to the one having the pertinent responsibility. It is also called profitability accounting and activity accounting". According to this definition, the organization is divided into various responsibility centers and each center is responsible for its costs. The performance of each responsibility center is regularly measured.

For example, Mr. A is a manager who is responsible for his department. He prepares the budget and is also responsible for keeping the budget under control. So for the efficacy of such a system, management must provide him all sorts of information, good or bad, about his department. It would make him fully aware of how things are moving and the areas where his strict attention is needed. If the actual spending gets over the budget, then Mr. A has to trace the error and take corrective actions. In all, we can say that Mr. will be personally accountable for his department's performance.

6.4 PRE-REQUISITES OF RESPONSIBILITY ACCOUNTING

The following are must for efficient implementation of responsibility accounting:

1. **Rational Budget**: The budget planned must be realistic. The performance evaluation is based on comparisons with these budgets.
2. **Strong Organizational Structure**: The relationships in organizations must be clearly defined. The allocation of responsibility will largely depend on the organizational structure.
3. **Organizational Environment**: A healthy organizational environment is essential for a successful responsibility accounting.
4. **Encouragement by Top Management**: The top management should be supportive and unbiased towards its employee. This leads to a motivated workforce and the successful application of responsibility accounting.
5. **Involvement of All levels**: Here, all the levels of the organization from top to bottom are part of this accounting process. Responsibility calculations at each level of the organization enhance the overall performance.
6. **Continuous Flow of Information**: An organization should have a constant flow of information. So that the budgeted objectives and essential information reaches the centres on time.
7. **Self-motivated Team**: The responsibility accounting evaluates the human factor of the organization. The workforce must be self-motivated

and dedicated to the work assigned to them.

6.5 COMPONENTS OF RESPONSIBILITY ACCOUNTING

The following are the components that help a company to implement this accounting system efficiently:

1. **Inputs and Outputs:** Effective implementation depends on the accuracy of information relating to inputs and outputs. The data on raw materials, such as labor hours and quantity, is input, while data on finished products is the output.
2. **Responsibility Center:** It is the most critical component. The full responsibility accounting system depends on the proper recognition of responsibility centers.
3. **Target and Actual Information:** Data on the target, as well as the actual performance, is fundamental to evaluate the performance of a responsibility center.
4. **Inter-relation of Organization Structure with Responsibility Center:** Fixing or assigning responsibility goes with a clearly defined organizational structure. Hence, for the successful implementation of responsibility accounting, clarity of organization structure is very crucial. Similarly, a company must develop this accounting system to be in line with the organizational structure.
5. **Assigning Cost and Revenue to an Individual:** For the success of this accounting system, a company must assign cost and revenue to an individual. This individual will be responsible for the responsibility center.

6.6 FACTORS OF RESPONSIBILITY ACCOUNTING FOR MANAGEMENT CONTROL

The following are the factors that are associated with the Responsibility Accounting for Management Control:

1. **Planning:** The entire activities of the organization must be well planned based on responsibility. The effective planning has to prepare with the consultation of the respective person of those who held responsibility.
2. **Fixing standards:** For the execution of plan, the management must fix the standards, set up budgets and estimate the actual. The targets must be

very clear and precise and it should be very realistic.

3. **Allocation of resources:** After fixing the standards, the management has to allocate the resources while executing the plan for action and also it has to give necessary direction for such execution to the staff. The training must provide to the staffs whenever they required for execution.

4. **Evaluation of Performance:** The actual performance of each responsibility center must evaluate, compare the actual with standards and find the variances. The positive motivation should be provided to the persons showing performance of favorable variance.

5. **Analyze the variances:** The corrective measures should be taken when there are any negative deviations. A leader's job is to ensure every member of the team wins, and winning is defined as meeting the organization's top objectives. One of the best ways to help people win is to establish an accountability-based culture focused on producing results, not activities.

6.7 STEPS INVOLVED IN RESPONSIBILITY ACCOUNTING

In responsibility accounting, the firm splits into several responsibility centers. The employees are allocated the responsibility at each center. Comparing planned and actual performance evaluates the performance of that center. The center managers communicate results through responsibility reports. Organizations can follow the series of steps discussed below for performing responsibility accounting:

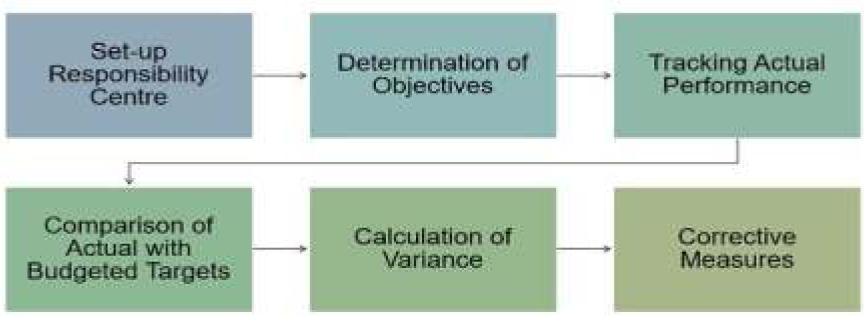

Figure 6.1 Process of Responsibility Accounting

1. **Set-up Responsibility Centers**: The Investment, Profit and Cost centers are the sub-divisions of the firm. We refer to these divisions as responsibility centers.

The authorities appoint a manager for every center. They are responsible for the performance of that center.

2. **Determination of Objectives**: The objectives for each center are determined and conveyed to the center manager. It may consist of predefined standards, budgeted or planned targets.

3. **Tracking Actual Performance**: The managers track and record the actual performances of their respective centers. Following this, they report their actual performance to the concerned authority.

4. **Comparison of Actual with Budgeted Targets**: The authority conducts a detailed comparative analysis between the actual and budgeted performance

5. **Calculation of Variance**: After comparing the manager calculates, the variance between performance and standards. The differences are expressed in the form of favorable-unfavorable or positive-negative responsibility.

6. **Corrective Measures**: In case, responsibility is unfavorable or negative, then authorities take necessary remedial measures. These measures help in improving responsible manager's performance.

6.8 ADVANTAGES OF RESPONSIBILITY ACCOUNTING

The following are the advantages of responsibility accounting:

1. It encourages the management to make a proper company structure and a person accountable for every responsibility center.

2. The manager is directly responsible for the outcome of their department, and their direct attention and engagement with the activities and team remains very high. Since a manager is responsible for the performance of their department, they are more attentive and aware of the happenings. It also helps them to explain performance variation (if any).

3. It assists in comparing the actual results with the budgeted.

4. This system makes employees more responsible and serious towards their work as they are aware that they are always under review.

5. Management also gets assistance in preparing the plan and structure for the future expenditure and revenue of a company.

6. Since it also works as a cost control system, it makes employees more

'cost-consciousness.

7. This accounting system ensures that everyone is aware of the company and individual goals.
8. It gives management better control over the company's operating activities.
9. It results is prompt reporting, as well as quick corrective action.

6.9 DISADVANTAGES OF RESPONSIBILITY ACCOUNTING

The following are the disadvantages of responsibility accounting:

1. Often it gets difficult to meet the prerequisites of the successful responsibility accounting system. It makes the whole system inaccurate.
2. Since the system requires the presence of highly skillful managers, it raises the cost for the company.
3. This accounting system only works with controllable costs but does nothing about uncontrollable costs.
4. If a company is unable to communicate the goals and responsibilities to the person properly, then the system may fail to give accurate results.
5. Suppose a company is unable to identify and share the triggers and variances to the manager timely. Delayed sharing or half-cooked figures will create more issues than they may solve.
6. There could be situations when there is a clash between the individual and company goals. It may thwart efficient implementation.
7. In the absence of an effective reporting system, this accounting method may fail to give accurate results.

6.10 SUMMARY

Responsibility accounting is a management accounting system that analysis its human resources. The evaluation is carried out based on the responsibility assigned to the manager. Responsibility accounting could prove very useful if a company can implement it properly. It gives the management with all information it needs on cost and revenue to make a practical decision. Moreover, it provides more freedom for the managers to show their skills in meeting the objective of their responsibility center. Various responsibility centers are created by dividing the organization into units. The four responsibility centers generally created are Cost, Revenue, Profit and Investment.

6.11 GLOSSARY

- **Responsibility accounting**: Responsibility Accounting focuses on monitoring and controlling costs through personal responsibility within the organization. It manages persons rather than the product's function and performance. It is also called Profitability Accounting and Activity Accounting.
- **Responsibility center**: The organization is sub-divided into manageable operational units called responsibility centers. Each of these centers has a responsible individual called the center manager.
- **Responsibility structure:** The responsibility structure of an organization consists of responsibility centers and related performance measurement systems.

6.12 LESSON END EXCERCISE

1. What are the various components of responsibility accounting? Discuss.

2. Why responsibility accounting is beneficial to an organization?

3. Discuss the step by step process of responsibility accounting.

4. Analyze the concept of responsibility accounting with the help of some example. What are the prerequisites and limitations of responsibility accounting?

6.13 SUGGESTED READINGS

- Kaura, Mohinder N, "*Management Control and Reporting System*", Response Books.
- Maciariello, Joseph A. and Kirby Calvin J., *Management Control Systems*, 2nd Edition, Prentice Hall of India Private Limited.
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STRATEGIC PLANNING AND MANAGEMENT CONTROL

UNIT-II **Lesson No. 7**

RESPONSIBILITY CENTERS

STRUCTURE

7.1 INTRODUCTION

A Management Control System is a set of interrelated communication structures that facilitates the processing of information for the purpose of assisting managers in coordinating the parts and attaining the purpose of an organization on a continuous basis. It is necessary to design the elements of the control system infrastructure, that is, the organization structure; responsibility centers performance measures and rewards, in a mutually supportive and adoptive way so as to effectively implement the goals of the overall organization. A properly designed infrastructure is crucial to ensure that resources will be allocated effectively in decentralized decision-making in pursuit of organizational goals.

Organization structure can vary from Entrepreneurial structure, Functional Structure, Business Unit Organization Structure to Matrix Structure. In all the cases, the CEO is at the top, the managers of the business units, functional heads, departments, sections and all other sub-units below the CEO constitute the hierarchy of managers working together to achieve certain common goals for an organization. Each level of the managers or sub-unit constitutes responsibility center.

7.2 OBJECTIVES

After Studying this lesson, you should be able to:

- Describe meaning and features of responsibility centers
- Discuss revenue and expense centers
- Explain administrative and support centers

7.3 RESPONSIBILITY CENTERS

The term responsibility center is used to denote any organization unit that is headed by a responsible manager. The entire organization should be divided into various responsibility centers. Each responsibility center is led by a manager or the head of the center who has been assigned the responsibility. In fact, a company is a collection of responsibility centers, represented by a box in the organization chart. These responsibility centers form a hierarchy. At the lowest level in the organization are responsibility centers for sections, work shifts or other small organization units. At the highest level are departments or business units (divisions). And from the standpoint of senior management and the board of directors, the whole company is a responsibility center, although the term is usually used to refer to units within the company. A responsibility center exists to accomplish one or more purposes known as objectives, within the organization goals and set of strategies lay down to achieve these goals. The objectives of the responsibility centers are to do their part in implementing these strategies. A responsibility center uses inputs, such as: physical quantities of material, hours of various types of labour and variety of services. It requires working capital, equipment and other assets to do this work. As a result of this work, the responsibility center produces outputs such as goods or services (in case of staff units such as: human resources, engineering, accounting, administration). The goods and services produced by a responsibility center may be given either to another responsibility center as inputs or to the outside world, in which case, they become outputs of the whole organization and revenues are earned by selling these outputs. The responsibility center is classified into various categories: Revenue and Expense Centre, Profit Centre, Investment Centre, etc.

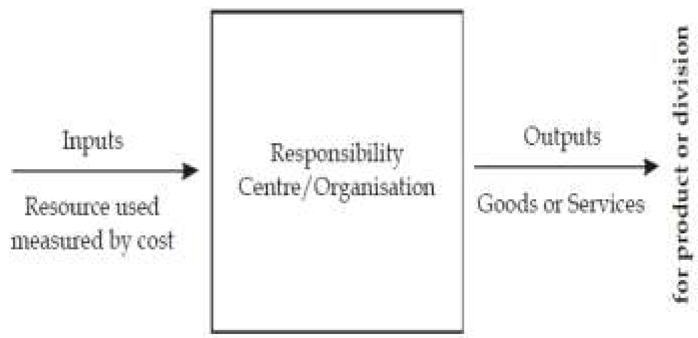

Figure 7.1 Essence of any Responsibility Centre

1 **Relationship between inputs and outputs:** Management is responsible for ensuring the optimum relationship between inputs and outputs. In some centers, the responsibility is casual and direct, as in the case of production department. Example: Inputs of raw materials become part of the finished goods. Hence, the control focus on using the minimum input necessary to produce the required output according to the correct specification and quality standards. In many situations, inputs are not directly related to outputs e.g. advertising expenses through an input to increase sales revenue but there are so many factors other than advertising, the relationship between increased advertising and any subsequent increase in revenue is not always demonstrable and the management's decision to increase advertising expenditure is based on judgement rather than data. Similarly, the relationship between inputs and outputs is even more ambiguous in case of R&D since the money spent on today's R&D may not be known for several years and hence the optimum sum any organization should spent for R&D is undeterminable.

2 **Measuring inputs and outputs**: In some of the responsibility centers, much of the input can be stated in physical terms-hours of labour, quarts of oil, reams of paper and kilowatt hours of electricity. In MCS, these quantitative amounts are translated in monetary terms. The monetary value of a given input is ordinarily calculated by multiplying a physical quantity

by a price per unit e.g. hours of labour times rate per hour, electricity cost by kilowatt hours (hourly rate) the resultant monetary sum is called cost, and this is the way a responsibility center input is commonly expressed. Inputs are resources used by the responsibility center. Patients in a hospital or students in a school are not inputs. Rather inputs are the resources that the hospital or school uses to accomplish the objective of treating the patients or educating the students. It is much easier to measure the cost of inputs than to calculate the value of outputs. Inputs such as: R&D, human resources training and advertising and sales promotion may not affect the output of the year in which expenditure is incurred. In such cases, outputs of such responsibility centers are not measured, the input cost is the measurement criteria.

3 **Efficiency*:*** Efficiency measure of performance relates to the establishment of standards with regard to the amount of inputs used over a specific period of time for a given level of outputs and measure actual performance against such standards. Example: Standards of labour and material that are established for a production operation. The terms are sometimes used in a comparative rather than in an absolute sense e.g. Responsibility Centre A is more efficient than Responsibility Centre B, either (a) if it uses less resource than Responsibility Centre B, but has the same output or (b) if it uses the same amount of resources as Responsibility Centre B or has a greater output than Responsibility Centre B. In many responsibility centers, a measure of efficiency can be developed that relates actual costs to same standard not a very accurate measurement but only an approximation.

4 **Process measurement of performance:** Here, the emphasis is the production process in the measure. Example: The quality of production during a production process to infer something about the quality of the final output before it is delivered or produced.

5 **Effectiveness as measure of performance:** Effectiveness is determined by the relationship between the output of responsibility center and its objectives. The more this output contributes to the objectives, the more effective the unit.

6 **The Role of Profit*:*** The major objectives of any profit oriented organization are to earn a satisfactory profit. Thus, profit is an important measure of effectiveness. Again, since profit is the difference between revenue (a measure of output) and expense (a measure of input), it is also a measure of

efficiency. Thus, profit measures both effectiveness and efficiency. Example: Services rendered by accounting department to the organization.

7.4 PURPOSE OF RESPONSIBILITY CENTRE

The idea behind the hierarchy of responsibility centers and the responsibility accounting system is to distribute to the decentralized organizational submits responsibility for various elements of ROI - each responsibility center has assigned to it measures of performance that are appropriate to the elements of cost, quality, revenue and investment that are assigned to that responsibility center. Rewards are made in accordance with performance. The combination of responsibility centers, measures of performance and rewards, knits together decentralized centers of decision making so as to pursue effective achievement of overall organizational goal that includes profit and ROI.

$ROI = \frac{\text{Net profit after tax (1−tax\%)}}{\text{Inverted Capital}} = \frac{\text{Net profit after tax (1−tax\%)}}{\text{Sales Revenue}} \times \frac{\text{Sales}}{\text{Inverted Capital}}$ = Net profit as a percentage of sales revenue X turnover of investment in relation to sales revenue.

7.5 TYPES OF RESPONSIBILITY CENTRE

There are different types of responsibility centers classified according to the nature of the monetary inputs and/or outputs that are measured for control purposes: revenue centers, expense centers, profit centers and investment centers.

7.5.1 Revenue Centers

In a revenue center, outputs (revenues) are measured in monetary terms, but no formal attempts made to relate inputs (i.e., expenses or costs) to outputs. Revenue centers are, therefore, marketing organizations that do not have profit responsibility. Actual sales or orders booked are measured against budgets or quotas. Each revenue center is also an expense center so far as marketing expenses for that responsibility center. The primary measurement, however, is revenue. Revenue centers are not charged for the cost of goods that they market. Consequently, they are not profit centers, because this important expense item is omitted.

The manager of revenue center does not have knowledge to make the cost/revenue trade off required for optimum marketing decisions. Therefore, responsibility for this type of decision cannot be delegated to a revenue center manager. For instance, revenue centers typically do not have authority to set selling prices.

7.5.2 Expense Centers

Expense centers are responsibility centers whose inputs, or expenses are measured in monetary terms, but in which outputs are not measured in monetary terms. Expense centers are of two types:

I. **Engineered costs/Standard costs:** These are those for which the 'right' or 'proper' amount of costs can be estimated with a reasonable degree of reliability. Costs incurred in a factory for direct labour, material, components, supplies and utilities are examples.

II. **Discretionary costs:** (also called managed costs) are those for which no such engineered estimate is feasible, the amount of costs depends on management's judgement about the amount that is appropriate under the circumstances.

Engineered expense centers/ Standard cost centers*:* They have the following characteristics:

a) Their input can be measured in monetary terms.

b) Their output can be measured in physical terms.

c) The optimal rupee amount of input required to produce one unit of output can be established.

In an engineered expense center/standard center, the output multiplied by the standard cost of each unit produced represents what the finished product 'should' have costed. When this cost is compared to actual costs, the difference between the two represents the efficiency of the organizational unit being measured. Example: Manufacturing operations that employ some form of standard cost, warehousing, distribution and similar units within the marketing organizations. Similarly, certain responsibility centers within administrative and support departments for instance, accounts receivable, accounts payable and payroll sections in the controller's department; personnel records and canteen in the human resources department, shareholders' records in the corporate secretary department and company motor pool; perform repetitive tasks for which standard costs can be developed. These engineered expense centers are located within departments that are discretionary expense centers.

It is necessary to note that apart from cost above, there are other important tasks for engineered expenses centers to perform i.e., the type and level of production are specified with specific quality standards, so that manufacturing costs may not be minimized at the expense of quality.

Further, managers of engineered expense centers are responsible for activities such as: training and employee development that are not related to current production; their programme reviews include an appraisal on how well they carry out these responsibilities.

Thus, the term engineered expense center refers to responsibility centers in which engineered costs predominate, but it does not imply that valued engineering estimates can be made for each and every cost item.

Discretionary Expense Centers: The word discretionary means that management has decided on certain policies that should govern the operations of the company. For example, manufacturer may grant an advertising allowance to a regional distributor of 10% per 1000 pieces of some products. Example: Administration and support centers, R&D Centers and marketing centers. Management view about the proper level of discretionary cost is subject to change. Dramatic changes may occur when a new management takes over. There are three points in the control of discretionary expense centers.

- **i.** The management control system helps only in expense control. The budget for this type of expense centers represents the planned inputs to the expense center.
- **ii.** The difference between budgeted and actual expense is not a measure of efficiency. It is simply the difference between the budgeted input and the actual input.
- **iii.** The financial control system measures neither the efficiency nor the effectiveness of these responsibility centers. It is necessary, therefore, that non-financial measures and judgements be employed in evaluating their performance.

Committed Expenses: These are expenses that cannot be changed by the responsibility center manager during the budget year or expenses that can be changed only in extra ordinary circumstances. Depreciation is fixed by the amount of depreciable assets in place during the year and can be changed only by the disposal or addition of assets. Other examples are long-termleases, salaries of key personnel. These amounts are not useful for management control purposes; they are included in the budget to show the overall profitability of business units and to indicate to responsibility center managers the size of the resources that they use. In judging actual performance, the actual amount is set equal to the budgeted amount, so no variance develops.

Control Aspects of some Discretionary Expense Centers

a) **Admin and support centers:** These include senior corporate management and business unit management along with the managers of the supporting staff units. Support centers are units that provide services to other responsibility centers. The control of admin and support centers is difficult because of:

b) **Problems inherent in measuring output:** Some staff activities such as payroll accounting are so routine that their units are in fact, engineered expense centers. In other activities, the principal output is advice and service functions that are virtually impossible to quantify, much less evaluate, since output cannot be measured, it is not possible to set standards against which to measure financial performance. Thus, a budget variance cannot be treated as either efficient or inefficient performance.

c) **Lack of goal congruence:** Typically, managers of administration, staff officers strive for functional excellence but to develop ideal system or programmes or function will become too costly relative to the additional profits that perfection may generate. The proposed budget for an admin or support center usually consists of list of expense items within the current year's actual expenses. Some companies have a more elaborate presentation with the following components:

   i. A section covering the basic costs of the center including the costs of being in business plus the costs of intrinsically necessary activities for which no general management decisions are required.

   ii. A section covering the discretionary activities of the center including a description of the objectives and estimated costs of each.

   iii. A section fully explaining all proposed increases in the budget other than those related to inflation.

7.5.3 Administrative and Support Centers

It provides services to other responsibility centers, so it is difficult to evaluate and quantify the contribution of the services of the staffs. The manager of this unit can prepare budget to control the expenditure. The administrative and support services industry provides a wide variety of important routine support functions that are vital to the day-to-day running of businesses and organizations in both the public and private sectors. Many businesses and organizations perform these services themselves. However, the recent trend is for both public and private sectors to out source such non-core work on a competitive fee basis. This is usually done through tenders or through preferred contractor lists where those chosen to the work meet specific administrative and support services standards or criteria.

Service providers offering administrative and support services are mainly engaged in activities such as office administration; hiring and placing personnel for others; preparing documents; taking orders for clients by telephone; providing credit reporting or debt collection services; and arranging travel and travel tours. Other support services provided by this sector are cleaning services; pest control services; gardening services; and packaging products for others.

7.5.4 Research and Development Centers

The control of research and development centers is difficult because of:

1. **Difficulty in relating results to inputs.** The results of R&D are difficult to measure quantitatively but semi-tangible outputs in the form of patents, new products or new processes but the relationship of output to input is difficult to appraise on an annual basis because the completed 'product' of an R&D group may involve several years of effort.
2. **Lack of goal congruence:** e.g. the research manager typically wants to build the best research organization money can buy even though may be more expensive than the company can afford. Further, research people do not have sufficient knowledge of (or interest in) the business to determine the optimum direction of the research efforts.

The activities conducted by R&D center lie along a continuum with basic research at one extreme and product testing at the other. Basic research has two characteristics: (1) it is unplanned with management at best specifying the basic area to be explored and (2) there is often significant time lapse between the initiation of research and the introduction of a successful new product.

Since financial controls have little value in managing basic research activities, alternative procedures are often employed. In some companies, basic research is included as a lump sum in the research programme and its budget. In some, the specific allowance is made for basic research, but there is an understanding that scientists and engineers can devote the part of their line for basic research subject only to the informal agreement of their supervisor.

For projects involving product testing, however, it is possible to estimate the time and financial requirements - perhaps not as precisely as possible but with sufficient accuracy to permit a reasonably valued comparison of actual and budget amounts. As the project moves along the continuum from basic research, to applied research, to development, to production engineering, to testing the amount spent per year tends to increase substantially.

- **R&D Programme:** There is no scientific way of determining the optimum size of an R&D Budget. Many companies use a percentage of average revenues as a base. The specific percentage applied is determined in part by comparing with competitors' R&D expenditures and in part by the company's own spending history. Depending on the circumstances, senior management may authorize a large amount in budget if it appears that there has been a significant breakthrough.

  The R&D programme consists of list of programmes plus a blanked allowance for unplanned work; it is usually reviewed annually by senior management. The review is often conducted by a research committee consisting of CEO, the research director, and the production and marketing manager. The committee makes broad decisions on the projects to be undertaken, which to expand, which to cut back and which to discontinue. The total amount of budget is allocated to different projects, which is highly subjective. For measurement of performance, the types of financial reports on R & D are prepared. The first type compares the latest forecast of total cost with the approved amount of each active project and circulated to executives who control research spending. The second report (financial) consists of comparison between budgeted expenses and actual expenses in each responsibility center. Neither type of reports informs management the effectiveness of the research efforts.

- **Benchmarking and Cost Management:** Benchmarking is the continuous process of comparing and measuring an organization's business processes against those of business leaders any where in the world. The objective is to identify and understand best practices; and the best practice is simply, the best way to execute a process. We have seen that in engineered expense center/standard cost center, finance control is exercised by setting a standard for performing the task and reporting actual costs against this standard. While setting the standard, we can get comparable standards from other operating units/competitors in the process are called bench marking.

Similarly, in discretionary expense center, some of the logistic activities e.g. transportation of the goods from the company to its customers, billing and related credit function and collection of accounts receivable, can be controlled through setting up standards and budgets that are adjusted to reflect the costs at different levels of volume. While setting up standards, benchmarking with other unit's/competitor unit is possible.

The true power of bench marking lies in the ability to apply the insight gained from another organization's best practices with the full understanding that it is adapting them or not adapting them. No single best practice works anywhere. In fact, the term “best practices” is something ofa misnomer.

7.5.5 Marketing Centers

Two very different types of activities are grouped under the heading of marketing - one relating to filling of orders, the other group of activities relate to efforts to obtain orders and obviously take place before an order is received. The first activity (also called logistic activities) are those involved in moving goods from the company to its customers and collecting the amounts due from customers in return. These activities include transportation to distribution centers, warehousing, shipping and delivery, billing and related credit function and collection of accounts receivable.

The responsibility centers that perform these functions, some of them are engineered expense centers that can be controlled through imposing standard costs and adjusting budgets to reflect these costs at different levels of volume. Marketing activities are those undertaken to obtain orders for company products which include test marketing, the establishment, training and supervision of the sales force, advertising and sales promotion. These are basically discretionary expenses and depending on company's policy the expenses are budgeted. Further, though it is easy to measure a marketing organization's output, evaluating the effectiveness of the marketing effort is much more difficult. This is because changes in factors beyond the marketing departments control. Example: Chronic Condition or the actions of competitors/may invalidate the assumption on which the sales budgets are based. The third activity is the generation of revenue which is, usually, evaluated by comparing actual revenue and physical quantities sold with budgeted revenue and budgeted units respectively.

7.6 SUMMARY

Responsibility accounting involves accumulating and reporting costs (and revenues) on the basis of the manager who has the authority to make the day today decisions about the items. Under responsibility accounting, a manager's performance is evaluated on matters directly under that manager's control. A responsibility center is an organization unit which is headed by a manager who is responsible for its activities. There are four types of responsibility centers-revenue centers, expense centers, profit centers and investment centers Performance in second center is judged by the criteria of efficiency and effectiveness. In revenue centers, revenues are measured and controlled separately from expenses.

7.7 GLOSSARY

- **Responsibility Accounting:** System of control by delegating and locating the responsibility for costs.
- **Responsibility Structure:** The responsibility structure of an organization consists of responsibility centers and related performance measurement systems.
- **Revenue Centre:** outputs (revenues) are measured in monetary terms, but no formal attempt is made to relate inputs (i.e. expenses or costs) to outputs.
- **Cost Centre:** Any responsibility center that has control over the incurrence of cost.
- **Expense Centre:** Responsibility centers whose inputs, or expenses are measured in monetary terms, but in which outputs are not measured in monetary terms.

7.8 LESSON END EXCERCISE

1 Can control of all costs and revenues be done at some level of responsibility within the company?

2 Describe the basic types of responsibility centers.

3 What different approaches are required in budgeting with regard engineered expenses and discretionary expense. How performance is measured in such cases?

7.9 FURTHER READINGS

- Kaura, Mohinder N, "*Management Control and Reporting System*", Response Books.
- Maciariello, Joseph A. and Kirby Calvin J., *Management Control Systems*, 2nd Edition, Prentice Hall of India Private Limited.
- Merchant, Kenneth A, "*Management Control System: Text and Cases*", Pearson Education Asia.
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STRATEGIC PLANNING MANAGEMENT CONTROL

UNIT-II **Lesson No. 8**

PROFIT CENTERS

STRUCTURE

8.1 INTRODUCTION

There are many divisions in any entity, while some divisions act as a support system for others such as accounting, others such as the sales department is capable of earning revenues through their activities. Based on the fact whether a department is capable of generating revenues through its activities, a department can be classified as a profit center or a cost center. A department is said to be a profit center if its activities lead to the generation of revenue for the entity by the usage of resources of the company. On the other hand, a department or a division is said to be a cost center if it doesn't contribute to the revenue of the entity. The main purpose of identifying a profit center is to calculate its profit as well as losses as a separate unit or segment within the organization. It helps in determining how much a particular unit is adding to the profit of the organization. After identifying profitable and low-profit units in the organization accountants or management decides the allocation of resources and it lays down its future strategy to increase the revenue of the least profitable unit. Also, management decides ceasing of certain activities altogether based on profitability and other factors.

8.2 OBJECTIVES

After studying this unit, you will be able to:

- Describe the profit center
- Discuss the advantages and disadvantages of profit center
- Identify other profit centers and its evaluation.

8.3 PROFIT CENTER

A profit center is a responsibility center in which financial performance is measured in terms of profit (i.e., the difference between the revenues and expenses) inputs are measured in terms of expenses and outputs are measured in terms of revenues. Both the elements of accounting information cost (input) and revenues (output) are considered. Therefore, in a profit center, the measures of performance is better and broader than in an expense center since in case of expense center, the accounting system measures only one element (i.e., cost) whereas, in a profit center both the elements, cost as well as revenue is evaluated in monetary terms. The difference between revenues and costs is profit. Each profit center is a relatively independent operating unit and its manager must have significant control over most operating decisions that affect profit. Example: Volume of production, methods of operation, and cost of goods sold pricing and product mix. Profit center can be divided into:

(i) Natural profit center and

(ii) Constructive profit center.

Natural profit center e.g. a product division, uses inputs (costs) and produces outputs (revenues) i.e., sales to outside customer. This profit center is just like an independent firm. A constructive profit center as the name indicates has been constructed as a profit center. As for example, the computer center, it uses input (cost) and produces output i.e., services to other departments. If we want to calculate the monetary value, the computer center becomes a profit center; otherwise it is logically an expense center.

Since in a profit center, there are financial measures of the output as well as of the input, it is possible to measure the efficiency and effectiveness of performance in financial terms. Profit analysis can be used for the performance evaluation of division and its divisional manager, since in a profit center, you require all the data needed in an expense control as well as additional data regarding revenues. Therefore, the management can determine whether the division was efficient in the utilization of resources and whether the division was effective in attaining its objective i.e., to earn satisfactory profit. The criteria for satisfactory profit may be budgeted/ past profit in the division/profits of other similar divisions/some combination of them. Profit as a performance is based on revenues and expenses directly traceable to the division and can be avoided if the division is closed down. The concept of divisional profit is referred to as "profits contribution" or "incremental profit." The divisional profits are before taxes since taxes are paid on the basis of profit of the entire company, therefore, excluded from the calculation of divisional profit.

8.4 ADVANTAGES OF PROFIT CENTERS

1. The quality of decisions may improve because they are being made by managers closer to the point of decision.
2. It provides a powerful tool for measuring how well the profit center has performed.
3. The speed of operating decisions may be increased since they do not have to be referred to corporate headquarters.
4. The profit center resembles a business in miniature form and like a separate firm, its profits are calculated. The managers are motivated to take decisions about inputs and outputs in such a way, that profit of a profit center is maximized. The profit center acts as a good training ground for general management responsibility. Further, managers subject to fewer corporate restraints are freer to use their imagination and initiative.
5. The profit center makes decentralized organization possible. Top management can safely delegate the authority to the divisional managers because the profit center reports provide adequate information about how well the operating managers are doing their jobs. It gives a better and broader measurement of performance than the expense centers. If the managers are responsible for both revenue and expense aspects of performance (profit center), the contribution of each manager to the goal

of the entire organization is easier to measure than when no single manager is responsible for both revenues and expenses (expense centers). Further, profit consciousness is increased since managers who are responsible for profits will constantly seek ways to increase them.

8.5 LIMITATIONS AND PROBLEMS OF PROFIT CENTRE

The profit center has the following limitations:

1. Decentralized decision-makingwill force top management to rely more on management control reports than on personal knowledge of an operation, entailing loss of control.
2. It cannot be used for all responsibility centers; the following points are to be considered:
   - **i.** Extra record-keeping is necessary to compute input and output in monetary terms,
   - **ii.** Unless the divisional managers of responsibility centers have reasonable authority to decide on the quality/quantity of outputs or on the relation of output to costs, a profit center will be of a little use as a control device,
   - **iii.** When a responsibility center is required by management to provide service to other responsibility centers, the service department cannot be considered as a profit center e.g. internal audits,
   - **iv.** If the output of a product/division is fairly homogeneous, a profit center may not offer substantial advantage (e.g. cement),
   - **v.** There may be friction between profit centers. It may generate too much interest in the short-term profit exposures than the long-term results.
3. If headquarters management is more capable or better informed than the average profit center manager, the quality of decisions at the unit level may be reduced.
4. Measurement of expenses: Some expenses are incurred for the organization as a whole, how these expenses are to be considered for the profit center evaluation, is another matter where there is scope for the difference of opinion.
5. Transfer prices: A transfer price is a price used to measure the value of

goods/services furnished by a profit center to another responsibility center within a company. The determination of an appropriate transfer price is one of the major problems of profit centers. The implication of the transfer price is that for the selling division (the division from where goods/services are being transferred), it will be a source of revenue, whereas, for the buying division (the division which is receiving/acquiring the good/services), it is an element of cost. It will, therefore, have a significant bearing on the revenues, costs and profits of responsibility centers. Hence, there is a need for the determination of transfer prices. The determination is complicated because a wide variety of alternative methods are available.

6. Competent general managers may not exist in a functional organization because there may not have been sufficient opportunities for them to develop general management competence.

7. There is no completely satisfactory system for optimizing the profits of each individual profit center that will optimize the profits of the company as a whole.

8.6 WHY PROFIT CENTERS ARE IMPORTANT?

There are several key benefits to create profit centers within an organization:

1. **Allowing risks:** By having one branch dedicated to generating profits in an organization, companies may be able to take additional risks. For example, they may allocate some profits to invest in a new product or service that may take time to generate its own profits.

2. **Reducing overhead**: With a profit center, other departments may focus on reducing their overheads and costs to balance their limited profits. Rather than revenue-generating activities, they may try to limit their spending amounts.

3. **Segmenting costs**: With profit centers, other branches and the profit center have their own financial records. This can help companies to identify other areas that perform well or have high spending.

4. **Determining spending:** Profit centers can help identify what product areas spend on their products and what they earn through profits. This can help when forecasting and budgeting and deciding how you might allocate future funds.

8.7 GENERAL CONSIDERATIONS

Many management decisions involve proposals to increase expenses with the expectation to increase the revenues. For delegating this responsibility to any department head or manager two conditions should exist:

1. The manager should have access to the relevant information needed for making such a decision.
2. There should be some way to measure the effectiveness of the trade off the manager has made.

Figure 8.1 General Considerations

8.8 BUSINESS UNITS AS PROFIT CENTERS

Most business units are created as profit centers as the managers are typically looking after product development, manufacturing and marketing resources. These managers are responsible for cost and revenue as well as accountable for the activities they did. But, the business unit manager's authority may be constrained in different way.

The business unit manager has to be given full autonomy to get the benefit of profit center system. But, in practical manner this is not feasible, because if a company is divided into completely independent units, the organization will lose the advantage of size and synergy. Thus, there are certain constraints that companies are facing.

1. **Constraints from other business units:** There can be problems from other business units if they all are interdependent and given the responsibility as profit center.
   a) When the business units are interrelated for the products to produce, for the marketing strategies, for the process of

manufacturing, the decisions are delayed and each and every business unit is working for their own profit.

b) Overall performance measurement of a particular business unit is not possible as it is taking major things or synergies from other business units.

2. **Constraints from corporate management:** The constraints imposed by corporate management can be grouped into three types:

   a) **Resulting from strategic decisions:** The top management retains the decisions, especially financial decisions at corporate level. Business units are competing with each other for the budgets. Management is also imposing the constraints regarding marketing, production activities that it is permitted to undertake. Thus, a business unit might be finding some expansion plans, but unable to implement if the top level does not permit as per the limits of the business units.

   b) **Resulting because of uniformity requirement:** The constraints in terms of accounting system and control system the business units require uniformity and which may create problems to the units.

   c) **Resulting from economies of centralization:** In case of centralize structures; the management may impose uniform pay, personnel policies, vendor selection, communication equipment's etc. which may create problems to business units.

8.9 SUMMARY

A profit center is an operating unit whose manager has responsibility for the attainment of a given level of profit. The advantages of the profit center system are that it is a way of managing large entities through decentralization, it leads to better operating decisions because of closer proximity to the environment, it motivates managers by giving them a sense of control, and it frees top management from day-to- day operations so that they, can concentrate on specific problems and long-term strategies. Thus, Profit center is applicable to all divisions in the organization. This is because of the overall organization goal is striving to attain the maximum profit. It is evaluated in terms quantum of profit for which revenues are harmonized with expenses related to the

organization as whole and the responsibility may decentralize into various divisions on the basis of product or divisions or territory etc.

8.10 GLOSSARY

- **Profit Centre:** The responsibility center which is measured in terms of both the expense incurred as well as revenue earned is known as profit center.
- **Transfer prices:** A transfer price is a price used to measure the value of goods/services furnished by a profit center to another responsibility center within a company.
- **Business units:** A profit center business unit is a part of a company that you treat as a separate business.

8.11 LESSON END EXCERCISE

1. Describe the merits and demerits of using profit center.
2. Why profit centers are important for an organization?
3. How business units are created as profit centers? Discuss the various constraints involved in it.
4. "A profit center is a responsibility center in which financial performance is measured in terms of profit". Explain the statement.

8.12 SUGGESTED READINGS

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UNIT-II **Lesson No. 9**

OTHER PROFIT CENTERS

STRUCTURE

9.1 INTRODUCTION

In most of the organizations, it is found that there is more concentration on profit center as an important unit for the purpose of control. In case of profit center, it is possible to have an effective system of evaluation of performance which is quite necessary to impose effective control. Such effective control, from this point, is not possible neither incase of expense center nor revenue center. The profit center focuses its attention on the most crucial element of an organization, i.e profit. The profit is a combined measure of both effectiveness and efficiency. It provides a powerful tool for measuring how well the profit center and its manager has performed.

It motivates the profit center manager to take decision about inputs and outputs in such a way that the profit of a profit center is maximized. The profit center becomes a good training ground for general management responsibility.

It enables the top management to focus its attention and give advice to those segments which require them the most. It also gives a sense of satisfaction to the manager concerned as the result is directly linked to the activities. The profit center is used as a means of basing the compensation structure. The profit center is also closely related to the organizational principle of decentralization.

9.2 OBJECTIVES

After studying this unit, you will be able to:

- Understand the other profit centers
- Explain the use of profit center asa measurement of performance
- Identify the criterion for profit center evaluation
- Measure the profitability

9.3 OTHER PROFIT CENTERS

In addition to business units, there are other profit centers which are not natural profit centers but constructed profit centers. Some examples are given below:

1. **Marketing in a functional organization or in business units:** A marketing activity can be made into a profit centre by charging the cost of the goods sold to the marketing manager. A transfer price provides the marketing manager with the relevant information to make the optimum revenue/cost trade-offs, since managers are measured on profitability, there is a check on how well these decisions are being made. Also, this gives motivation to managers to maximize profits. The transfer price should be based on standard cost and not on actual cost of products sold. This separates manufacturing cost performance from the marketing performance.

   The marketing should be given a profit responsibility when the marketing manager is in the best position to make the cost/revenue trade-offs as for example, different conditions existing in different geographical areas e.g. a foreign marketing activity. In such a situation, it is difficult to centrally control such divisions as how to market a product, how much to spend on sales promotion, how to train the salesman or dealers, etc.

2. **Manufacturing:** The manufacturing activity is usually an expense centre and the management of such activities is judged on the basis of

performance against standard costs and overhead budgets. This measure can cause problems since it does not necessarily indicate how well the manager is performing all aspects of the job e.g. manager may skip on quality control, shipping products of inferior quality to obtain standard cost credit or the manager may be reluctant to interrupt production schedule to produce a rush order for the customer or the manager may lack the incentive to produce goods that are difficult to produce.

An overall measure of the manufacturing organization is obtained if the organization is made into a profit centre. Some authors maintain that manufacturing units should not be made into profit centers unless they sell a large fraction of their output to outside customers. Many companies nevertheless create profit centers for such units. They believe that, if properly designed, the system can create almost the same motivation that exists in sales to outside customers.

3. **Service and support units:** Maintenance units, information technology, transportation units, engineering units, consulting units, customer service units and similar support units of an organization can be made into profit centers. These may be headquarters units that service divisions or they may be fulfilling similar functions within business units.They charge customers for services rendered with the financial objective of generating enough business so that revenues may equal expenses. Usually, the units receiving the services have the alternative of procuring them from an outside vendor if a vendor can offer services of equal quality at a lower price. Managers of such service units are motivated to control costs, otherwise customers will go elsewhere. Managers of the receiving units are motivated to make decisions about whether a request for service is worth the price.

4. **Other organizations:** A company with branch operations that are responsible for marketing the company's products in a particular geographical area is often natural for a profit centre type of organization. Even though the branch managers have no manufacturing or procurement responsibilities, profitability is often the best single measure of their performance. Furthermore, the profit measurement is an excellent motivating device. Thus, the individual stores of most retail chains, the individual restaurants in fast food chains and the branches of many commercial banks are profit centers.

9.4 PROFIT CENTRE EVALUATION

There are two types of profitability measurements used in evaluating an organization as a whole:

1. There is the measure of management performance which focuses on how well the manager is doing. This measure is used for planning, co-coordinating and controlling the profit centers day-to-day activities and as a device for providing the proper motivation for its manager.
2. There is a measure of economic performance which focuses on how well the profit centre is doing as an economic activity.The messages conveyed by these two measures may be quite different from each other.

Example: The management performance report for a branch store may show that the store's manager is doing an excellent job while the economic performance may show that because of economic and competitive conditions in its area, the store is a losing proposition and should be closed down.

The necessary information for both purposes cannot be obtained from a single set of data. Since the management report should be prepared periodically while the economic report is prepared only on those occasions when economic decision is made, hence, considerations relating to management performance measurement have first priority in system's design i.e., the system should be designed to measure management performance routinely with economic performance being derived from these performance reports, as well as from other sources.

Profit centre evaluation is based on income statement format. The conventional income statement can be recast to highlight the various sub-categories. The sub-categories are done based on criteria of variability, controllability and attribut ability. According to the variability attribute, costs that are neither directly controllable by a particular segment nor attributable to it, are excluded from the measurement of divisional performance e.g., administrative salaries, property, taxes, etc. The controllability concept implies that the performance attributes should be controllable by the divisions/responsibility centers. The attribut ability concept refers to the outcomes/performance characteristics that are directly associated with or directly traceable to, the existence and operation of a segment. The main sub-categories in a typical segmented income statement are:

1. **Sales and other major revenues:** Sales made to outside customers are

usually, easy to identify and measure. There may be difficulty in measuring products/services sold by one division because of problems associated with transfer pricing.To evaluate a segment's sales revenue, they must be compared with other performance measures such as: (i) prior period sales of the same segment, (ii) sales volume of a comparable department of the same firm, (iii) sales of other companies in the same industry and (iv) the divisions budgeted sales volume. These comparisons may be made in terms of rupees value, physical volume, and rate of changes or variances from the budgeted amount.

2. **Controllable variable costs:** Cost in this group means directly controllable by the divisional managers and vary according to the activity levels, namely: divisions variable cost of goods sold and variable administrative and marketing costs. These costs should be evaluated using variance analysis, trend analysis and variable cost to sales ratio, comparison with the segments of the same firm and with the similar segments of other companies in the same industry.

3. **Controllable contribution margin:** Sales revenue minus controllable variable costs equals the division's controllable contribution margin. It can be used to evaluate the ability of a division to sustain itself, to make a contribution to the fixed costs of divisions, common costs of the firm and profits of the organization. The evaluation should be based on variance analysis.

4. **Controllable fixed costs:** The controllable fixed costs are those fixed costs of a period directly and exclusively related to the decision of the management of a division. Example: Divisional rent charges for equipment and property and executive's salaries etc.; such costs should be compared with budgeted fixed costs to evaluate performance.

5. **Controllable segment margin:** This is the excess of controllable contribution margin over controllable fixed costs. This should be compared with the previous period's results and predetermined budgeted amounts.

6. **Attributable segment costs:** These are costs that are not controllable by a divisional manager and which could have been avoided, had the divisions been withdrawn. Example: Division manager's salary, depreciation, rent, insurance on facilities used exclusively by the

division but acquired as a result of decision made at higher management levels. Similarly, interest charges on debt that was incurred to support the operation of the division but was decided outside the division. These costs are not directly controllable by the divisional manager but should be considered in overall segment performance by comparison with the budget and with the division's results for the prior period.

7. **Segment profit contribution:** This is the difference between controllable segment margin and the attributable segment costs. Variance analysis, percentage analysis of individual costs and revenues, and trend and time period analysis can be used to evaluate the various components of segment profit contribution. Comparison can be made with industry standards.

8. **Common firm wide costs:** These costs are incurred for the firm as a whole and do not relate specifically to any segment. These costs are to be allocated to the segments on some appropriate basis, so as to reflect the correct profitability of the segment. The basis of allocation reflects the relative amount of expenses that is incurred for each segment or the amount of benefit received by each unit. There are, however, arguments for and against allocating corporate overheads to profit centers:

    a) Profit center performance can be comparable to competitors.

    b) Corporate service units have a tendency to "empire build" to increase their power base and make their departments excellent, without regard for their values to the company. If such costs are allocated to profit centers, the profit center managers will raise questions about the amount of corporate overhead, this helps to keep a check on spending at the corporate office.

    c) The profit center manager is given the message that the profit centre has not earned a profit it recovers all costs, including a share of allocated corporate overhead. Thus, profit centre managers would be motivated to make optimum long-term marketing decisions (pricing, product mix and so on) because they must keep in mind that they must recover their share of corporate overhead.

9. **Segment net income:** This is equal to the difference between the segment profit contributions minus the allocated common firm wide

costs. The performance of profit centre is appraised by comparison of actual results with budgeted amounts. In addition, data on competitors and industry provide a good cross check on the appropriateness of the budget.

9.5 USE OF PROFIT CENTRE AS A MEASUREMENT OF PERFORMANCE

The profit centre as a measurement of performance can be used for the following purposes:

1. **Evaluation and ranking of profit centers:** This can be done in relation to various types of profit goals. As discussed in earlier paragraphs, the various profit goals with reference to profit centre performance are: controllable contribution margin, controllable segment margin, segment profit contribution, contribution margin ratio, segment profit contribution rate and so on. In evaluating profit centers, we have to see whether individual segments have achieved their objectives and ranking can be given based on comparative performance of different segments.
2. **Decisions to modify operations of profit centers:** Profit center performance assessment, guides decisions to modify operations of the profit centers. Modification in this context means expansion, contraction, addition or closure of the profit centre. The decision criterion in such cases would be the incremental effect on the overall profits of the company. In the short-run, assuming all attributable segment costs as constant, expansion or contraction in a profit centre operation will affect the controllable contribution margin (since in short run, controllable fixed cost of the segment does not change).

In the long-run, changes in controllable fixed costs or attributable segment costs are to be considered. Similarly, how the decision will affect the common firm wide costs or the profit performance of other segments, are also to be considered.

9.6 PROFIT CENTER AS MOTIVATIONAL TOOL

The behaviour of the divisional managers is often heavily power through how their performance is measured. Therefore, profit centers act as a tool for motivating such managers. Though, it is quite debatable as to what extent, profit centers motivate them. Sometimes, it may demotivate them. The dissimilar arguments supporting the value of profit center as motivational tool can be summarized as follows:

a) A profit centre manager is perceived to have a higher status in the organization and hence gives a psychological benefit to the division manager. It is argued that this perceived importance motivates him to perform better. Through creation the managers responsible for the profit performance of their divisions it tried to blend their objectives with the profit objectives of the company.

b) Profit centers tend to enhance the profit consciousness of the managers and subordinates within the division and hence they all strive for maximizing the profits of the division. This leads them to become conscious in relation to the expenses in the division. They constantly attempt to evaluate every expense decision in the context of its connection to profits.

c) The location of being a profit centre, manager in an organization brings in a sense of pride and belongingness, which in psychological conditions gives sustenance for requires of self actualization and self-esteem. Mainly of the organization theorists argue on these rows.

d) The freedom and power given managers imbibe a sense of independence and responsibility in the profit centre managers enabling them to strive for better performance.

All these arguments are essential or inter-related and may at least partially contribute towards better performance when combined with a realistic system of rewards and punishments. Many studies have been mannered in India in this regard and they have concluded that there has been enhancement of the profit consciousness amongst the managers as the greatest motivational contribution of profit centers. Therefore, profit centers do serve as a motivational tool.

9.7 MEASURING PROFITABILITY OF PROFIT CENTERS

Profitability measurements in a profit center can be of two types management performance and economic performance. Management performance focuses on the manager's performance while economic performance relates to how well a profit center is performing as an economic entity. Management performance is a measure used for planning, controlling and coordinating the day-to-day activities of the profit center. The performance measures of profit centers can be different and hence, the necessary purpose for the information should not be obtained from a single set of data. For example, the management performance report can show excellent performance of a profit center manager. But the economic and competitive forces for that particular report can show poor economic performance. As a result, the center may run into losses and may even have to close shop.

1. **Contribution margin:** This performance measure is used on the premise that, since fixed expenses are not controllable by the manager, the focus should rest on maximizing the difference between revenues and variable expenses. The problems of using contribution margin is that since many of the center's expenses may vary according to the discretion of the profit center manager, focus on the contribution margin tends to direct the attention of the profit center manager away from the goals of the center.
2. **Direct profit:** This measure helps in understanding the contribution of the profit center to the general overhead profit of the corporation. It encompasses all the expenses directly incurred by profit centers or related to profit centers, irrespective of whether the expenses are controllable by the profit center manager. However, it does not include corporate expenses.
3. **Controllable profit:** The headquarters expenses in an organization can be divided into two categories controllable and uncontrollable. Controllable expenses include expenses that are controlled by the business unit manager. The advantage of including such costs in the measurement system is that the profit will be calculated after the deduction of expenses that can be influenced by the profit center manager. Hence, these are controllable profits. As uncontrollable headquarters expenses are taken into consideration while calculating controllable profits, controllable profits cannot be compared directly with published data or with trade association data, which report the profits of other companies in the industry.
4. **Net income:** The performance is measured by taking into consideration the net income after the payment of taxes. The disadvantage of using this method is that many decisions that have an impact on the income taxes are made at headquarters, and profit center managers should not be judged by these decisions. If the income after tax payment is constant

percentage of the income before tax payment, then there would be no need to measure performance based on this method. This method would be useful if profit centers influence decisions like installing credit policies or disposing of equipment. This method is also useful to motivate the manager to minimize taxes in case the taxable income differs from income, as measured by using generally accepted accounting principles. The performance of profit centers can be measured by comparing actual results with one or more of the measures discussed above with budgeted amounts. In addition, data on competitors and industry provide a good cross check on the appropriateness of the budget.

9.8 SUMMARY

Measuring profit in a profit centre involves judgments regarding how revenues and expenses should be measured also. In terms of revenue, choice of a revenue recognition method is important. For the evaluation, profit centre and investment centre two parameters are being used- ROI and EVA. ROI is the earning capability of the unit/company on the capital invested It can be viewed as the product of two components namely, profit contribution margin and assets turnover. Economic Value Added (EVA) is the amount in Rupees that remains after deducting an "implied" interest charge from operating income. The implied interest charge reflects an opportunity cost, and is charged on the amount of assets in each investment centre.

9.9 GLOSSARY

- **Profit Centre:** Financial performance is measured in terms of profit.
- **Economic Value Added (EVA):** Amount in Rupees that remains after deducting an "implied"interest charge from operating income.
- **Return on Investment (ROI):** Earning capability of the unit/company on the capital invested.

9.10 LESSON END EXCERCISE

1. Explain briefly the elements of profit centre performance.
2. What kind of performance is measured in profit centers? What are the criteria for evaluating that performance?
3. Discuss the uses of Profit Centre as a Measurement of Performance.

4. How profitability is measured of profit centre?

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STRATEGIC PLANNING MANAGEMENT CONTROL

UNIT-II **Lesson No. 10**

TRANSFER PRICING

STRUCTURE

10.1 INTRODUCTION

Today's organizational thinking is oriented towards decentralization. One of the principal challenges in operating a decentralized system is to devise a satisfactory method of accounting for the transfer of goods and services from one profit centre to another in companies that have a significant number of these transactions. Generally, the companies have various divisions or departments with profit and investment centers and the goods are being transferred from one division to another. The profit may be added with cost of goods while transfer takes place. The price on the goods of intra- company transfer from is known as transfer pricing. In this unit we will discuss various approaches to arriving at transfer prices for transactions between profit centers and the system of negotiation and arbitration that is essential when transfer prices are used.

10.2 OBJECTIVES

After studying this unit, you will be able to:

- Discus the meaning of transfer pricing
- Identify the Methods for transfer Pricing
- Explain the administration of transfer prices

10.3 WHAT IS TRANSFER PRICING?

In a decentralized profit centre, the monetary value at which the transfer of goods and services from one profit centre to another profit centre is accounted for, for the evaluation of performance of profit centre is termed as transfer pricing. The transfer price is the mechanism for distributing the revenue that is generated when the product is finally sold. The transfer price is not primarily an accounting tool. Rather, it is a behavioural tool that motivates managers to take the right decisions.

Transfer price is a notional value at which goods and services are transferred between divisions in a decentralized organization. The prices are set for intermediate products, which are goods, and services that are supplied by the selling division to the buying division. The goods that are received by the buying division may be processed further and before being sold to outside world as final products. We can ask why these kinds of transfers occur within the organization. This is because of the finished goods of one division becomes the raw material of another division.

For example, we can take textile Industry; it involves various processes for getting the final product which is used by the ultimate consumer. The processes are spinning, doubling, dying, weaving, printing, garments and designing. The finished product of each division becomes the input of the next division. Therefore, the output of each division must be transferred to another. A notional profit may be added with cost price while transfer takes place for the purpose of accounting and measuring the performance of each division, because each division has responsibility centers such as profit and investment.

The price charged for the inter-departmental transfers is revenue to the selling division and cost to the buying division. That is why the concept of transfer pricing is a technique of strategic decision. The transfer price charged on goods transferred affects the profits of both transferor and transferee division. The benefit earned by one division becomes the cost of other division. However, the selling division may charge higher prices for the goods transferred due to show higher profit. It affects the buying division because cost of input become high due to the higher profit is added to the price paid by them. But the overall profitability of the organization remains unaffected.

10.4 BASICS OF TRANSFER PRICING

10.4.1 Objectives of Transfer Pricing

Transfer price should be designed in such a way that it can accomplish the following objectives:

1. It should provide each segment with the relevant information required to determine the optimum trade-off between company costs and revenues.
2. It should induce goal congruence decisions i.e.; the system should be so designed that decision improves business unit (divisional) profits it will also improve company profit.
3. It should help determine the economic performance of the individual profit centers as accurately as possible.
4. The system should be simple to understand and easy to administer.

10.4.2 Usefulness of Transfer Pricing

The concept of transfer pricing is used for the following: -

1. To identify unit contribution to the total profit,
2. To encourage profit consciousness,
3. To Measure management performance,
4. To Maximize operating unit profitability,
5. To Locate profits to minimize tax,
6. To Facilitate decentralized decision making,
7. To Motivate divisional managers, towards goal congruence, and
8. To serve as a tool for control.

10.4.3 Disadvantages of Transfer Pricing

The following are the disadvantages of transfer pricing are:

1. Divisional managers may try to achieve the divisional profits rather than corporate profit,
2. It creates confusion on the price of the final product due to the lengthy disagreements on prices,
3. It may be incurred an additional administrative costs,
4. Arguments over disposition of variances,
5. Task of eliminating book profits arising from inter divisional profits.

10.4.4 Criteria for Determining Transfer Pricing

It will be advisable to formulate sure criteria before determining the transfer price. Those criteria may be as follows:

1. Transfer price should help in accurate measurement of divisional performance.
2. Transfer price should motivate the divisional managers into maximizing the profitability of their divisions and creation decisions which are in the best interest of the organization as a whole.
3. The transfer price should ensure that divisional autonomy and power is preserved.
4. The transfer price should allow goal congruence to take lay. It implies that the objectives of the divisional managers are compatible with the objectives of overall company.
5. A transfer pricing system should check the international clusters which may attempt to manipulate transfer prices flanked by countries with a view to minimize the overall tax burden.

10.5 ISSUES IN TRANSFER PRICING

A rational system of transfer pricing is required to ensure profitability at each level. Ideally the decentralized profit centre is a device for measuring and evaluating performance as well as motivating divisional management to achieve corporate goals. When the company extends its operations beyond national borders, new dimensions and complications are added to the transfer-pricing problem.

The main issues to be considered for a universal example are:

a) Taxes and duties-local sales tax, octroi, excise duty and custom duty.

b) Market conditions.

c) Ability of the potential customers to pay for a company's product different profit transfer rules.

d) Conflicting objectives of a joint venture partner.

e) Government regulations-local, state and central laws.

f) Import regulations.

10.6 METHODS OF TRANSFER PRICING

Many methods are used for transfer pricing. Though, there are two vital approaches to determination of transfer price. They are:

1. **Market Based Price:** The mainly popular method of determining transfer pricing is the market price, as it is quite reasonable for supplying division as well buying division. It is not hard, as the price is easily accessible in the open market. When there is a well-recognized market for the goods or services to be transferred. The transfer price can be easily determined on the market price foundation. Though, such market price should be taken as ceiling limit for transfer price. When divisions have the alternative to buy or sell from the open market, they would transfer to buy or sell from sister division. When transferred goods are recorded at market price, the divisional performances are more likely to symbolize the real economic contribution of the division to total company profits. Under sure circumstances, there may be deviations from market-based transfer price. Some instances, for such deviations, are as follows:

    a) Where the products involved are highly dedicated and a ready market does not exist, market price determination will be harder.

    b) Where it is necessary to take advantage of economies of the level in the manufacture of some goods or services.

    c) When it is necessary to shift possessions from low priority to high priority divisions.

    d) Where thoughts of taxation are applicable.

Market-based transfer pricing is more commonly used, as it offers following advantages:

a) They are one of the mainly easy and easily understood methods.

- **b)** They minimize the complications for performance evaluation.
- **c)** They reduce points of disagreement flanked by several divisions.
- **d)** They are usually constant with the environment outside.

2. **Cost Based Price:** When external markets do not exist or are not accessible to the company or when correct information in relation to the external market prices is not accessible, the cost based transfer price may be used. The cost-based prices methods may be as follows:

   - **a) Variable Cost:** Under this method, only variable manufacture cost is taken into explanation. In variable cost, the cost of direct material, direct labour and variable factory overhead are incorporated. In other words, fixed cost is not incorporated in it. Variable cost method for transfer price may be useful when the selling division is operating below capability. Though, the selling division manager would not like it as a foundation for transfer price, as it does not give the profit to that division.
   - **b) Actual Cost**: If transfer prices based on actual cost, it would contain total or full cost of manufacture per element. It is an easy and convenient method, as the required information is accessible in the accounting records. Though, the selling division would not earn any profit on goods or services transferred to the buying division. The buying division would stand to gain, as it would be lower than the market price. Though, it is quite inappropriate for profit center analysis.
   - **c) Cost plus Normal Spot-up:**Under this method, the transfer price contains cost per element plus some profit margin or normal spot-up. This spot-up price may be determined in two ways. Either the management of the company may set a target profit or it may be equal to the profit Margin that competing firm might reasonably be expected to realize. Though, the decision in relation to the percentage 'of spot-up may be arbitrary and questionable.
   - **d) Average Cost:** Average Cost is pre-determined cost and is also described `engineered cost'. In practice, it may appear to be more

practical and useful and may be taken to be a good choice for transfer price. Average cost based transfer price encourages efficiency in the selling division as inefficiencies are not transferred on to the buying division. Use of average cost reduces the risk to the buyer.

e) **Opportunity Cost:** Often in practice, the determination of transfer price on market price or cost may be hard. Under those circumstances, the transfer price may be based on opportunity cost. Such pricing may also be required where the supplier division is a monopoly producer or the user division is a monopoly consumer. The transfer price may be fixed at a stage which equal the opportunity cost of the supplier division and the user division. It also identifies the minimum price that a selling division will be willing to accept and the buying division will be willing to pay. The opportunity costs based on transfer prices for each division are as follows:

   i. **Selling Division:** For the selling division, the opportunity cost of transferring is the greater of:

      · The outside sales value of the transferred product;

      · Differential manufacture cost for the transferred product.

   ii. **Buying Division:** For the buying division, the opportunity cost of acquiring through transfer is the lesser of:

      · The price that would be required to purchase from the outside;

      · The profit that would be lost for producing the final product if the transferred element could not be obtained at economic price.

In the economic interest of the company, it would be better if the opportunity cost for the selling division is less than the opportunity cost for the buying division. The practical difficulty may arise when the divisions will tend to overstate or understate their opportunity cost so as to power the transfer price to their advantage. Under such condition, the central management may look at it and bring the necessary changes through obtaining necessary information in this regard. There are two other methods of determining the transfer price. They have been; described briefly as follows:

1. **Negotiated Prices:** In practice, the transfer price is determined on the foundation of negotiations flanked by the selling and buying division. It may be flanked by the market prices and the cost-based price. While negotiating the price, the seller division manager and buying division manager act much the similar as the managers of self-governing companies. If the transfer price is based on negotiated price, the company, as a whole, stands to benefit. Such price avoids mistrusts, bad feeling, and undesirable bargaining interest in the middle of divisional managers. It gives an opportunity to achieve the objectives of goal congruence, autonomy, and accurate performance evaluation. The negotiated price foundation may have some limitations also. They are:

   i. In the procedure of negotiation, a great deal of management effort, time and possessions may be consumed.

   ii. Such a price may also depend upon the ability and skill of managers concerned.

   iii. One divisional manager may take advantage of having some private information which the other manager may not possess. With the result, the negotiated price may not be accurate.

2. **Dual Prices:** It is also recognized as `two-way prices'. Under this method the selling division is credited with one price. That may be cost plus profit margin whereas the buying division is charged at dissimilar price, which may be equal to variable cost. The variation in the transfer prices for the two divisions could be accounted for through a centralized explanation. The dual pricing provides motivation and incentive to selling division as goods are transferred at cost plus some profit margin. On the other hand, for the buying division, it would be quite appropriate price. Often, the use of dual prices may lead to a divergence flanked by the segment profits and

those of company. Though, this is not a serious issue and can be resolved in the interest of the divisions concerned.

10.7 ADMINISTRATION OF TRANSFER PRICES

Implementing transfer price involves long negotiation among the heads of various units, the classification of products and arbitration and conflict resolution in case of conflict.

1. **Negotiation:** Business units negotiate among themselves before taking decisions relating to transfer pricing. The headquarters does not involve itself and leaves it to line managers to negotiate and come to decisions because of the following reasons:

    - First, the line managers of the business units may feel powerless if they are denied any say in the transfer prices and this may affect their motivation.

    - Secondly, if the profits of the business units are poor then the unit managers may argue that it is due to arbitrariness in setting transfer prices from the headquarters.

2. **Arbitration and Conflict Resolution:** There may be times when business units are not able to reach an agreement on transfer pricing. In such situations, business units should follow a set of procedures for arbitrating disputes relating to transfer price. The responsibility rests with the parent company. The job may be assigned to a single executive who can talk to the business unit managers and arrive at an agreement over the price. Alternatively, a committee may be formed with the responsibilities to settle transfer price disputes to review sourcing charges and to change the transfer price rules whenever necessary.

    Organizations can have a formal or informal system of arbitration to administer the transfer price mechanism and to resolve the conflict. In a formal system of arbitration, both the parties submit their arguments in writing to the arbitrary and the arbitrator reviews then and decides transfer price. In an informal system, all the presentations are oral. Irrespective of the formality of arbitration and the process of conflict resolution, the goal is to make the transfer pricing system effective. There are four ways to resolve conflicts: forcing, smoothing, bargaining and problem-solving. The conflict resolutions mechanisms range from conflict avoidance through forcing and smoothening to conflict resolutions through bargaining and problem-solving.

3. **Product Classification:** Sourcing and transfer pricing are greatly affected by the number of intra-company transfers and the availability of markets and market prices. The larger the number of intra-company transfers and the less the availability of market prices, the greater the need for more formal transfer pricing rules. If market prices are readily available, the headquarters can play a vital role in making sourcing decisions. In some companies, products are classified into various categories to help in determining transfer prices.

   Example: A company can divide its product portfolio into two classes before taking transfer pricing decisions. Class I products may include all those products whose transfer price the senior management at the headquarters would like to control. These would normally be large volume products; products for which no outside source exists and the products over which manufacturing is important, for quality or secrecy reasons. Class II is all other products. In general, these are products that can be produced outside the company without any significant disruption to present operations and products of relatively small volume, produced with general purpose equipment.

10.8 SUMMARY

Transfer prices must be established for the goods and services exchanged by interdependent organizational units operating as profit centers. Transfer prices can be based on historical costs, market prices, marginal costs, or negotiation. From the standpoint of the firm as a whole, any price paid to an outsider that exceeds the marginal cost of production for a good available from an internal source allows a contribution to fixed overhead and profit to leave the firm. Hence, to ensure the optimal allocation of economic resources within the firm, marginal costs should be used as the transfer price. When transfer prices do not equal marginal costs, one should be aware of the potential dysfunctional consequences to the corporation as a whole.

10.9 GLOSSARY

- **Transfer Pricing:** The pricing of contributions (assets, tangible and intangible, services and funds) transferred within an organization.

- **Full Cost:** It is the material, labour and overhead costs required to produce and ship the product to the buying unit.
- **Cost Plus Pricing:** Under this method, the price is set to cover costs and predetermined percentage of profit.
- **Marginal Cost Pricing:** In this method, fixed costs are ignored and prices are determined on the basis of marginal cost.

10.10 LESSON END EXCERCISE

1. "Transfer pricing is confined to profit centers". Do you agree, why?
2. Explain the different methods of transfer pricing.
3. "Company transfer pricing policies must satisfy dual objectives", what are the objectives?
4. "Implementing transfer price involves long negotiation among the heads of various units". Explain the administration of transfer pricing.

10.11 SUGGESTED READINGS

- Anthony, Robert N and Govindrajan, Vijay, "*Management Control System*", Tata McGraw Hill.
- Kaura, Mohinder N, "*Management Control and Reporting System*", Response Books.
- Maciariello, Joseph A. and Kirby Calvin J., *Management Control Systems*, 2nd Edition, Prentice Hall of India Private Limited.
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BUDGETING AS A TOOL FOR MANAGEMENT CONTROL SYSTEM

UNIT-III **Lesson No. 11**

BUDGETING

STRUCTURE

11.1 INTRODUCTION

Budgets are an important tool for effective short-term planning and control in an organization. An operating budget usually covers one year and states the revenues and expenses planned for that year. According to ICMA, England, a budget is a financial and/or quantitative statement prepared and approved prior to a defined period of time, of the policy to be pursued during the period for the purpose of attaining a given objective".It is in other words, "a detailed plan of action of the business for a definite period of time".

According to Gordon and shilling law budget may be defined as "a predetermined detailed plan of action developed and distributed as a guide to current operations and as a partial basis for the subsequent evaluation of performance"

11.2 OBJECTIVES

At the conclusion of this unit you should be able to:

- Understand the basics of budgeting
- Discuss the relation to strategic planning and forecasting
- Describe the budgetary Control

11.3 BASICS OF BUDGETING

Budgeting is the tactical implementation of a business plan. To achieve the goals in a business's strategic plan, we need a detailed descriptive roadmap of the business plan that sets measures and indicators of performance. We can then make changes along the way to ensure that we arrive at the desired goals. Budgeting is a systematic approach that predicts revenues and expenditures of an individual, family, group, business entity, or government. A realistic report helps businesses trace their financial performance. This is crucial for decision-making.Budgeting has the following characteristics:

1. A budget estimates the profit potential of a business unit.
2. It is stated in monetary terms although the monetary amounts may be supported by non monetary amounts (e.g. units sold or produced).
3. It generally covers the period of one year but quarterly breakups, especially those that are affected by seasonal factors.
4. It is a management commitment; managers agree to accept responsibility for attaining the budgeted objectives.
5. The budget proposal is reviewed and approved by an authority higher than the budge tee and ultimately, by the Chief Executive Officer (CEO).
6. Once approved, the budget can be changed under special conditions.
7. Periodically, actual financial performance is compared to budget and variances are analyzed and explained.

Figure 11.1 Translating Strategy into Targets and Budgets

There are four dimensions to consider when translating high-level strategy, such as mission, vision, and goals, into budgets.

1. **Objectives** are basically your goals, e.g., increasing the amount each customer spends at your retail store.
2. Then, you develop one or more **strategies** to achieve your goals. The company can increase customer spending by expanding product offerings, sourcing new suppliers, promotion, etc.
3. You need to track and evaluate the effectiveness of the strategies, using relevant **measures**. For example, you can measure the average weekly spending per customer and average price changes as inputs.
4. Finally, you should set **targets** that you would like to reach by the end of a certain period. The targets should be quantifiable and time-based,, such as an increase in the volume of sales or an increase in the number of products sold by a certain time.

Objectives	Strategies	Measures	Targets
What are you trying to achieve?	**How are you going to achieve it?**	**What are the input and output measures?**	**Quantifiable and time-based**
• Increase spend per customer	• Expand product offering • Source new suppliers • Promotion and marketing • Pricing	• Average weekly spend/customer • Spend by product type • Average price changes	• $ increase • Volume increase • % staff trained in new products

Figure 11.2 Goals of the Budgeting Process

The process of preparing budget should be distinguished from (a) strategic planning and (b) forecasting.

11.3.1 Budgeting and Strategic Planning: Strategic planning is the process of deciding on the nature and size of several programmes that are to be undertaken in implementing an organization's strategies. The difference between strategic planning and budgeting are as follows:

a) Both strategic planning and budgeting are planning activities in the two processes. The budgeting process focuses on a single year whereas, strategic planning focuses on the activities that extend over a period of several years.

b) Strategic planning precedes budgeting and provides the framework within which the annual budget is developed.

c) Strategic plans are structured by product lines or programmes while the budget is structured by responsibility centers. This re-arrangement of programs - so it corresponds to the responsibility centers charged with executing it - it is necessary because the budget will be used to influence a manager's performance before the fact and to appraise performance after that.

11.3.2. Budgeting and Forecasting: The difference between forecasting and budgeting are as follows:

a) A budget is a management plan, with the implicit assumption that positive steps will be taken by the budge tee – the manager who prepares the budget to make actual events correspond to the plan. A forecast is a production of what will likely happen carrying no implication that the forecasts will attempt to make actual, correspond to the forecast.

b) A budget is stated in monetary terms whereas a forecast may or may not be stated in monetary terms.

c) A budget usually covers one year, whereas, forecast can be for any time period.

d) A budget is approved by the higher authority, whereas, forecasts are not usually approved by higher authorities.

e) Once approved, the budget can be changed only under specified conditions. A forecast is updated as soon as new information indicates change in conditions.

f) In case of budgeting, actual financial performance is compared to budget and variance analyzed and explained.

11.4 BUDGETARY CONTROL

Budgetary control refers to the principles, Procedures and Practice of achieving given objectives through budgets and budget reports. "It is the system of management control and accounting in which all operations are forecasted and so for as possible planned ahead, and the actual results compared with the forecasted and planned ones.

"According to Brown and Howard, "Budgetary control is a system of controlling costs which includes the preparation of budgets, coordinating the departments and establishing responsibilities, comparing actual performance with the budgeted and acting upon results to achieve maximum profitability." Weldon characterizes budgetary control as planning in advance of the various functions of a business so that the business as a whole is controlled.

Budgetary control is an essential tool of management for controlling cost and maximizing profits. It may be conceived as one of the supreme examples of rationality in management. It is a useful management tool for comparing the current performance with pre-planned performance with a view to attain equilibrium between ends and means, output and effort. It corrects the deviation from pre-planned path through the media of observation, research planning, control and decision making and thus helps performance of future activities in an orderly way. It uncovers economies in operations, weakness in the organization structure and minimizes wasteful spending.

Budgetary control involves the following:

i. Establishment of budgets

ii. Continuous comparison of actual with Budget for achievement of budgeted figures.

iii. Revision of Budgets in the light of changed circumstances.

Budgetary control serves 4 control purposes:

1. They help the manager's co-ordinate resources;

2. They help define the standards needed in all control systems;

3. They provide clear and unambiguous guidelines about the organization's resources and expectations, and
4. They facilitate performance evaluations of managers and units.

11.4.1 Objectives of Budgetary Control

An effective budgeting system plays a crucial role in the success of a business organization. The budgeting system has the following objectives, which are of paramount importance in the overall efficiency and effectiveness of the business organization. These objectives are discussed below.

1. **Planning:**Planning is necessary for regularly doing any work. A well-prepared plan helps the organization to use the scarce resources efficiently and thus achieving the predetermined targets becomes easy. A budget is always prepared for the future period and it lays down targets regarding various aspects like purchase, production, sales, manpower planning, etc. This automatically facilitates planning.
2. **Coordination:** For achieving the predetermined objectives, apart from planning, coordinated efforts are required. Budgeting facilitates coordination in the sense that budgets cannot be developed in isolation.For example, while developing the production budget, the production manager will have to consult the sales manager for a sales forecast and purchase manager for the availability of the raw material. The production budget cannot be developed in isolation.Similarly, the purchase and sales budget, as well as other functional budgets like cash, capital expenditure, manpower planning, etc, cannot be developed without considering other functions. Hence the coordination is automatically facilitated.
3. **Control:** Planning is looking ahead while controlling is looking back. The preparation of budgets involves detailed planning about various activities like purchase, sales, production, and other functions like marketing, sales promotion, manpower planning. But planning alone is not sufficient. There should be a proper system of control which will ensure that the work is progressing as per the plan. Budgets provide the basis for such controlling in the sense that the actual performance can be compared with the budgeted performance.Any deviation between the two can be found out and analyzed to ascertain the reasons behind the deviation so that necessary corrective action can be taken to rectify the same. Thus budgeting helps immensely in controlling function.

11.4.2 Advantages of Budgetary Control

The budgetary control system helps in fixing the goals for the organization as whole and concerted efforts are made for its achievements. It enables 'economies in the enterprise. Some of the advantages of budgetary control are:

1. **Maximization of Profits:** The budgetary control aims at the maximization of profits of the enterprise. To achieve this aim, a proper planning and co ordination of different functions is undertaken. There is a proper control over various capital and revenue expenditures. The resources are put to the best possible use.

2. **Co-ordination:** The working of different departments and sectors is properly coordinated. The budgets of different departments have a bearing on one another. The co-ordination of various executives and subordinates is necessary for achieving budgeted targets.

3. **Specific Aims:** The plans, policies and goals are decided by the top management. All efforts are put together to reach the common goal, of the organization. Every department is given a target to be achieved. The efforts are directed towards achieving some specific aims. If there is no definite aim, then the efforts will be wasted in pursuing different aims.

4. **Tool for Measuring Performance:** By providing targets to various departments, budgetary control provides a tool for measuring managerial performance. The budgeted targets are compared to actual results and deviations are determined. The performance of each department is reported to the top management. This system enables the introduction of management by exception.

5. **Economy:** The planning of expenditure will be systematic and there will be economy in spending. The finances will be put to optimum use. The benefits derived for the concern will ultimately extend to industry and then to national economy. The national resources will be used economically and wastage will be eliminated.

6. Determining Weaknesses: The deviations in budgeted and actual performance will enable the determination of weak spots. Efforts are concentrated on those aspects where performance is less than the stipulated.

7. **Corrective Action:** The management will be able to take corrective measures whenever there is a discrepancy in performance. The deviations will be regularly reported so that necessary action is taken at the earliest. In the absence of a budgetary control system the deviations can be determined only at the end of the financial period.

8. Consciousness: It creates budget consciousness among the employees. By fixing targets for the employees, they are made conscious of their responsibility. Everybody knows what he is expected to do and he continues with his work uninterrupted.

9. Reduces Costs: In the present day competitive world budgetary control has a significant role to play. Every businessman tries to reduce the cost of production for increasing sales. He tries to have those combinations of products where profitability is more.

10. Introduction of Incentive Schemes: Budgetary control system also enables the introduction of incentive schemes of remuneration. The comparison of budgeted and actual performance will enable the use of such schemes.

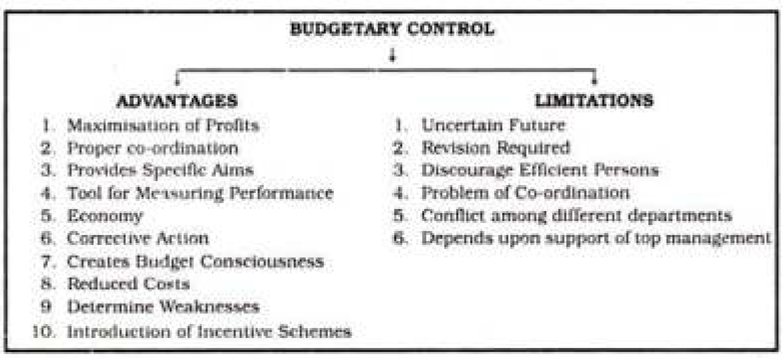

Figure 11.3 Budgetary Control

11.4.3 Limitations of Budgetary Control

Despite of many good points of budgetary control there are some limitations of this system. Some of the limitations are discussed as follows:

1. **Uncertain Future:** The budgets are prepared for the future period. Despite best estimates made for the future, the predictions may not always come true. The future is always uncertain and the situation which is presumed to prevail in future may change. The change in future conditions upsets the budgets which have to be prepared on the basis of

certain assumptions. The future uncertainties reduce the utility of budgetary control system.

2. **Budgetary Revision Required:** Budgets are prepared on the assumption that certain conditions will prevail. Because of future uncertainties, assumed conditions may not prevail necessitating the revision of budgetary targets. The frequent revision of targets will reduce the value of budgets and revisions involve huge expenditures too.

3. **Discourage Efficient Persons:** Under budgetary control system the targets are given to every person in the organization. The common tendency of people is to achieve the targets only. There may be some efficient persons who can exceed the targets but they will also feel contented by reaching the targets. So budgets may serve as constraints on managerial initiatives.

4. **Problem of Co-ordination:** The success of budgetary control depends upon the co-ordination among different departments. The performance of one department affects the results of other departments. To overcome the problem of coordination a Budgetary Officer is needed. Every concern cannot afford to appoint a Budgetary Officer. The lack of co-ordination among different departments results in poor performance.

5. **Conflict among Different Departments:** Budgetary control may lead to conflicts among functional departments. Every departmental head worries for his department goals without thinking of business goal. Every department tries to get maximum allocation of funds and this raises a conflict among different departments.

6. **Depends Upon Support of Top Management:** Budgetary control system depends upon the support of top management. The management should be enthusiastic for the success of this system and should give full support for it. If at any time, there is a lack of support from top management then this system will collapse.

11.4.4 Essentials of a Good Budgetary Control System

A good budgetary control system depends upon the following conditions:

1. **Support from top management:** The effective implementation of the budgetary control system depends upon the attitude and perception of management towards it.If the top executive takes the budgeting as a

mere routine job and does not take any interest in its implementation, it will be a futile exercise.

2. **Quantification of organizational goal:**The goal of the organization should be clearly expressed and quantified. There should not be any misconception and confusion in the minds of employees regarding goals to be attained.
3. **Creation of responsibility center:**The entire organization should be divided into sections and subsection with clear assignment of duties and responsibilities for each of them.
4. **The split of organizations' goals:**The goals of each department or responsibility center should be spelled out towards the attainment of the overall goals of the organization. The functional goals should be compatible with the organizational goal.
5. **Realistic:**The target to be set in the budget should be fairly attainable.If it is set at a level beyond the capacity of employees, they will lose their interest in its implementation, on the other hand, if it is set at a very low level, it will be meaningless as the job, in any case, will be done.
6. **Participation:**All the key employees should be made involved in the preparation of the budget. Participation brings in commitment. Commitment enhances the efficiency and productivity of employees.
7. **Good accounting system:**The accounting system should be designed in such a way that c the actual performance of various responsibility centers can be readily available for comparison with the target.
8. **Coverage:** To reap the benefit of a budgetary control system it should cover all the areas organization. It should not be partially applied.
9. **Creation of environment conducive to budgetary control:** A proper environment should be developed in the organization for the successful implementation of budgetary control. The employees should be educated about the utility of the system. They should be convinced that it is not a tool of pressurization upon them to work more but a way to the prosperity of the organization which will ultimately benefit them. So seminar, lecture, executive development program, etc. should be held for this purpose.
10. **Coordination:** Co-ordination is an important requirement of budgetary

control. It brings in common thinking, mutual trust, and confidence amongst various departments.

11. **Flexibility:** A budget should be amenable to change if the changing situation so warrants.

12. **Reporting system:** The success of budgetary control depends upon a good reporting system. The actual performance vis-a-vis the target should be continuously reported to the management to enable them to take corrective action in the areas which are not performing well.

11.5 SUMMARY

Strategic plan is prepared early in the year and developed on the basis of the best information available at that time; its preparation involves relatively few managers and it is stated in fairly broad terms. To achieve the goals in a business's strategic plan, we need a detailed descriptive roadmap of the business plan that sets measures and indicators of performance. Budgeting is the process of stating, in quantitative terms, planned organizational activities for a given period of time. Budgetary control is a useful management tool for comparing the current performance with pre-planned performance with a view to attain equilibrium between ends and means, output and effort. It corrects the deviation from pre-planned path through the media of observation, research planning, control and decision making and thus helps performance of future activities in an orderly way.

11.6 GLOSSARY

- **Budget:** A statement of planned allocation of resources expressed in financial or numerical terms.
- **Strategic Planning:** Strategic planning is the process of deciding on the nature and size of several programmes that are to be undertaken in implementing an organization's strategies.
- **Budgetary Control:** It is the establishment of budgets relating to the responsibilities of executives to the requirements of a policy and the continuous comparison of actual with budgeted results, either to secure by individual action, the objective of that policy or to provide a basis for its revision.

11.7 LESSON END EXCERCISE

1. Define budget and budgetary control.
2. What are the basic characteristics of budgeting?
3. How Budgeting is different from forecasting and strategic planning?
4. Discuss the advantages and limitations of budgetary control.

11.8 SUGGESTED READINGS

- Anthony, Robert N and Govindrajan, Vijay, "*Management Control System*", Tata McGraw Hill.
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BUDGETING AS A TOOL FOR MANAGEMENT CONTROL SYSTEM

UNIT-III **Lesson No. 12**

BUDGETING PROCESS

STRUCTURE

12.1 INTRODUCTION

The budgeting process for most large companies usually begins four to six months before the start of the financial year, while some may take an entire fiscal year to complete. Most organizations set budgets and undertake variance analysis on a monthly basis. Starting from the initial planning stage, the company goes through a series of stages to finally implement the budget. Common processes include communication within executive management, establishing objectives and targets, developing a detailed budget, compilation and revision of budget model, budget committee review, and approval. To get a more accurate budgeting picture, companies typically look at past budgets to see how well they worked out. Senior executives and managers involved in budgeting also assign specific amounts to spend on different expenses. A company's budget is the final step in putting a business plan into action.

12.2 OBJECTIVES

After studying this unit, you will be able to:

- Discuss the process of budgeting
- Explain the organization for budgeting
- Describe the elements of a successful budgeting plan
- Elaborate the organization of budgeting

12.3 BUDGETING PROCESS

A budget is a tool for planning, implementing, and controlling activities for the optimum utilization of scarce resources in a business. It explains the company's objectives and the course of action it will choose to achieve its goals in detail. Also, it mentions the controls to be put in place for achieving its successful implementation. The budgeting process is the process of putting a budget in place. This process involves planning and forecasting, implementing, monitoring and controlling, and finally, evaluating the performance of the budget.

12.3.1 Approaches to the Budgeting Process

The following are the two approaches that are used in the process of budgeting:

1. **Top-down Approach:** This budgeting process involves preparing the budget by the company's senior management based on the company's objectives. The departmental managers are assigned the responsibility for its successful implementation. Every department can opt to create its own budget based on the company's broader budget allocation and goals. The top-down approaches advantage is that the lower management saves a lot of time and gets a ready-made budget to be followed. They hardly participate in the preparation of the central budget. The senior managers' experience, coupled with past-performance figures, comes in handy in such budgeting processes.

2. **Bottom-up Approach:** This budgeting process starts at the departmental level and moves up to higher levels. Every department within the company is required to prepare plans for its proposed activities for the next budget period and estimate the costs it will incur. These individual budgets are combined to create a bigger all-inclusive budget.The budgeting process with this approach can be lengthy and time-consuming. However, employees and managers are more motivated to achieve the budget goals since they have prepared it. They have complete knowledge of what the budget actually expects them to do and how to achieve that. Such budgets tend to be more accurate and closer to the actual situation on the ground.

12.3.2 Steps in the Budgeting Process

The following are the steps that are involved in the process of budgeting:

1. **Preparing the Base for the Budget according to Funding:** The first step in preparing a budget is to identify the budget goals and how they will be achieved. Factors such as the business's socioeconomic surroundings, sales trends, etc., have to be taken into consideration for setting goals. Also, these goals have to be set according to the economic resources available to the company. A budget will be of no use without proper funding.
2. **Creating a Cost Buffer:** The next step in a budget is to scrutinize the cost for the business. Also, evaluating factors that can affect input costs during the budget period has to be done. Revision of the compensation plans of the employees takes place every year in most companies. To make the budget realistic and achievable, proper provisions should be created for variations in these costs and compensation plans.
3. **Preparation of Revenue and Expenditure Budgets:** The next important step is to prepare different types of subsidiary budgets for the organization. Proper and realistic forecasts for the different types of budgets, such as sales, production, cash, purchase, labor and overheads, selling, and general and administrative expenses, have to be made. A realistic plan for the sources of revenue is the need for the budget period. Planning of expenditure should be done accordingly as the company cannot spend more than what it earns. Thus, the revenue target decides and dictates the expected quantum of expenses to achieve these revenue

targets.

4. **Incorporating Departmental Budgets:**Smaller departments prepare their own budget in many companies. In such cases, their collection and integration, along with the master budget, is a prerequisite.

5. **Incorporating Bonuses:** Most companies have a policy of declaring bonuses for their employees at the end of the financial year as per their financial results. Many may declare mid-year bonuses in case of exceptional performances. Such expenses can become significant in the case of big companies. Hence, due provisions have to be made in the budget for such unplanned giveaways.

6. **Provision for Capital Expenditure:** A company may plan to incur a capital expenditure or invest in a fixed asset during the budget period. These expenses are quite heavy and considerable by nature. Hence, after consultation with the top management, their inclusion should be done in the budget.

7. **Changes in the Budget Model and Review:** After finalizing all the above steps, a review of the assumptions as per the budget model should be done. Also, a thorough review of the entire budget is essential. If there is a need for any changes in the budget, it can be done now.

8. **Approval and Implementation:** The budget will then go to the top management for approval. They will check if it is proper. Makers will make any changes as per need. In case everything is fine with the budget, they will give the go-ahead for implementation.

9. **Budgetary Controls:** The implementation of the budget is not the last step in the budgetary process. The setting of proper budgetary controls comes next. This is necessary for the comparison of the actual performance with the provisions and estimates of the budget. Continuous reporting of variances has to be done. The management can take corrective actions accordingly.

12.4 ORGANIZATION FOR BUDGETING

Budgets play a role in all types of organizations. Organizations can be nonprofit organizations, for-profit businesses or government agencies. Each of these organizations relies on the reliability of the numbers reported in their budgets. Non profits need to know the amount of money they expect to receive in order to fund their mission. For-profit business owners want to know the amount of profit they expect to earn. Government agencies want to know if there will be a surplus or a deficit.

A budget for an organization is the total amount of expenses that a company uses to perform business operations. Typically, a business has a financial team, such as an accounting department, which analyzes the amount of income a business earns and then creates a budget based on the amount of profit it can put back into the business. Having a budget allows businesses to create plans for funding, create financial goals and identify areas of improvement within a business model.

12.4.1 Factors that Organizations involve in budgeting

Here are several common factors that companies include in their budget:

1. Location: Companies that use a warehouse, office building or workspace pay the mortgage or rent payment each month.
2. Salary: A major part of a company's budget includes payroll, which involves paying the salary of each staff member at a company.
3. Insurance: Organizations typically have insurance that includes general liability, property insurance and employee compensation for injuries sustained while working. Depending on their industry, companies may need specialized insurance, such as construction safety insurance or roadside coverage for company drivers.
4. Marketing:Companies may devote a portion of their budget to marketing purposes, which includes paying a marketing team, creating advertisements and purchasing advertisement space, such as commercials and billboards.
5. Operational fees:Businesses may set aside fees that help their business remain operational, such as paying for repair services if their machinery breaks or hiring a cleaning team to clean their office buildings.

12.4.2 Importance of Budget for an Organization

It is important for organizations to prepare a budget for the following reasons:

1. Track company performance:A budget can help companies track their financial performance by identifying the profit they're generating.
2. Prevent debt:Having a budget can keep organizations on track with their

regular payments, such as rent payments, payroll and insurance payments, so they can minimize the chance of having a missed payment or acquiring debt.

3. Estimate savings: A budget allows businesses to estimate their upcoming expenses, which may help them identify where they can save money. For example, if a company pays the same monthly rent, they may have a better idea of how much money they can place into savings.

12.4.3 Prepare a Budget for an Organization

Preparing a budget involves comparing your workplace's previous budget results and making changes to improve the company's finances for the next business year. Use these steps to help you prepare a budget for your workplace:

1. **Review previous budget assumptions:** Budget assumptions are a company's estimated expenses or financial expectations. Review your workplace's previous budget assumptions to find which areas need improvement and which can remain the same. This can help you find necessary updates to improve the company's financial standing and budget management.
2. **Identify bottlenecks:** In business, a bottleneck is when issues within a project's development delay staff from finishing the project. Often, this happens when staff doesn't have access to enough resources to complete the project. With a proper budget, you can identify bottlenecks within your workplace to resolve them and understand how to keep future bottlenecks from happening. Try identifying projects that surpassed their deadline for completion, then review the resource the staff needs. Doing this allows you to devote a bigger portion of your workplace's budget to a specific project or resource. For example, a construction company is working on building a house, though they don't have enough lumber to finish the project by the deadline. In that case, their company may devote more funds to lumber for future projects.
3. **Predict available revenue:** When updating a budget, aim to understand your company's total available revenue so you can divide the budget accordingly. Analyze your workplace's profitability and generated revenue to help you better predict the upcoming year's available revenue. Have an accurate prediction of available revenue so that members of your company can understand how much money they can

allocate to each aspect of a budget, such as a department's financial needs and project resources.

4. **Determine step costs:** The next step involves determining step costs that your workplace may incur while performing standard business operations. A step cost is an expense that changes depending on a business's activity level. In a budget, it's essential that a business is aware of step costs so that they can determine potential expenses and devote a specific amount of finances to likely step costs. Find the exact amount each cost is worth and which activity levels a business may incur. For example, suppose a company has one office building. Though it hires several new employees to expand its business, it may purchase a second office building to fit the new employees. The cost of the second building is a step cost since it's a growing cost that depends on the company's activity level and growth.
5. **Review the budget with management:** Before releasing the budget, review all aspects of the budget with members of management. Be sure to communicate areas of concern within a budget, such as financial limitations or funding issues, then discuss ways to resolve challenges. Be sure to take notes of management's observations, then make the necessary updates that management may recommend.
6. **Create and release a budget packet:** A budget packet is a document that contains detailed information about the company's budget. It includes information about recent changes, comparisons from the previous year's budget, common bottlenecks and bottleneck solutions, step costing information and estimated funding for the year. It may be useful to use a template for a budget packet that allows you to fill in your workplace's budgeting information. You may also create the packet manually, giving you more control over the packet's formatting and content. You may release the packet to the entire company, or you can release it to only financial experts. Releasing it to the entire company may help staff feel engaged in the company's financial planning and help them remain aware of its budget management. Encourage staff to ask questions or request further information about the budget.

12.5 ELEMENTS OF A SUCCESSFUL BUDGETING PLAN

The three elements of a successful budget are the people, the data, and the process. When each of these components is working together, companies are able to create successful, insightful budgets that provide your business with more than just numbers. Instead, they give you the context and knowledge to respond to inevitable market changes with quickness and agility.

1. **The People:** You can't create a solid budget if your people aren't invested in the process. But how do you ensure that they are invested? Budgeting is hardly a favorite task for most workers, after all.If you want that investment, you have to give people a reason to care about the budget. These reasons may differ from company to company, industry to industry, but it's best to stay away from anything punitive. Instead of threatening departments with budget cuts if they don't make their numbers, you could focus on how an accurate budget will give employees insight into how to improve the company's and their success.

   Your people also have to be held accountable for their contributions to the budget. This is to avoid having your employees or colleagues enter numbers thoughtlessly. You don't want a simple guesstimate based on last year's numbers you want numbers arrived at through thoughtful, reasoned analysis. To get to that point, people must know that they may have to explain the entries they put in. And at the same time, they have to know that you'll be accountable for any changes you make to their entries.

   Finally, you have to give everyone enough time to complete their sections. If people are rushed, you won't get that thoughtful analysis that is necessary for a truly useful budget.

2. **The Data:** Your data is the numbers that you collect during the budget process. At this point, that's all you've got: data, not information. The data is translated to information only after you've been able to process and analyze it, toward the end of the budget process. When you're working with your data, there are four things to consider:

   a) **Detail.** What level of detail should you attempt to capture? The simple answer is: as much as possible. While you can always condense too much detail, you can't drill down into nonexistent details.

   b) **Drivers.** The concept of drivers is best explained by the equation R = P x Q, where R = Revenue, P = Price, and Q = Quantity. While most companies budget for revenue, they don't always take into account the fact that revenue is a direct result of price and quantity. You have to get your P and Q numbers correct if you want the revenue numbers to make sense. Otherwise, you risk being wildly incorrect in your assumptions.

c) **External information**. What other information is available that might inform your budgeting process? Market trends, regulatory changes, and exchange rates, for example, would fall into this category.

d) **Timeliness**. Your data must be timely, or current, if it is to be useful. Often, the numbers people are working with are out-of-date by weeks or months, due to ineffective processes for gathering and/or inputting the data. Focus on providing your people with data that's as up-to-date as possible.

3. **The Process:** The process involves bringing your people and your data together. There are lots of things to consider in developing your budgeting process, starting with accessibility. How easy is it for your employees to access the data, documents, and other things they'll need to input their numbers? The easier it is, the stronger your end product will be.

   Another thing to consider is security. Are you striking the right balance between effectively securing your data and allowing people to access what they need? Forcing people to seek approval to view information that's critical to their participation in the budget is a surefire way to decrease how invested they'll feel in the process.

   Confidence is another vital component. If you or your employees don't have confidence in the numbers going in to the budget, then the document is useless. You can make sure people do have that confidence by making sure they have the time and information to enter carefully reasoned data, instead of rushing to enter pure assumptions.

12.6 BUDGETING CENTERS

An organization is broken down into a number of budget centers to facilitate the control of planned activities. A budget centre refers to a department or other location to which income or expenses may be attached and of which the responsibility is borne by an individual. A budget centre is that part of the organization for which the budget is prepared. A budget center may be a department, section of a department or any other part of the department. The establishment of budget centers is essential for covering all parts of the organization. The budget centers are also necessary for cost control purposes. The appraisal of performance of different parts of the organization becomes easy when different centers are established. For each budget centre, a separate budget is prepared.

The Institute of Cost and Management Accountants defines a budget centre as "a section of the organization of an undertaking defined for the purposes of budgetary control." The CIMA Official Terminology defines a budget center as "a section of an entity for which control may be exercised and budgets prepared."

12.7 LIMITING OR PRINCIPAL BUDGETING FACTOR

The principal budget factor is the factor that limits the activities of functional budgets of the organization. The early identification of this factor is important in the budgetary planning process because it indicates which budget should be prepared first. In general sales volume is the principal budget factor. Sales budget must be prepared first, based on the available sales forecasts. All other budgets should then be linked to functional budgets such as production budget, labour budget, plant utilization budget; cash budget etc. should be prepared in accordance with the sales budget. Suppose another concern has no sales problem and can sell whatever it can produce. In this case plant capacity is limited. Therefore, production budget should be prepared first and other budgets should follow the production budget. Failure to identify the principal budget factor at an early stage could lead to delays later on when managers realize that the targets they have been working with are not feasible.

Principal budget factor is such an important factor that it would affect all the functional budgets to a large extent. The extent of its influence must be assessed first in order to ensure that functional budgets are reasonably capable of fulfillment. This is the factor in the activities of an undertaking which at a particular point in time or over a period will limit the volume of output. It is the governing factor which is a major constraint on all the operational activities of the organization, so this factor is taken into consideration to determine whether the budgets are capable of attainment. It is essential to locate the limiting factor before the preparation of budgets because it influences almost all budgets.

The limiting factor may be any one of the following:

1. Is there sufficient demand for the product? (Customer demand)
2. Will a required quality and quantity of materials be available? (Availability of raw material)
3. Is the required type of labour available? (Availability of labour)
4. Is the plant capacity sufficient to cope up with the expected sales? (Plant capacity)
5. Is cash position sufficient to finance the expected volume of sales? (Cash position)
6. Are there any Government restrictions (Government Restrictions)?

For example, a concern has the capacity to produce 50,000 units of a particular item per year. But only 30,000 units can be sold in the market. In this case, low demand for the product is the limiting factor. Thus, the budget relating to limiting factor should be prepared first and the other budgets should be prepared in the light of that factor. All budgets should be coordinated keeping in view the principal budget factor if the budgetary control is to achieve the desired results.

Principal budget factor is not static. It may vary rapidly from time to time due to internal and external factors. It is of temporary nature and in the long run can be overcome by suitable management actions. Most often shortage of sales is the key factor in industry and this factor can be overcome by taking sales promotion steps as increasing sales staff and advertising. Plant capacity can be improved by better planning, simplification of product or extension of plant.

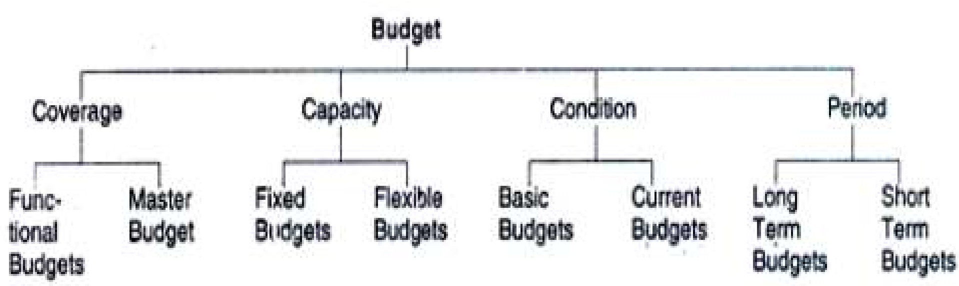

Figure 12.1

12.8 SUMMARY

Budgets are means of communication. Ideas of the top management are given the shape of a budget and are passed on to the subordinates who are to give them the practical shape. As the activities of various departmental heads are coordinated at the preparation of a budget, it is helpful in developing a team work which is very much needed for the very success of an organization. As the size of the organization increases, the need for budgeting is correspondingly more because a budget is an effective tool of planning and control. Budgets are helpful in coordinating the various activities (such as production, sales, purchase, etc.) of the organization with the result that all the activities precede according to the objective.

12.9 GLOSSARY

- **Budget centre**: A budget centre is that part of the organization for which the budget is prepared.
- **Budgeting process:** A budget is a tool for planning, implementing, and controlling activities for the optimum utilization of scarce resources in a business.
- **Budget period**: Budget period is defined as the period for which a budget is prepared and employed.
- **Budget packet:** A budget packet is a document that contains detailed information about the company's budget.

12.10 LESSON END EXERCISE

1. Discuss the approaches to budgeting process.
2. What are the elements of a successful budgeting plan?
3. Explain the steps that are included in budgeting process.
4. Define budgeting center.
5. Why principal budgeting factor is important for an organization?

12.11 SUGGESTED READINGS

- RavindharVadapalli, *Management Control System*, Excel Books, 2008
- Rober N. Anthony and V. Govindarajan, *Management Control Systems*, McGraw Hill/Irwin, 2000
- Keneth Merchant, Wim Van der Stede, *Management Control Systems*, Pearson Education, 2007

BUDGETING AS A TOOL FOR MANAGEMENT CONTROL SYSTEM

UNIT-III **Lesson No. 13**

TYPES OF BUDGETS

STRUCTURE

13.1 INTRODUCTION

A budget is an accounting plan. It is a formal plan of action expressed in monetary terms. It could be seen as a statement of expected income and expenses under certain anticipated operating conditions. It is a quantified plan for future activities – quantitative blue print for action. It is an estimate prepared in advance of the period to which it applies. It acts as a business barometer as it is a complete programme of activities of the business for the period covered.

Every organization achieves its purposes by coordinating different activities. For the execution of goals efficient planning of these activities is very important and that is why the management has a crucial role to play in drawing out the plans for its business. Various activities within a company should be synchronized by the preparation of plans of actions for future periods. These comprehensive plans are usually referred to as budgets.

According to Gordon and shilling law budget may be defined as "a predetermined detailed plan of action developed and distributed as a guide to current operations and as a partial basis for the subsequent evaluation of performance"

In a view of Keller & Ferrara, "a budget is a plan of action to achieve stated objectives based on predetermined series of related assumptions."

13.2 OBJECTIVES

At the conclusion of this lesson you should be able to:

- Classify budgets in different categories
- Identify the causes and means of deviations in between the actual and standard.
- Explain budget ratios

13.3 TYPES OF BUDGETS

A budget serves as a road map for your company. It assists you in forecasting cash flow, identifying functional areas that require improvement, and running company operations smoothly. Successful organizations devote a significant amount of time and attention to developing realistic budgets because they are an effective means of measuring how far the company has progressed toward its objectives. Therefore, budgets are classified as:

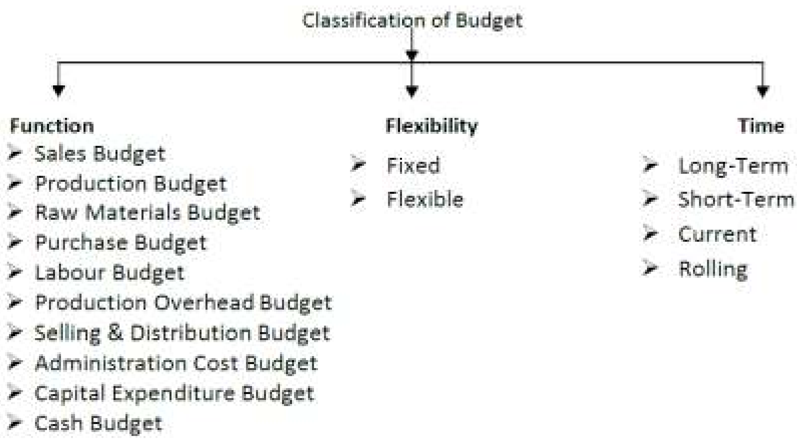

Figure 13.1 Types of Budgets

13.3.1 Sales Budget

The sales budget is an estimate of total sales which may be articulated in financial or quantitative terms. It is normally forms the fundamental basis on which all other budgets are constructed. In practice, quantitative budget is prepared first then it is translated into economic terms. While preparing the Sales Budget, the Quantitative Budget is generally the starting point in the operation of budgetary control because sales become, more often than not, the principal budget factor.

A sales budget acts as a yardstick for evaluating the company's performance. A sales budget is a base document on which other budgets are prepared for the organization. Sales budgeting are an essential function of sales management. It involves the estimation of future revenue and selling expenses and also the profit made by the sales function. Thus, a sales budget can be defined as a spreadsheet that documents monthly, quarterly and annual budgets as well as financial goals, expressed in amounts and unit of production.

The factors to be consider in forecasting sales are as follows:

a) Study of past sales to determine trends in the market.

b) Changes of business policy and method.

c) Government policy, controls, rules and Guidelines etc.

d) Potential market and availability of material and supply.

Components of Sales Budget:

The following are the components of the Sales Budget

Figure 13.2 Components of Sales Budget

1. **Sales Quantity:** Considering the demand for the product in the past trend, the management should forecast the quantity they expect to sell to the consumers in the upcoming period. Therefore, it can be prepared for a month, quarter, or year as per the management's wish and requirement.
2. **Sales Revenue in Dollars:** The second thing that the management should consider is the amount of sales revenue (in dollars) that the management thinks of earning from the expected sale quantity.
3. **Expenses:** The expenses are also considered to be an essential part of this budget. The estimated expenses vary with the nature of the business. The expenses may include expected raw material costs, labor cost, salary expenses, sales expenses, and other expenses that the management expects to incur shortly.
4. **Collection of Cash:** Estimation of cash collection is also a part of this budget as there are different types of customers in the business where some pay in cash while others choose the option of credit purchase. So the management should estimate, using the past recovery trend, the expected amount to be recovered in the coming period.

Advantages of Sales Budget

The Following are the advantages of Sales Budget:

1. It guides the organization as it provides the target that the management expects to achieve in the coming period. The set targets motivate

employees to work hard towards achieving prescribed goals.

2. With the budget figure, the employees know well in advance the limit of expenditure, which they could incur on specific activities in a predetermined period, thereby keeping the control on the business expenses and getting the desired results set by the management for the business.
3. It is considered the yardstick of measurement of business sales performance and progress, thereby assessing the areas where the business needs growth and improvement to increase the earning potential.
4. It helps allocate the business resources into different goods and services and sales territories wisely so that the funds are utilized at their optimal level for achieving the organization's objective.

Disadvantages of Sales Budget

The Following are the disadvantages of Sales Budget:

1. Preparation of a sales budget is time-consuming and needs a lot of management time and effort.
2. It is based wholly on management judgment and estimations, so a useful and accurate forecast of sales and expenses is generally impossible in today's scenario and this competitive and unpredictable market.
3. Different persons have different opinions, so not all the employees in the organization need to be willing to accept the budget as prepared by the top-level management.
4. For the newly established company, it is tough to prepare the sales budget as past sales levels and trends are not available, which is the essential base for preparing the budget.

13.3.2 Production Budget

The preparation of the production budget is mainly dependent on the sales budget. The production budget is a statement of goods, stating how much should be produced. It may be in terms of quantities, kgs, in monetary terms and so on.

Purpose of the Production Budget

The ultimate aim of the production budget is to find out the volume of production to be made during the year based on the sale volume. The production and sales volume should go hand in hand with each other, otherwise the firm would have to face the acute problem on holding unnecessary excessive stock or inadequate stock to meet the needs of the buyers on time, which will bring disruptions in the supply of goods on time as already agreed upon.

Units to be produced = Budgeted Sales + Closing Stock – Opening Stock

Methodology of the Production Budget

The methodology of production budget includes three different components viz. sales, closing stock and opening stock. Sales have to be added with the stock of the year at the end and deducted from the opening stock.

Why sales must be given paramount importance in the preparation of production budget?

Major sales of a business enterprise regularly accrue only out of the current year of production.

Why does the closing stock have to be added?

The purpose of adding the closing stock is that it is a stock at end of the year end out of the current year production.

Why must the opening stock be deducted?

The aim of deducting the opening stock is that the stock at the beginning is the stock out of the yester or previous year production.

If sales are normally equivalent to the entire year of production, the firm need not concentrate on the volume of opening stock and closing stock. It means that whatever produced during the year is equivalent to current year sales. If the entire production is sold out, there won't be a closing stock at the end of the year and opening stock i.e. subsequent years. If current year's production is equivalent to current year's sales:

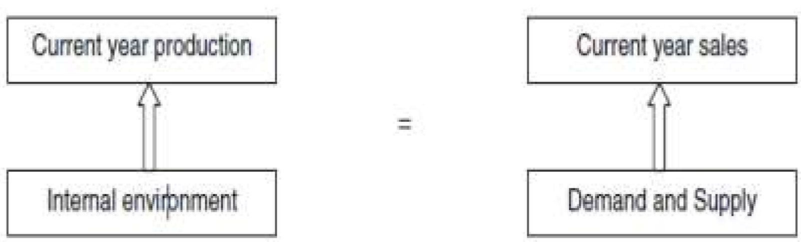

Figure 13.3 Calculation of Production Budget

Result: No closing stock and opening stock for the subsequent years. This situation may not be possible always.

Why is it not possible always?

The production volume is connected to the internal environment of the firm, which can be maintained through a systematic approach. But the sales cannot be easily administered by the firm which is being highly influenced by the demand and supply factors of the goods. If the current year's production is not equivalent to the current year's sales:

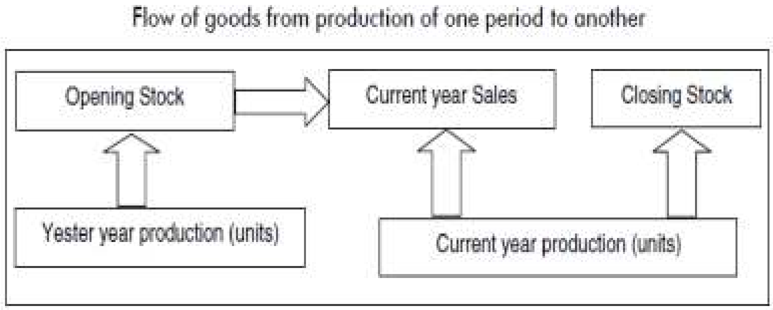

Figure 13.4 Emergences of Opening and Closing Stock

Why does the closing stock arise in the business?

The closing stock is stock due to the excessive production over the sales volume. The reasons for excessive production are as follows:

1. Ineffective study of market potential through market research leading to the expression of excessive demand from the market, which signals the production department to produce to the tune of MR conducted.
2. Due to price fluctuations in the market volume of sales may be affected.
3. Due to need of meeting the future demands.
4. The excessive production due to the cheaper availability of raw materials which leads to greater amount of closing stock. If the storage cost is more, then a hike takes place on the cost of raw materials leading to abnormal storage of the stock.

The above diagram clearly illustrates the emergence of the opening stock and closing stock during the year out of sales and production volume of the enterprise.

Illustration 1: Prepare a production budget for three months ending March 31, 1996, for a factory manufacturing four different articles on the basis of the following information:

Type of the Product	Estimated Stock on Jan 1, 1996 Units	Estimated sales during Jan-Mar, 1996 Units	Desired Closing Stock on Mar 31,1996 Units
AA	2000	10,000	5,000
BB	3000	15,000	4,000
CC	4000	13,000	3,000
DD	5000	12,000	2,000

Solution:

Production budget for three months ending March 31,1996

Particulars	AA Units	BB Units	CC Units	DD Units
Estimated Sales	10,000	15,000	13,000	12,000
Add: Desired closing stock	5,000	4,000	3,000	2,000
	15,000	19,000	16,000	14,000
Less: Opening Stock	2,000	3,000	4,000	5,000
Estimated Production	13,000	16,000	12,000	9,000

13.3.3 Production Cost Budget

A production cost budget summarizes the materials budget, labour budget, the factory overhead budget and may be expressed and analyzed by departments or products. A production cost budget is also known as manufacturing budget. A manufacturing budget is a set of three budgets that estimate the cost of direct materials, direct labor, and overhead for the number of units predicted to be produced in the production budget. In other words, the manufacturing budget estimates how much it will cost the company to produce the number of products included the production budget.

During each stage of production, a manufacturer creates a budget to help track and record the expenses of producing a product. This budget not only allows the manufacturer to analyze and cut costs in the future, but it also helps the manufacturer set selling prices for customers. The manufacturing budget is usually split into three separate reports or budgets: direct material, direct labor, and factory overhead. The direct materials budget will include the raw materials needed for each product, the budgeted beginning and ending inventory, raw material costs, as well as number of units set to be produced.

The direct labor budget computes the total number of labor hours need by multiplying the number of units set to be produced by the estimated number of hours required to produce each unit. The total number of hours needed can then be multiplied by the estimated hourly cost of labor to arrive at the total budgeted labor cost. The overhead budget splits overhead costs into fixed and variable overhead. The variable overhead is multiplied by the number of units produced and then added to the fixed overhead. This total estimated overhead can be used to project the future costs of production.

13.3.4 Direct Material Budget

The **direct materials budget** (or materials purchases budget) is used to plan how much raw materials we need to have available to meet budgeted production. This budget is prepared similarly to the production budget as the company must decide how much raw materials inventory they want to have on hand at the end of each quarter. In other words, the direct materials budget calculates the materials that must be purchased, by time period, in order to fulfill the requirements of the production budget. It is typically presented in either a monthly or quarterly format in the annual budget. In a business that sells products, this budget may contain a majority of all costs incurred by the company, and so should be compiled with considerable care. Otherwise, the result may erroneously indicate excessively high or low cash requirements to fund materials purchases. This is typically determined as a percent of next quarter's material needs. In a materials budget, we will deal with units first and then add the budgeted cost near the end. We also need to know how much direct materials are needed for each unit.

The basic calculation used by the direct materials budget is:

> **Raw materials required for production+ Planned ending inventory balance= Total raw materials required- Beginning raw materials inventory= Raw materials to be purchased**

13.3.5 Direct Labour Budget

The labour required for production may be classified into direct and indirect labour. The labour required for manufacturing the product is known as direct labour. The labour which cannot be specific with production is called indirect labour. Though two budgets may be prepared for direct and indirect labour but from costing point of view only direct labour budget is prepared because indirect labour is made a part of manufacturing overheads.

The labour content of each item is determined in terms of grades of workers required as per production budget. The labour time needed for each job, process and operation is determined with the help of time and motion study. The rates of pay including all allowances are multiplied by labour time for calculating labour cost. If labour incentive schemes are in operation, then labour rates should be suitably increased. If piece-rate system for paying wages is in operation, then labour cost will be calculated by multiplying budgeted units by the labour rate per unit.

Labour budget is useful for anticipating labour time required for production. It also helps in determining the finances required for labour. The personnel department is also able to make arrangements for recruitment of workers, etc.

13.3.6 Factory Overhead Budget

Factory overheads budget is an estimate of the factory overheads expected to incur during the budget period. The expenses taken into consideration for the preparation of the budget are classified into three categories viz. fixed, semi-variable and variable. Fixed expenses are forecasted on the basis of yesteryear figures but the variable expenses should be estimated on the basis of the output desired to manufacture during the period. The variable and semi-variable expenses are to be estimated on the basis of indirect materials, indirect labour and indirect expenses required to manufacture the targeted output.

13.3.7 Ending Inventories Budget

The ending finished goods inventory budget is very important for the company because it can **provide a value** for each unit produced based on raw materials, direct labor and overhead. The ending finished goods inventory is the stock of products that are not yet sold, but are ready for sale. To accurately determine the value of these products, you need to develop a budget known as the ending finished goods inventory budget. The main purpose of the ending finished goods inventory budget is to provide the amount of the inventory asset that appears on the budgeted balance sheet. Once you know the amount of the inventory asset, you can then accurately determine the cash needed to invest in assets.

Calculating the finished goods inventory for a manufacturing company requires the use of simple mathematical formulas. It requires the company's inventory and production records to complete. In essence, your finished goods are the number of goods that you have at the beginning of the period, plus any added manufactured goods throughout the period, minus the manufacturing costs of any goods sold during that period.

The formula for calculating finished goods inventory is:

Beginning Finished Goods Inventory + Cost of Goods Manufactured - Cost of Goods Sold

13.3.8 Cost of Goods Sold Budget

The cost of goods sold budget is an important part of a company's operating budget. The Factory Overhead Cost Budget, Direct Labor Cost Budget, and Direct Material Purchases Budget are the initial point for creating the Cost of Goods Sold Budget or we can say COGS budget breaks various components of a company's cost of sales. The inventory left at the end of the year and the estimated beginning inventories are added to these data to find out the budgeted cost of the goods sold.

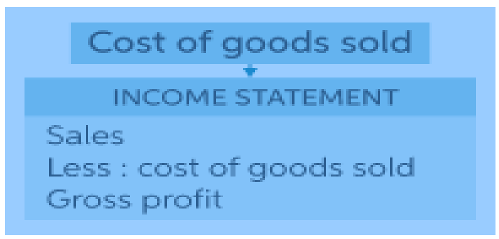

Figure 13.5 Cost of Goods Sold

The Cost of goods sold is the direct producing expense or cost of the production for the goods sold by a company. These expenses embrace the costs of raw material and labor but do not embrace indirect costs like that of using a salesperson. COGS only apply to those costs directly associated with manufacturing goods intended for sale. Inventory that is sold is included in the income statement under the COGS account. The merchandise that wasn't sold within the previous year is the beginning inventory of the next year. Then here we calculate the cost of goods sold for the year.

Steps to Create the Cost of Goods Sold Budget

An accountant follows these steps to make the cost of goods sold budget:

a) Enter the start work in process inventory balance (from the beginning balance sheet).

b) Add the budgeted direct materials, budgeted direct labor, and budgeted producing overhead employed in production.

c) Then after adding the above, deduct the budgeted ending work in process inventory balance to get the budgeted cost of goods manufactured (COGM).

d) Add the start finished merchandise inventory balance (from the beginning balance sheet).

e) Subtract the budgeted ending finished merchandise inventory balance.

Limitations of the Cost of Goods Sold Budget

COGS budget is very susceptible to alterations. It can easily be manipulated by accountants or managers wanting to cook the books. There are various ways by which these can be altered:

a) Allocation of higherproducing overhead costs than those incurred to the inventory.

b) Showing extra discounts.

c) Showing extra returns to suppliers.

d) Manipulating the inventory available at the end of an accounting period.

e) Over valuation of in-hand inventory.

When inventory is overvalued, COGS budget will be under-reported that, in turn, will cause over the actual gross profit margin, and then extra earnings will be shown.

13.3.9 Selling Expenses Budget

A selling expense budget is a plan that estimates the selling expenses that will occur in the period. A selling expenses are any costs related with marketing and selling a product to customers. These expenses usually include store displays, signs, advertising campaigns, and delivery costs to customers. The selling expense budget is usually based on the sales budget and the prior expense budgets in prior years. Management first creates the master budget and sales budget to set the overall company goals for the period.

The selling expense budget is then prepared by the vice president of marketing or a high level sales manager to list out and estimate the future selling expenses required to meet the sales goals of the company. In other words, if management sets a goal of increasing sales by 10 percent, the marketing department must estimate the amount of selling expenses that will be needed to increase sales to meet the goals. Most of the selling expenses are based on factors such as based on the percentage of sales as salesperson commissions, warranties based on historical returns, advertising expenses based on the discretion of the senior manager. The senior manager tries to justify each expense in the selling expense budget. The budget is reported and analyzed by the higher officials before making the recommendations and ultimately granting the approval of the budget.

13.3.10 Administrative Expenses Budget

The budget is an estimate of the office and administrative expenses expected to incur during the specified period. This budget normally has greater volume of fixed expenses rather than variable expenses. The share of variable expenses is minimum when compared with fixed expenses. The fixed expenses are salary to the office people & manager, rent of the office, insurance and so on. The variable and semi-variable expenses are telephone charges, postage & telegram charges and so on; these expenses are incurred with the volume of the transactions of the office administration.

13.3.11 Capital Expenditure Budget

A capital expenditure budget is a formal plan that states the amounts and timing of fixed asset purchases by an organization. This budget is part of the annual budget used by a firm, which is intended to organize activities for the upcoming year. Capital expenditures can involve a wide array of expenditures, including upgrades to existing assets, the construction of new facilities, and equipment required for new hires. In other words, it identifies the amount of cash a company will invest in projects and long.term assets. Although funds for expenditures may be identified and approved in total during the budget process, most companies have a separate process for approving funds for the specific items included in a capital expenditures budget. The process includes a financial evaluation to determine whether the company's return on investment targets are met and, once the targets are known to be met, a qualitative review by a top management team. Many companies include long.term assets, such as joint ventures, purchases of other companies, and purchases or leases of fixed assets, as well as new products, new markets, research and development, significant marketing programs, and information technology items in their capital expenditures budgets.

How to Construct a Capital Expenditure Budget?

The capital expenditure budget is typically arrived at through an iterative process, where the management team evaluates the rate of return on each proposed project, as well as legal and regulatory requirements and the impact of a project on the bottleneck operation of the business. The amount of fixed assets acquired will also vary based on the activity level projected in the rest of the budget, which in turn will be adjusted to match the expansion capabilities of the organization and the amount of cash flows that will be needed to fund growth.

Duration of a Capital Expenditure Budget

A capital expenditure budget may span a longer period than the annual budget. The reason is that some larger fixed asset acquisitions involve lengthy construction periods that can greatly exceed one year. In addition, the nature of the business may involve an ongoing series of major construction projects that could extend for up to a decade into the future. For example, a chip fabrication company competes by constructing successively more complex facilities, each requiring up to five years to complete.

13.3.12 Research and Development Budget

The R&D budget is based on an annual amount that the manager has decided to commit to develop new and improved products. The amount depends on the anticipated benefits based on previous efforts and success, desired growth rate, size of the division, risk and uncertainties, diversification, competition, market share, consumer tastes, financial resources, physical facilities, availability of raw materials, productivity, safety, reliability, price profitability, efficiency, productivity, employee number and capability, time constraints, product life cycle, stability of research program, obsolescence, and technological aspects.A budget provision is needed so engineering keeps current products from becoming out-of-date.

The R&D budget may be based on:

- **i.** Estimated cost of specific projects
- **ii.** A percentage of expected sales
- **iii.** A percentage of current year and/or prior year sales
- **iv.** A percentage of profit
- **v.** A percentage of operating income
- **vi.** A percentage of investment in capital assets
- **vii.** A percentage of cash flow
- **viii.** R&D per unit
- **ix.** R&D cost per hour equal to total R&D project costs divided by chargeable hours
- **x.** Product life cycle

The R&D budget should take into account the expected return on sales, return on investment (ROI), payback period, discounted payback period, net present value, and internal rate of return. A comparison should be made between the estimated ROI of a research project and its actual ROI. Variances should be computed and analyzed, with corrective action taken when warranted.

13.3.13 Cash Budget

Cash budget is nothing but an estimation of cash receipts and cash payments for specified period. It is prepared by the head of the accounts department i.e. the chief accounts officer.The utility of the cash budget is:

- **a)** To meet the revenue and capital expenditures with adequate funds.
- **b)** It should highlight the additional requirement cash whenever the need arises.
- **c)** Keeping of excessive funds available in the business firm won't fetch any return to the enterprise but this estimate of future cash needs and resources will guide the firm to plan for an effective investment out of the surplus funds estimated; enhances the wealth of the investors through proper investment planning out of the future funds available.

Cash budget can be prepared in three different ways:

1. Receipts and payments method
2. Adjusted profit and loss account
3. Balance Sheet Method

Cash receipts can be classified into various categories:

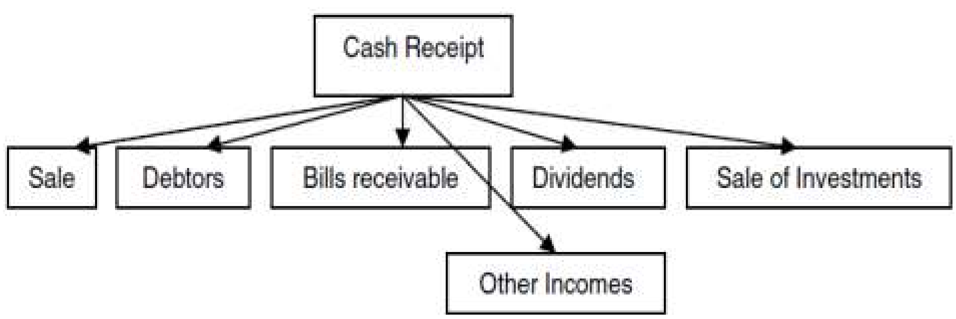

Figure 13.6 Classification of Cash Receipts

Cash Payments are as follows:

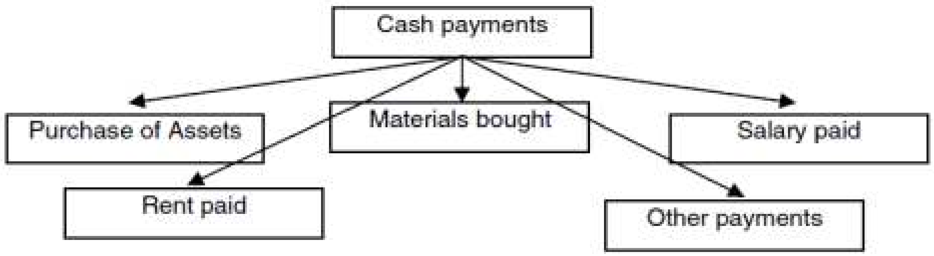

Figure 13.6 Classification of Cash Payments

13.4 SUMMARY

Budgeting is the process of stating, in quantitative terms, planned organizational activities for a given period of time. On functional basis, budget is classified as: production budget, material budget, labour budget, manufacturing overhead budget, selling overhead budget, cash budget and many more. On the basis of flexibility, budget is classified as fixed budget and flexible budget. On the basis of time, budget is classified as long-term budget, medium-term budget and short-term budget. Thus, the extent of budgeting activity varies from firm to firm. Budgets are classified into different ways from different points of view depending upon the type of organization for which it is prepared.

13.5 GLOSSARY

- **Production Budget:** It is a forecast of the production for the budget period. It may be expressed in units or standard hours.
- **Sales Budget:** A forecast of total sales expressed in terms of money and quantity.
- **Materials Budget:** It shows the detail of raw materials to be consumed in the process of production.
- **Labour Budget:** It shows the details of labour requirements in quantity, with estimated costs.
- **Manufacturing Overhead Budget:** It shows the estimated costs of indirect materials, indirect labour and indirect manufacturing expenses during the budget period.

13.6 LESSON END EXERCISE

1. Highlight the various types of budgets on the basis of its functionality.
2. Elucidate the process of production budget.
3. Discuss the steps to create cost of goods sold budget.
4. What are the factors that are to be considered in forecasting sales?
5. How do we compute direct material budget?

13.7 SUGGESTED READINGS

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BUDGETING AS A TOOL FOR MANAGEMENT CONTROL SYSTEM

UNIT-III **Lesson No. 14**

ZERO BASE BUDGETING

STRUCTURE

14.1 Introduction

The 'Zero-Base' refers to a 'nil-budget' as the starting point. It starts with a presumption that the budget for the next period is 'zero' until the demand for a function, process, or project is not justified for single penny. The assumption is that without such justification, no expenditure will be allowed. In effect, each manager or functional head is required to carry out cost-benefit analysis of each of the activities, etc. under his control and for which he is responsible.

The method of ZBB suggests that the business should not only make decision about the proposed new programmes but it should also, regularly, review the suitability of the existing programmes. This approach of preparing a budget is called incremental budgeting since the budget process is concerned mainly with the increases or changes in operations that are likely to occur during the budget period.

This method for the first time was used by the Department of Agriculture, U.S.A. in the 19th century. Other State Governments of the U.S.A. found this method helpful and so almost all the states took deep interest in the ZBB method. A number of states of America use this technique even today. The ICAI has brought out a research in the form of a monograph showing the application of the ZBB method that worries in tandem with the concerns for national environment and its requirements. In India, however, the ZBB approach has not been fully accepted and actualized.

"ZBB is a management tool, which provides a systematic method for evaluating all operations and programmes, current or new, allows for budget reductions and expansions in a rational manner and allows re-allocation of sources from low to high priority programmes."

- David Lieninger

ZBB is a planning, resource allocation and control tool. It, however, presupposes that:

a) There is an efficient budgeting system within the enterprise.

b) Managers can develop quantitative measures for use in performance evaluation.

c) Among the new suggestions and programmes, along with old ones are put to a strict scrutiny.

d) Funds are diverted from low-priority suggestions to high priority suggestions.

14.2 OBJECTIVES

After studying this unit, you will be able to:

- Discuss the concept of Zero based budgeting
- Identify the practices used for Zero based budgeting
- Study the relevance of Zero based budgeting in India

14.3 PROCEDURE OF ZERO BASE BUDGETING

The following are the steps involved in Zero Base Budgeting: -

1. **Determination of the objective**: This is an initial step for determining the objective to introduce ZBB. It may result into the decreased cost in personnel overheads or debunk the projects which do not fit in the business structure or which are not likely to help accomplish the business objectives.
2. **Degree at the ZBB is to be introduced:** It is not possible every time to evaluate every activity of the whole business. After studying the business structure, the management can decide whether ZBB is to be introduced in all areas of business activities or only in a few selected areas on the trial basis.
3. **Growth of Decision units**: Decision units submit their data as to which cost benefit analysis should be done in order to arrive at a decision that helps them decide to continue or abandon. It could be a functional department, a programme, a product-line or a sub-line. Here the decision unit sexist independent of all the other units so that when the cost analysis turns unfavourable that particular unit could be closed down.
4. **Growth of Decision packages**: Decision units are to be identified for preparing data relating to the proposals to be included in the budget, concerned manager analyzes the activities of his or her own decision units. His job is to consider possible different ways to fulfill objectives. The size of the business unit and the volume of goods it deals with determine the number of decision units and packages. The decision package has to contain all the information which helps the management in deciding whether the information is necessary for the business, what would be the estimated costs and benefits expected from it.
5. **Assessment and Grading of decision packages:** These packages invented and formulated are submitted to the next level of responsibility within the organization for ranking purposes. Ranking basically decides as to whether or not to include the proposals in the budget. The management ranks the different decision packages in the order from decreasing benefit or importance to the organization. Preliminary ranking is done by the unit manager himself and for the further review it is sent to the superior officers who consider overall objectives of the

organization.

6. **Allotment of money through Budgets:** It is the last step engaged in the ZBB process. According to the cost benefit analysis and availability of the funds management has ranks and thereby a cut-off point is established. Keeping in view reasonable standards, the approved designed packages are accepted and others are rejected. The funds are then allotted to different decision units and budgets relating to each unit are prepared.

14.4 DIFFERENCES BETWEEN TRADITIONAL BUDGETING AND ZERO BASE BUDGETING

The Following are the points of difference between Traditional and Zero Base Budgeting: -

1. In traditional Budgeting, the previous year's budget is taken as a base for the preparation of a budget. Whereas, each time the budget under zero-based budgeting is created, the activities are re-evaluated and thus started from scratch.
2. The emphasis of the traditional budgeting is on the previous expenditure level. On the contrary, zero-based budgeting focuses on forming a new economic proposal, whenever the budget is set.
3. Traditional Budgeting works on cost accounting principle, thereby, it is more accounting oriented. Whereas the zero-based budgeting is decision oriented.
4. In the traditional budgeting, justification of the line items and expenses are not at all required. On the other hand, in zero-based budgeting, proper justification is required, taking into account the cost and benefit.
5. In traditional budgeting, the top management takes decisions regarding any amount that will be spent on a particular product. In contrast, in zero-based budgeting, the decision regarding the spending a specific sum on a particular product is on the managers.

14.5 ADVANTAGES OF ZERO BASE BUDGETING

The Following are the advantages of Zero Base Budgeting:-

1. ZBB rejects the attitude of accepting the current position in support of an attitude of inquiring and testing each item of budget.

2. It helps improve financial planning and management information system through various techniques.
3. It is an educational process and can promote a management team of talented and skillful people who tend to promptly respond to changes in the business environment.
4. It facilities recognition of inefficient and unnecessary activities and avoid wasteful expenditure.
5. Cost behavior patterns are more closely examined.
6. Management has better elasticity in reallocating funds for optimum utilization of the funds.

14.6 DISADVANTAGES OF ZERO BASE BUDGETING

The Following are the disadvantages of Zero Base Budgeting:-

1. It is an expensive method as ZBB incurs a huge cost every in its preparation.
2. It also requires high volume of paper work; hence sometimes it becomes a tedious job.
3. In ZBB there is a danger of emphasizing short-term benefits at the expenses of long term ones.
4. This is not a new method for evaluating various alternatives, and cost-benefit analysis.
5. The psychological effects can also not be ignored. It holds out high hopes as a modern technique, claiming to raise the profitability and efficiency of the business.

14.7 HOW TO GET STARTED WITH ZERO-BASED BUDGETING

The Following are the advantages of Zero Base Budgeting:-

1. **Integrate ZBB with core FP&A.** ZBB should not be seen as an alternative to current planning and budgeting cycles, but as an auxiliary process carried out every couple of years to refocus spending on strategically important activities and initiatives.
2. **Focus ZBB initiatives for maximum returns.** Many companies limit their ZBB initiatives to SG&A and other areas of overhead where there are large amounts of indirect costs less well understood. This allows targeting

specific parts of the organization and gaining major benefits for a limited investment without overly disrupting customer-facing business functions. Others choose to limit their use of ZBB to new business initiatives and requests for additional funding while using other methods of budgeting for ongoing activities.

3. **Unify operational and financial data on a single platform.** The success of ZBB depends on managers having a deep understanding of and visibility into the operational drivers of costs. Providing such visibility means having granular details of cost (right down to an individual employee, a business trip, or a marketing campaign) and easy access to data around activity volumes, productivity, and resource consumption.

4. **Make modeling easy.** The ability to model the causal relationship between activity volumes and the resulting resource and headcount requirements is critically important. Managers need to make informed decisions about how changing activity volumes and different service levels impact costs.

5. **Re-use ZBB models for routine FP&A process.** If an organization uses an incremental approach to planning and budgeting based on the previous year's actuals, the ZBB model will be the first enterprise-wide model of causal relationships linking activities of different business functions. FP&A teams should adapt the model as needed to support the annual budgeting process and rolling re-forecasts, which will become more efficient and deliver greater insight. Repurposing models in this way means ZBB is no longer a standalone exercise, but an initial step in transforming enterprise planning and budgeting that could lead to fully integrated business planning.

14.8 BEST PRACTICES FOR ZERO-BASED BUDGETING

The Following are the advantages of Zero Base Budgeting: -

1. **Adopt a strategic approach:** ZBB is more than just slashing costs. It's a necessary step for freeing the resources and funds needed for growth initiatives. Working with the line of business leaders, you can identify overspending and reallocate those resources toward more strategic use.

2. **Select the right planning platform:** To reap the benefits of zero-based budgeting, modern planning and budgeting software is essential. Cloud-based planning solutions that use AI and machine learning can help

managers make data-driven decisions to recommend the best path forward. A planning and budgeting solution should not only be a blank canvas for modeling: it should also contain planning intelligence and purpose-built capabilities for predictive planning, driver-based budgeting, robust "what-if" scenario modeling, sand boxing, top-down and bottom-up budgeting, and approvals and work flows as best practices that are readily available.

3. **Embrace connected planning:** Disruption has become a constant, and plans are now made to be changed, refined, and adjusted continuously. Successful CFOs are partnering with sales, marketing, HR, and operations to make faster decisions using connected, accurate, and timely information. In this new world, connected enterprise planning is not just a best practice it is a necessity.

14.9 MODIFIED ZERO BASED BUDGETING

Service-level budgeting is a modified zero-base budget approach. This matches spending levels with services to be accomplished. Under zero-base, there is an attempt to document personnel and expense requirements that are readily accepted as necessary. Modified zero-base can evade this by developing a base that is higher than zero. The term service level budgeting is sometimes better account of this process.

To summarize, Zero-Based Budgeting is effectual cost alteration effort that successfully implement resource planning. Zero based budgeting is explained by theorists as 'budgeting from the ground up, as though the budget is being prepared for the first time with proposed expenditure coming under review'. (Horngren et al, 1996) Zero-based budgeting is a management process to budgeting, in which the budget for every activity begins with zero for each new budget period. An analysis of this practice in a non-profit setting is important because Zero-Based Budgeting is applied in local and government organizations where predominant costs are of a flexible nature (Drury, 2004). It differs from traditional budgeting processes through investigating all expenses for each new period, not just incremental expenditures in obvious areas. Zero-Based Budgeting forces managers to analyze all spending and requires justifying every expense item that should be kept. It facilitates companies to profoundly reshape their cost structures and increase competitiveness. Zero-Based Budgeting analyses which activity should be executed at what level and frequency and scrutinizes the way these could be better performed through streamlining, standardization, Outsourcing, off shoring or automation. The process is supportive to align resource allocations with strategic goals, though it can be time-consuming and challenging to measure the returns on some expenditure.

14.10 ZERO BASED BUDGETING IN INDIA

Recently Union Finance Minister Nirmala Sitharaman announced a proposal of zero budget farming, which she said is like "going back to basics." She said zero budget farming is already being practiced in some states of the country. Zero budget farming is a set of farming methods that involve zero credit for agriculture and no use of chemical fertilizers. Zero budget farming model promises to cut down farming expenditure drastically and ends dependence on loans. It also reduces dependence on purchased inputs as it encourages use of own seeds and locally available natural fertilizers. Farming is done in sync with the nature not through chemical fertilizers.

Zero Based Budget in India was initiated in the Department of Science and Technology in 1983. In 1986, the Indian government adopted ZBB as a technique for determining expenditure budget. At this point of time we have limited application of Zero Based Budget in India.

14.11 SUMMARY

The ZBB is a technique which helps in achieving the goals of an organization through better resource allocation. It is a system of helping managers at all levels to evaluate in detail the Cost-effectiveness of their operations and specific activities. It permits the executives to better establish their priorities and allocate scarce resources. Under this system, new expenditure proposals are to compete on the same footing with the ongoing expenditure based on their respective merits so as to claim a share of the available resources. In India ZBB was formally introduced in 1986 but so far it has failed to take off. It has been implemented in the true sense only in the department of space. For the rest of the ministries the success is negligible. However, the economic crisis through which India is passing makes it imperative that ZBB is implemented in true spirit. In fact the system has failed to take off due to administrative problems.

14.12 GLOSSARY

- **Decision Unit**: It is a distinct segment of an organisation for which budget is prepared. It is identified on the basis of functions, operations or activities of the organisation.

- **Decision package:** A document that identifies and describes facts about an activity from every possible angle.
- **Ranking:** The process of arranging activities in the order of their priority.

14.13 LESSON END EXERCISE

1. Discuss the concept of ZBB highlighting its aims and objectives.

2. Distinguish between ZBB and traditional budgeting.

3. List the various benefits and drawbacks of zero based budgeting.

14.14 SUGGESTED READINGS

- Austin Allan, Cheek Logan, **1979.** ***Zero Base Budgeting:*** A ***Deckion Package Manual,*** Amaclom: New York.
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BUDGETING AS A TOOL FOR MANAGEMENT CONTROL SYSTEM

UNIT-III **Lesson No. 15**

REVISION OF BUDGETS

STRUCTURE

15.1 INTRODUCTION

Across the landscape of financial planning and management, businesses often encounter fluctuations in their financial and operations variables. A key tool can come into play to help navigate these uncertainties and make better informed decisions the flexible budget. At its core, a flexible budget is a powerful financial planning tool that accommodates variations in activity levels or sales volume. The flexible budget is a budget that is flexible as per the needs of the hour. For example, if the company sees that it can sell off more of its products by expending more on advertising costs, a flexible budget would help execute that. That's why a flexible budget is very effective for companies who go through many changes during a particular period. It is much more complicated than the fixed budget too.

Thus, Flexible budgets are budget or financial plans that are prone to adjustment depending on changes in cost or revenue during an accounting period, which accounts for unpredictability. A company first prepares for fixed costs. Next, they prepare for fluctuating variable costs and periodically review costs to accommodate real-time adjustments in that accounting period. There are modifications to a flexible budget due to fluctuations in total revenue or other related activities. This results in a budget that is aligned closely with the actual cost. This method differs from the typical static budget that contains only fixed costs. The budgets are reviewed and modified based on your forecasted and actual revenue. A flexible budget uses the percentages of actual revenue for specific expected expenses. This result in endless modifications in the budgeted costs tied directly to the incurred revenue.

The Chartered Institute of Management Accountants, England, defines a flexible budget (also called sliding scale budget) as a budget which, by recognizing the difference in behaviour between fixed and variable costs in relation to fluctuations in output, turnover, or other variable factors such as number of employees, is designed to change appropriately with such fluctuations. Thus, a flexible budget gives different budgeted costs for different levels of activity.

Such a budget is prescribed in the following cases:

- **i.** Where the level of activity during the year varies from period to period, either due to the seasonal nature of the industry or to variation in demand.
- **ii.** Where the business is a new one and it is difficult to foresee the demand.
- **iii.** Where the undertaking is suffering from shortage of a factor of production such as materials, labour, plant capacity etc. The level of activity depends upon the availability of such a factor of production.
- **iv.** Where an industry is influenced by changes in fashion.
- **v.** Where there are general changes in sales.
- **vi.** Where the business units keep on introducing new products or make

changes in the design of its products frequently.

vii. Where the industries are engaged in make to order business like ship-building.

15.2 OBJECTIVES

After studying this unit, you will be able to:

- Study the outline of Flexible Budget
- Explain the points of difference between Fixed and Flexible budget
- Identify the components of Flexible Budget
- Discuss the preparation of Flexible and Cash Budget

15.3 DISTINCTION BETWEEN FIXED BUDGET AND FLEXIBLE BUDGET

Comparison	Fixed Budget	Flexible Budget
1. Meaning	A fixed budget is a budget that remains static irrespective of the activity level.	A flexible budget is a budget that changes as per the necessity of activity level.
2. What it's all about?	The fixed budget doesn't change as per the fluctuations of business.	Flexible budget changes as per the fluctuations of business;
3. Nature	A fixed budget is always static.	A flexible budget is very dynamic.
4. Simplicity	Pretty simple.	Quite complex.
5. Ease of preparation	It is easy to prepare a fixed budget.	It is quite tough to prepare a flexible budget since one needs to prepare for all situations.
6. Consequences	The dissonance between the actual level and the budgeted level is quite high since there is no similarity in activity level	The dissonance between the actual level and the budgeted level is quite low.
7. Comparison	Comparison is difficult since the activity levels are different at the actual level and budgeted level.	Comparison is quite easy since the activity levels are quite similar.
8. Rigidity	Pretty rigid, no fluctuation is taken into account.	Quite flexible, almost every fluctuation is taken into account.
9. How is it estimated?	A fixed budget is mostly estimated on assumptions and anticipations.	A flexible budget is prepared with realistic situations in mind.

Table 15.1 Difference between Fixed and Flexible Budget

15.4 COMPONENTS OF A FLEXIBLE BUDGET

A flexible budget comprises of several crucial components that collectively create a comprehensive financial picture. These components include:

1. **Variable costs**: Variable costs, also known as direct costs, vary directly with changes in production or sales. These costs include general materials, labor, and other expenses. In a flexible budget, variable costs adjust based on the actual level of activity, reflecting a more accurate representation of financial reality.
2. **Fixed costs**: Fixed costs remain constant regardless of production or sales fluctuations. These costs include rent, insurance, and salaries. In a flexible budget, fixed costs usually remain unchanged, helping in understanding the financial stability of a business even in changing circumstances.
3. **Semi-variable costs**: Also called mixed costs, semi-variable costs combine elements of both fixed and variable costs. They consist of a fixed portion that remains consistent and a variable portion that change with activity levels. A flexible budget dissects semi-variable costs to reflect their changing nature, enabling better cost analysis.
4. **Activity levels**: The foundation of a flexible budget understands the level of activity, such as sales volumes. By accurately tracking actual activity, businesses can gauge their financial performance against the budget's flexible parameters.

15.5 UTILITY (OR IMPORTANCE) OF FLEXIBLE BUDGET

Flexible budget is important because of the following reasons:

1. Flexible budget provides a logical comparison of budgeted allowances with the actual cost i.e., a comparison with like basis.
2. Flexible budget reckons operational realities and streamlines control function and profit planning. It gives balanced perspective on comparison. When flexible budget is prepared, actual cost at actual activity is compared with budgeted cost at actual activity i.e., two things to a like basis.
3. Flexible budget recognizes concept of variability and provides logical comparison of expenditure with actual expenditure as a means of control.

4. With flexible budget, it is possible to establish budgeted cost for any range of activity.

5. A flexible budget is very useful for purposes of budgetary control because it corresponds with changes in the level of activity.

6. It is helpful in assessing the performance of departmental heads because their performance can be judged in relation to the level of activity attained by the organization.

7. Cost ascertainment at different levels of activity is possible because a flexible budget is prepared for various levels of activity.

8. It is helpful in price fixation and sending quotations.

9. To conclude, a flexible budget is more useful, elastic and practical.

15.6 TYPES OF FLEXIBLE BUDGETS

A company can produce several variations of a flexible budget that range from basic to sophisticated depending on the company's needs. The following are the three types of flexible budgets most commonly used:

1. **Basic flexible budget**: This type of budget shows a company's expenses directly related to its revenue. You may build a percentage into the basic flexible model, which you multiply by actual revenues to determine the expenses at a specified revenue level. You can use cost per unit rather than a percentage of sales if it's the cost of goods sold (COGS).

2. **Intermediate flexible budget:** A flexible intermediate budget accounts for expenses that go beyond a company's revenue. Typically, this budget includes costs that vary based on other activity measures. For example, a business's insurance policy costs may vary based on the company's number of employees and may increase if the company hires new employees.

3. **Advanced flexible budget**: This type of budget considers the variation and ranges of expenses in certain categories of a company's budget. An advanced flexible budget also changes based on the actual costs for each category. The expenses in your advanced flexible budget may only vary within a certain revenue or activity level range and change beyond if it goes to such a level.

15.7 PREPARATION OF FLEXIBLE BUDGET

Following are the steps for the preparation of flexible budget:

1. **Identify variable and fixed costs:** The first step in creating a flexible budget is determining fixed costs and variable costs. Fixed costs don't change during business operations and typically include rent and monthly marketing costs. Once you determine fixed costs and variable ones, separate them on your budget sheet.
2. **Divide the budget:** Once you identify the variable costs you may incur, determine the variable cost as a percentage of the activity level or per-unit basis. You can do this by dividing the budget you plan on spending on variable costs by your estimated production. The results provide a starting budget for cost per unit.
3. **Create your budget:** Create your budget with set fixed costs that don't change. Depict the variable costs as percentages that you can adjust based on actual revenue. Plotting these costs for the budgeted activity level gives you a flexible budget.
4. **Update the budget:** Once an accounting period is over, update your budget with the actual revenue and activity measurements. You calculate variances based on the revised budget and actual performance. It adjusts the variable costs to reflect accurate data of the budgeted costs from the accounting period.
5. **Input and compare:** Input the final flexible budget from an accounting period into your accounting software to compare it to the expenses you initially anticipated. You can analyze the data and identify areas that need improvement. A flexible budget can also help in future budget forecasting.

15.8 ADVANTAGES OF FLEXIBLE BUDGETING

Flexible budgeting offers numerous advantages to businesses. Some of the key advantages of flexible budgeting include:

1. **An accurate performance assessment**: Flexible budgeting allows for adjustments based on actual activity levels, providing a more accurate comparison between forecasted vs actual performance. This accuracy enhances the ability to evaluate financial performance and identify areas for improvement.

2. **More effective decision-making**: With a flexible budget, financial decisions can be made with real-time data that considers the current activity levels. This empowers financial managers to make informed choices, allocate resources efficiently, and adapt strategies as market conditions change.

3. **Improved resource allocatio**n: Fluctuations in activity levels require adjustments in resource allocation. Flexible budgeting enables businesses to allocate resources more effectively, ensuring that they are aligned with current operational needs.

4. **Enhanced cost control**: By classifying costs as fixed, variable, or semi-variable, a flexible budget facilitates better cost control. Businesses can identify opportunities for cost reduction and optimize spending based on actual production and sales levels.

5. **Strategic alignment**: Flexible budgeting supports strategic planning by providing adaptable financial projections. Businesses can align their strategic goals with realistic financial targets, ensuring that their strategies remain achievable in dynamic market environments.

These advantages collectively empower a business to respond swiftly to changes, optimize resource utilization, and make well-informed financial decisions. By accommodating changes in activity levels, flexible budgeting enhances financial management practices and supports more accurate forecasting and planning.

15.9 DISADVANTAGES OF FLEXIBLE BUDGETING

As with most financial metrics, there can be some limitations in implementing. Following are the disadvantages of flexible budgeting:

1. **Complexity and implementation costs**: Creating and managing flexible budgets can be more complex and time-consuming than static budgets. The process involves gathering data on different activity levels, determining variable costs, and adjusting projections accordingly. This complexity can lead to higher implementation costs and a greater need for specialized financial expertise.

2. **Challenges with data accuracy**: Flexible budgeting relies on accurate data related to varying activity levels and their corresponding costs. Inaccurate data input can lead to distorted budget projections and

inaccurate performance evaluations, undermining the effectiveness of the flexible budget.

3. **Lack of precision**: While flexible budgets offer adaptability, they may not always provide the level of precision required for certain decision-making scenarios. Variations in activity levels can result in broader ranges of projected outcomes, making it challenging to predict exact financial results

4. **Time and resource intensive**: Maintaining and updating flexible budgets can demand significant time and resources. Regular adjustments and revisions are necessary to ensure that the budget accurately reflects changing activity levels and market conditions.

5. **Tendency for misuse or overuse**: In some cases, flexible budgets might be overly adjusted, leading to frequent changes that hinder stability and continuity in financial planning. Alternatively, if not adjusted appropriately, the budget might become detached from reality, reducing its effectiveness as a decision-making tool.

15.10 CASH BUDGET

Cash Budget refers to the estimation of cash inflows and outflows made by the management of the business entity over a given period where such estimations are made to evaluate whether the business has adequate cash & cash equivalents to meet its operating needs in the near future.

How to prepare a cash budget for your business?

Preparing a cash budget requires looking into the future. Following are the steps for the preparation of cash budget:

1. **Create a cash budget template:** The best place to make a cash budget is in Microsoft Excel. A powerful tool for small business accounting, Excel gives you the reins to customize your cash budget.

2. **Determine the time frame:** Think about how far out you would like to project your company's cash flow. A cash budget's time horizon shouldn't exceed one year; it's unlikely you'll be able to make a realistic projection that far in the future. In this planning step, consider whether you would like to estimate your cash inflows and outflows on a monthly or quarterly basis. You should only prepare a quarterly cash budget when your business has hoarded enough cash to cover expenses for the full

quarter.

3. **Identify a target cash balance:** Businesses should have an emergency cash fund if times get tough. Safeguard at least three months expenses in cash, and promise yourself not to spend it unless you are in dire circumstances.

4. **Enter your company's current cash balance:** Your business's current cash balance might be the only certain number in the entire budget. Sole proprietors with no separate business bank account might not have a starting balance. Enter the amount you have set aside to fund future business expenses.

5. **Prepare and analyze your business's cash flow statement:** Open a month-by-month cash flow statement in your accounting software, and examine how your business spends and collects money. The cash flow statement should also be the basis for all the categories on the cash budget.

6. **Project your company's cash flow:** Forecast your company's cash flow by entering the business's estimated cash collections and payments. Start by estimating your company's estimated cash receipts, also called cash inflows. Collections on accounts receivable, cash sales, and income interest are the most common cash inflows.

   Next, estimate cash payments, or cash outflows. Consider operating expenses, such as rent and utilities, inventory purchases, and looming debt and tax payments. Manufacturers also incorporate expected raw material purchases outlined in their production budgets.

15.11 METHODS OF PREPARING CASH BUDGET

There are three methods of preparing a cash budget. They are briefly explained below:

1. **Receipts and Payments Method:** Under this method, cash budget is prepared in columnar basis. There are two parts. First part is receipts and second part is payments. The total receipts are added with opening balance of cash and deducted the payments to get closing balance of cash. If receipts are more than payments, there is a surplus of cash at the end of the month and vice versa.

2. **Adjusted Profit and Loss Method**: This method is also called the cash

flow statement. This type of budget is prepared for long period. It gives more details of incomes and expenses in connection with long term planning. The profit is considered to be equivalent to cash. Even though, cash receipts and payments are not into consideration but considers only non-cash transactions to prepare the cash budget under this method. The profit is adjusted by adding back depreciation, provisions, stock, work in progress, capital receipts, decrease in debtors, increase in creditors and by deducting dividends, capital payments, increase in debtors, increase in stock and decrease in creditors. The adjusted profit is the closing balance of cash.

The following information is necessary to prepare the cash budget under adjusted profit and loss method:

- **i.** Expected opening balance.
- **ii.** Net profit for the period.
- **iii.** Changes in current assets and current liabilities.
- **iv.** Capital receipts and capital expenditure.
- **v.** Payment of dividend.

3. **Balance Sheet Method**: This method is very similar to adjusted profit and loss method. Under this method, all the items of balance sheet are recorded in respective sides except cash. Then, the balance sheet is balanced. If the liabilities side is heavier than assets side, the balancing figure is cash at bank. Likewise, if the assets side is heavier than liabilities side, the balancing figure is overdraft.

15.12 SUMMARY

Flexible budget is suitable for businesses with variable or unpredictable expenses and those that need to adjust quickly to changes in the business environment in order to take advantage of the windows of opportunity. By understanding the advantages and disadvantages of a flexible budget, businesses can make an informed decision about which budgeting approach is best for their needs. Flexible budgeting is an adaptable budgeting method that enables businesses to modify expense constraints in real-time according to changes in costs, production, sales, or other factors. A company will use a cash budget to determine whether it has sufficient cash to continue operating over the given time frame. A cash budget will also provide a company with insight into its cash needs and any surpluses, which help it determine if the business is using cash effectively.

15.13 GLOSSARY

- **Flexible budget:** A flexible budget is a budget that changes as per the necessity of activity level.
- **Fixed Budget:** A fixed budget is a budget that remains static irrespective of the activity level.
- **Cash Budget:** It refers to the estimation of cash inflows and outflows made by the management of the business entity over a given period where such estimations are made to evaluate whether the business has adequate cash & cash equivalents to meet its operating needs in the near future.
- **Variable Costs:** It is a cost which varies directly with changes in production or sales.

15.14 LESSON END EXERCISE

1. Explain the utility of Flexible budget in today's scenario.

2. Highlight the points of difference between Fixed and Flexible Budget.

3. Discuss the steps for the preparation of Flexible and Cash budget.

4. What are the various methods of preparing Cash Budget?

15.15 SUGGESTED READINGS

- *Management Accounting* Principles and Practice: *Shashi K. Gupta*, R.K. Sharma. (5th-Sem. BBA, M.G.)
- RK Sharma & *Shashi K. Gupta* - *Management Accounting*, Kalyani Publishers, Ludhiana.

ALTERNATE CHOICE DECISIONS

UNIT-IV **Lesson No. 16**

DIFFERENTIAL COST ANALYSIS

STRUCTURE

16.1 INTRODUCTION

Cost accounting has long been widely used in industry to provide a foundation for financial reporting and as a means of cost control. More recently, however, the liveliest management interest in this field has been focused on its use in decision making, as in determining whether to add or drop a product, expand or contract an operation, or make or buy a component. For the most part such decisions require the use of differential cost analysis, also known as marginal or incremental cost analysis.

Historically, management has utilized the data derived from costing systems to measure transactions that have already occurred, for purposes ranging from a mere compilation of costs attributable to ending inventories to highly sophisticated analyses used in controlling expenditures, gauging operating performance, and planning future activities and undertakings. Each of these uses has its own requirements, and it may be impractical or even impossible to accumulate under a single reporting system all of the various arrangements of information necessary for solving every question posed for solution. One system may be quite satisfactory for valuing inventory for financial statement purposes and another for yielding information on a product line basis; however, neither system may be designed to indicate differences from predetermined standards. Management must decide, therefore, which uses have priority and which should determine the reporting system or systems to be followed. If the information generated by the existing system, when properly analyzed and interpreted, is not sufficient to aid in formulating those decisions vital to maximizing profits, the system must be modified. It may, indeed, be necessary to maintain parallel systems. The decision to accept or reject business at any given price level ultimately rests on an analysis of differential costs, whereby the profitability of a contemplated management decision may be determined by matching the increment or decrement in estimated future costs with changes in volume or activity. The system most readily adaptable to such analysis is one that relates prime costs (direct materials and labor) plus variable overhead to units produced, thus yielding gross profit ratios before allocation of fixed overhead.

16.2 OBJECTIVES

After studying this unit, you will be able to:

- Study the concept of differential costing.
- Recognize the features and usage of differential costing.
- Understand the difference between Marginal and Differential costing.
- Identify the practical applications of differential costing.

16.3 DIFFERENTIAL COST ANALYSIS : BASICS

Differential cost is the change in the costs which may take place due to increase or decrease in output, change in sales volume, alternate method of production, make or buy decisions, change in product mix etc. So, differential cost is the result of an alternative course of action. For example, difference in costs may arise because of replacement of labour by machinery and difference in costs of two alternative courses of action will be the differential cost .If change in cost occurs due to change in level of activity, differential cost is referred to as incremental cost in case of increase in output and decrement cost in case of decrease in output. In differential cost analysis costs are calculated on the basis of absorption or total costing technique, but in marginal costing technique, costs are calculated on the basis of variable costs only and fixed costs are not taken. But if the alternate course of action does not involve any extra fixed costs change in variable costs will become differential costs and there will be no difference between marginal costs and differential costs. Differential cost is the change in cost which may result from the adoption of an alternate course of action or change in the level of activity. Change in cost may take place due to change in fixed costs and variable costs, so differential cost is the aggregate of changes infixed costs and variable costs which take place due to the adoption of an alternate course of action or change in the level of output.

According to the Institute of Cost and Management Accountant, London, differential cost may be defined **as "the increase or decrease in total cost or the change in specific elements of cost that result from any variation in operations".**

In the words of Blocker and Weltmer, "differential costs, also frequently described as marginal cost and incremental costs, are the increase or decrease in total costs that result from producing and distributing additional or fewer units of a product or from a change in method of production or distribution."

Differential Cost Formula

Differential Cost = Total Cost of Alternate 1- Total Cost of Alternate 2

Differential Cost Example

ABC Firm is a telecommunications company that primarily markets itself through newspaper advertisements and the company website. However, a newly appointed marketing director proposes that the corporation focuses on television commercials and social media marketing to reach a larger client base. Every month, the telecom operator spends Rs. 400 on newspaper ads and Rs. 100 on website maintenance. The marketing director anticipates that the company will spend about Rs. 1,000 each month on television advertisements. In addition, the company will need to recruit a millennial at Rs. 250 a week to manage its social media marketing efforts. If the telecom operator uses the new advertising strategies, they will incur advertising costs of Rs. 2,000 per month. In this scenario, the differential in cost is V1,500 (Rs. 2,000 – Rs. 500).

16.4 CHARACTERISTICS OF DIFFERENTIAL COST

The following are the essential characteristics of differential costs:

1. Differential cost analysis is not made within the accounting records rather it is made outside the accounting records. Differential costs may, however, be incorporated in the flexible budgets because they budget costs at various levels of activity.
2. Total differential costs are considered in differential cost analysis. Cost per unit is not taken into consideration.
3. Total differential revenues are compared with total differential costs before advocating an alternate course of action. A change in course of action is recommended only if differential revenues exceed differential costs.
4. The items of cost which do not change for the alternatives under consideration are ignored, only the difference in items of costs are considered because differential costs analysis is concerned with changes in costs.
5. The changes in costs are measured from a common base point which may be a present course of action or present level of production.
6. Differential cost analysis is related to the future course of action or future level of output, so it deals with future costs. Historical costs or standard cots may be used but they should be suitably adjusted to future conditions.
7. For making a choice among the various alternatives, the alternative which gives the maximum difference between the incremental revenue and incremental cost is recommended to be adopted.

16.5 APPLICATIONS OF INCREMENTAL/DIFFERENTIAL COST TECHNIQUES IN MANAGERIAL DECISIONS

The areas in which the above techniques of cost analysis can be used for making managerial decisions are:

1. Whether to process a product further or not.
2. Dropping or adding a product line.
3. Making the best use of the investment made.
4. Acceptance of an additional order from a special customer at lowers than existing price.

5. Opening of new sales territory and branch.
6. Make or Buy decisions.
7. Submitting tenders.
8. Lease or buy decisions.
9. Equipment replacement decision

16.6 DIFFERENCE BETWEEN MARGINAL COSTING AND DIFFERENTIAL COSTING ANALYSIS

Differential costs are often confused with marginal costs; so it is better to compare the two to remove the confusion. The points of similarity and difference between the two are summarized as follows:

BASIS	MARGINAL COSTING	DIFFERENTIAL COSTING
Meaning	The marginal costing is the total of all variable costs. It is the additional cost due to the production of an extra unit	It is a technique to assess an increase or decrease in the total cost. And decision-making for selection of the alternative course of action
Fixed Cost	Excludes fixed cost	Includes relevant fixed cost
Scope	It has a narrow scope	It has a broader scope
Contribution	It follows the contribution approach for cost calculation	Cost calculation is not based on the contribution approach.
Accounting System	It is an integral part of the accounting statements	It is an ad-hoc statement
Purpose	General purpose statements	Special purpose statements
Criteria of Decision-making	Evaluation of contribution and its ratios	Analysis of increase/decrease in cost and revenue
Additional Units	It incorporates any number of additional units	It comprises only fixed additional units

Table 16.1 Difference Between Marginal Costing and Differential Costing

Similarities between Marginal and Differential Costing

Both the cost analysis techniques are similar in following ways:

1. **Similar Results**: The results generated by both marginal and differential costing techniques are uniform.
2. **Cost Analysis Techniques**: Both techniques are targeted towards conducting cost analysis for the units.
3. **Valuable Information**: The information collected, processed and analyzed in both techniques are valuable for the units.

4. **Decision-Making**: Both analyses are helpful in taking crucial decisions regarding the business.

16.7 USES OF DIFFERENTIAL COST ANALYSIS

Differential costing is a decision-making technique in management accounting, as stated above. It is helpful for organizations in the following decision areas:

1. **Production Decision**: The differential cost is compared with incremental revenues. The comparison is done at various output levels to assess profitability.

   One must increase output until the differential cost is less than incremental revenue. It becomes less profitable when incremental revenue becomes less/equal to differential cost.

2. **Order Management**: This technique helps units in their order management. In other words, differential costing enables decision-making regarding order acceptance or rejection. It involves decisions like accepting or rejecting orders below the current selling price.

3. **Make or Buy Decision**: One of the vital decisions for a manufacturing unit is the Make or Buy decision. They have to decide whether to acquire resources from internal or external sources. By performing differential analysis, we can evaluate profitability from both sources.

4. **Plant Capacity Decisions:** Differential costing facilitates decision-making regarding plant capacity. These decisions include adding a new product line or increasing the productivity level.

5. **Further Process Decision**: This technique helps solve problems about sales of semi-finished products.

6. **Pricing Decisions:** Pricing is a crucial decision taken by every undertaking. Differential costing helps make these decisions by evaluating cost and revenue.

7. **Operations vs Shut-down Decisions**: There are times when companies become non-profitable due to several reasons. They can perform differential costing to ascertain the unit's continuity/shutdown.

8. **Change in product mix:** Companies keep on changing their product mix as per user requirements. They can calculate the differential cost and find the most profitable product mix.

16.8 PROCESS OF DIFFERENTIAL COST ANALYSIS

One can follow the steps mentioned below to perform differential cost analysis:

1. Calculate differential cost by comparing the total cost of available alternatives.
2. Computation of difference in revenue in the manner stated above.
3. Find out the net gain/loss resulting from the differential cost and revenue variance.

16.9 PRACTICAL APPLICATIONS OF DIFFERENTIAL COST ANALYSIS

Differential cost analysis may be used for problems where capital investment is involved and also for those where which does not involve capital investments.

Some of the problems where it may be applied are as follows:

a) Determination of the most profitable levels of production and price

b) Acceptance of special orders – offer at a lower price or offering a quotation at lower selling price in order to increase the capacity.

c) Sell a product as it is or after further processing.

d) Determination of right price at which materials may be purchased

e) Decisions regarding alternative capital investment and plant replacement

f) Decisions such as changing the product mix, method of production, make or buy, adding new product, etc.

16.10 FORMAT OF DIFFERENTIAL COSTING

A Statement of Differential Cost and Revenue is prepared to perform differential costing:

Statement of Differential Cost and Revenue

Particulars	Alternate 1	Alternate 2	Differential Cost
Sales	xxxxx	xxxxx	xxxxx
Costs:			
Materials			
Labour			
Fixed Overhead			
Total Costs	xxxxxx	xxxxxx	xxxxxx

Figure 16.1 Format of Differential Costing

16.11 SUMMARY

Differential cost includes fixed and semi-variable expenses. It is the difference between the total costs of the two alternatives. Therefore, its analysis focuses on cash flows. All in all, managers often get into situations, where they have to choose from alternatives. Differential costs are the increase or decrease in total costs that result from producing additional or fewer units or from the adoption of an alternative course of action. Differential Costing is helpful in a comparative evaluation of the substitutes available. It is a technique of decision-making based on the differences in total costs. One has to find net gain/loss by differential cost and revenue. However, the decision to accept or reject the alternative depends on the net gain/loss.Users leverage the costs to evaluate options to make strategic decisions positively impacting the company. Hence, no accounting entry is needed for this cost as no actual transactions are undertaken, and this is the only evaluation of alternatives.

16.12 GLOSSARY

- **Differential cost**: It is the change in cost which may result from the adoption of an alternate course of action or change in the level of activity.
- **Marginal costing:** It is the additional cost due to the production of an extra unit.
- **Valuable Information**: The information collected, processed and analyzed in both techniques are valuable for the units.

16.13 LESSON END EXERCISE

1. Explain the concept of differential costing.
2. How marginal costing is different from differential costing?
3. List some of the practical applications of differential costing.
4. Discuss briefly the steps involved to perform differential cost analysis

16.14 SUGGESTED READINGS

- Lal, J. *Accounting for Management*. Himalaya Publishing House, New Delhi.

ALTERNATE CHOICE DECISIONS

UNIT-IV **Lesson No. 17**

TYPES OF CHOICE DECISIONS

STRUCTURE

17.1 INTRODUCTION

Differential analysis decisions, referred to as alternative choices decisions, cover situations with two or more alternative courses of action from which the manager (decision maker) must select the best alternative. A decision involving more than two alternatives is called a multiple-alternative choice decision. Some examples of alternative choice decisions are: make or buy, own or lease, retain or replace, repair or renovate, now or later, change versus status quo, slower or faster, export versus local sales, shut down or continue, expand or contract, change the product-mix, take or refuse orders, place special orders, select sale territories, replace present equipment with new machinery, sell at split-up point or process further, etc.

17.2 OBJECTIVES

After studying this unit, you should be able to:

- Identify the relevant cost for decision making
- Study the concept of Make or Buy Decision
- Understand the factors affecting the Make or Buy Decision
- Discuss the process of Make or Buy Decision

17.3 RELEVANT COSTS FOR DECISION MAKING

With different objectives the different costs concept is always there. It is pertinent to use the word relevant while providing the information about costs. When the costs are not changing with the different alternatives and remain fixed in nature then they become irrelevant or sunk costs. When management wants to select any of the alternatives available before them and take decision then the relevant costs become very important.

17.3.1 Concept of Relevant Costs

Relevant cost is a cost of decision. It is called as decision cost, as it is always relevant with the selection of one out of different alternatives. If decision is being taken and any cost is increased because of the change in decision, that particular cost becomes relevant cost. Relevant cost is always for future and not for the analysis of the past decisions. These costs are 'Future Costs' and they differ to different alternatives. We focus on the future whether it may be 10 seconds after or it may be 10 years later. Relevant costs are also known as differential costs. Relevant costs differ among the different alternatives. For example, if an engineering graduate wants to start his own work shop and he has a choice to complete his post-graduation. Relevant costs to continue his studies are fees and books. Irrelevant costs are clothes and his residential arrangements, which will incur under both the circumstances.

17.3.2 Concept of Differential Costs

Differential cost is the difference between the costs of alternatives or differences in total cost between the two alternatives available. It is also known as net relevant cost. Differential cost is not calculated per unit. It is calculated as total cost and then the difference is being calculated between the two levels of production or is being calculated between the two alternatives. Both variable costs and fixed costs may be differential cost when there is a change in both these costs in response to alternative course of action. When a decision does not affect either the variable or fixed costs then there are no differential costs. It is a technique of costing and not a method. Only relevant costs of the option are being considered. It is normally calculated on sales basis, which gives revenue. Decision cannot be taken only on the basis of differential cost analysis as other factors like government policies, social and financial causes, investment and the behaviour of the workers are also the influential part of the decision-making process. Conditions and costs of different alternatives always differ, so the differential costs once calculated cannot be used without adjustments for the other decisions. As differential costs are relevant costs for future, so irrelevant costs should be known. The costs which do not change as a result of decision are irrelevant costs. Fixed costs are irrelevant costs as they do not change if production is expanded up to certain level.

17.4 TYPES OF CHOICE DECISIONS

The need for a decision arises in business because a manager is faced with a problem and alternative courses of action are available. A manager have to take different decisions like make or buy, add or drop product decisions, sell or further process decisions, continue or shut down, etc. to make the maximum profit. In deciding which option to choose he will need all the information which is relevant to his decision; and he must have some criterion on the basis of which he can choose the best alternative. Some of the factors affecting the decision may not be expressed in monetary value. Hence, the manager will have to make qualitativejudgments, e.g. in deciding which of two personnel should be promoted to a managerial position. A 'quantitative' decision, on the other hand, is possible when the various factors, and relationships between them, are measurable.

17.5 MAKE OR BUY DECISIONS

In the key phrase, '*Make*' signifies carrying out production within the firm. Whereas, '*Buy*' refers to outsourcing the complete products or its components.

However, to arrive at a decision, firms conduct detailed evaluations referred to as ***Make or Buy Analysis.*** *It is qualitative in nature and primarily based on the cost and benefits attached to it.*

The firms can decide among three possible options:

- Outsource the complete product from the supplier.
- Manufacture the finished product and all its components internally.
- Manufacture some parts internally, and outsource the remaining parts. Subsequently, assemble all the components and make the final product.

These decisions are focused towards customer demand satisfaction. This is because firms aspire to gain profitability by satisfying the target customer's demand. For this purpose, they either produce the product/service internally or procure it from external parties. Almost all firms, whether big or small, face this dilemma at least once. But, there is no standard practice for all business concerns. This is because all the products and requirements differ among businesses.

Thus, make-or-buy decision is the act of making a strategic choice between producing an item internally (in-house) or buying it externally (from an outside supplier). The buy side of the decision also is referred to as outsourcing. Make-or-buy decisions usually arise when a firm that has developed a product or part or significantly modified a product or part is having trouble with current suppliers, or has diminishing capacity or changing demand.

Make-or-buy analysis is conducted at the strategic and operational level. Obviously, the strategic level is the more long-range of the two. Variables considered at the strategic level include analysis of the future, as well as the current environment. Issues like government regulation, competing firms, and market trends all have a strategic impact on the make-or-buy decision. Of course, firms should make items that reinforce or are in-line with their core competencies. These are areas in which the firm is strongest and which give the firm a competitive advantage.

The two most important factors to consider in a make-or-buy decision are cost and the availability of production capacity. Cost considerations should include all relevant costs and be long-term in nature. Obviously, the buying firm will compare production and purchase costs.

Elements of the "make" analysis include:

- Incremental inventory-carrying costs
- Direct labor costs
- Incremental factory overhead costs
- Delivered purchased material costs
- Incremental managerial costs
- Any follow-on costs stemming from quality and related problems
- Incremental purchasing costs
- Incremental capital costs

Cost considerations for the "buy" analysis include:

- Purchase price of the part
- Transportation costs
- Receiving and inspection costs
- Incremental purchasing costs
- Any follow-on costs related to quality or service

It should be noted that six of the costs to consider are incremental. By definition, incremental costs would not be incurred if the part were purchased from an outside source. If a firm does not currently have the capacity to make the part, incremental costs will include variable costs plus the full portion of fixed overhead allocable to the part's manufacture. If the firm has excess capacity that can be used to produce the part in question, only the variable overhead caused by production of the parts are considered incremental. That is, fixed costs, under conditions of sufficient idle capacity, are not incremental and should not be considered as part of the cost to make the part.

17.5.1 Example of Make or Buy Decision

Suppose Z ltd., a bicycle manufacturing firm, is planning to launch a sports bicycle. Top-level management is stuck in a dilemma to make this cycle in-house or subcontract it.

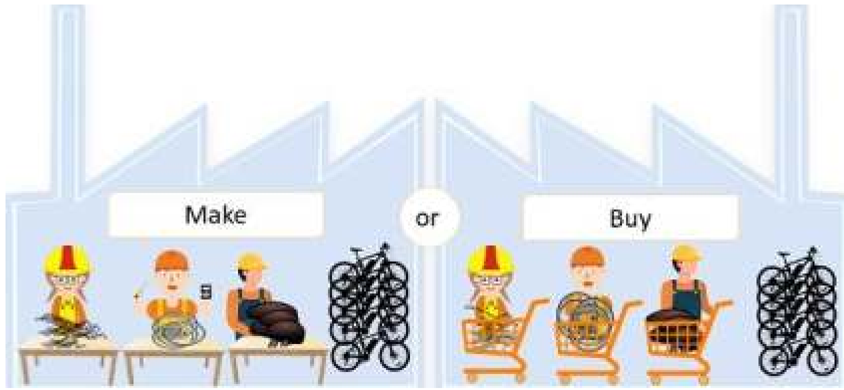

Figure 17.1Make or Buy Decision

Now, let's look at the cost facet of both alternatives.

Alternative 1: Z ltd. can use the existing machinery for production with some additional raw materials. They can complete the overall production of **10** bicycles for **$7000/-**.

Alternative 2: They can also purchase bicycle parts from external suppliers (industry experts). After assembling all the parts, the total cost of **10** bicycles is **$7400/-**.

Decision: Z ltd. decided to **produce** the sports bicycle in-house. The decision is based on the fact that the total cost of production is less than subcontracting.

17.5.2 Factors Affecting the Make or Buy Decision

In order to make a wise decision, firms need to examine several factors that affect decision-making. The most vital among these are *Profit*, *Time* and *Accessibility*.Further, these factors are grouped under two broad categories given below:

1. **Costing Factors:** The following are the various costing factors:
   a) **Cost:** The cost incurred in purchasing or manufacturing the product is the first and essential factor in the decision process.
   b) **Purchase Price:** It specifically refers to the price paid by the firm to purchase the product or component. It plays a significant role in the decision process as it is one of the **bases for comparison**.
   c) **Storage Cost:** It refers to the cost incurred on storing the purchased products or components.

2. **Non-costing Factors:** The following are the various non-costing factors:

   a) **Current Capacity:** Another vital factor is the firm's existing capacity. The manufacturer must analyze whether the existing capacity **satisfies** the demand or not.

   b) **Finances:** If the firm plans to subcontract the production, it must have the required finances to **pay off** the suppliers.

   c) **Availability:** Here, manufacturers concise the availability of resources with the quantity required.

   d) **Expertise:** Before manufacturing products internally, firms must check the skills and expertise required for production.

   e) **Taxation:** It is also an essential factor in the decision-making process. This is because the rate of taxation varies across products and regions.

Besides factors, firms must review the impact of the decision considering the following constraints:

- Production Schedule
- Total Cost
- Product Quality

17.5.3 Make or Buy Decision Formula

Cost to Buy (CTB) = Volume × per Unit Cost When Buying

Cost to Make (CTM) = Volume × per Unit Direct Cost + Fixed Cost

17.5.4 When to Make?

Firms choose to make the product/components internally when it is more economical compared to outsourcing. Besides, it is preferred when firms want to achieve **complete control** over the process.

1. **Reason to Make:**The following reasons divert manufacturers toward Make decisions:

   a) Less cost

   b) Quality in process and production

   c) Integration with the ongoing system

- **d)** Absence of the supplier's availability and reliability
- **e)** Optimum utilization of the available resources
- **f)** Occupying the idle production capacity
- **g)** Risk Minimization

2. **Criteria for Make:** The following reasons divert manufacturers toward Buy decisions:
   - **a)** The cost of the finished product or service is **lower** than the offer price of the suppliers.
   - **b)** Only a **limited number of suppliers** produce the demanded product. Moreover, the current supply is unable to meet the market demand.
   - **c)** The manufacturing firm **doesn't compromise** the quality of the product or its parts.
   - **d)** The current facility for manufacturing other items is sufficient for producing the demanded product or its parts.

17.5.5 When to Buy?

The firms choose to purchase the product, materials or components externally when it is less costly than creating it in-house. It is preferred, especially when the firm aspires to utilize the **supplier's skills and expertise.***Outsourcing enables manufacturers to save fixed costs. Thereby making the finished product less costly.*

1. **Reasons to Buy:**The following reasons divert manufacturers toward Buy decision:
   - **a)** Avail advantages of multiple sourcing
   - **b)** Fewer units of products in required
   - **c)** Practice reverse engineering
   - **d)** Lack of skills and expertise
   - **e)** Cost reduction
   - **f)** Reduced exposure to risk
2. **Criteria for Buy:** The following criteria divert manufacturers toward Buy decision:
   - **a)** Manufacturing the product or its parts involves **massive investments**. Therefore, the firms prefer to procure the products from suppliers' plants.

b) The firm does not have sufficient production facilities. Besides, the firm's capital can be utilized in other profitable sources.

c) Firms can **manufacture other parts efficiently** with the available resources, including facilities.

d) The existing human resources **don't have the required skills** to manufacture the product/parts.

e) Firms may **face some legal issues** that restrict them from producing the required product/part.

f) The demand for the required product is seasonal or temporary.

17.6 MAKE OR BUY ANALYSIS

In order to come down to any decision, the firm analyzes outsourcing costs with total cost. *If the cost involved in outsourcing is more than the total cost, then the firm must manufacture the product and vice versa.* Moreover, one can use the techniques for the analysis mentioned in figure 17.2.

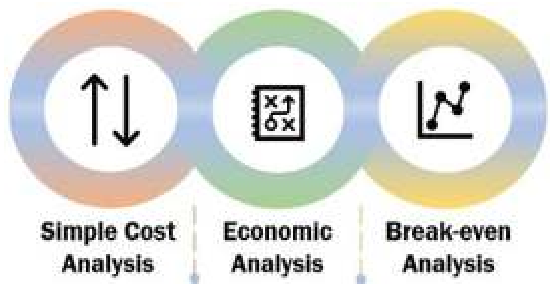

Figure 17.2 Techniques for Analysis

1. **Simple Cost Analysis:**This analysis revolves around the cost of making a product or buying it. At first, we need to calculate the cost of both alternatives. After that, perform a comparative analysis and select the alternative with the *minimum cost*.

2. **Economic Analysis:** Here, the decision is based on the *Economic Order Quantity* and *Total Cost*. It contains two inventory models for the analysis namely:

   a. Purchase Model

   b. Manufacturing Model

3. **Break-even:** In this analysis, firms focus on *Product Demand* and the

Break-even Point. If the quantity demanded falls below the break-even point, then the firm must go for outsourcing.

17.7 ELEMENTS IN MAKE OR BUY ESTIMATE

Following major elements should be involved in a 'make or buy' cost estimate:

1. **To Make:**
   - **a)** Delivered purchased material costs.
   - **b)** Direct labour costs.
   - **c)** Any follow-on costs.
   - **d)** Incremental inventory carrying costs.
   - **e)** Incremental factory overhead costs.
   - **f)** Incremental purchasing costs.
   - **g)** Incremental managerial costs.
   - **h)** Incremental costs of capital.
2. **To Buy:**
   - **a)** Purchase price of the part.
   - **b)** Transportation costs.
   - **c)** Receiving and inspection costs.
   - **d)** Incremental purchasing costs.
   - **e)** Any follow-on cost related to quality or service.

To get a clear picture, analyst must carefully evaluate these costs considering the effects of time and capacity utilization. Cost figures must include all relevant costs, direct and indirect, and they must reflect the effect of anticipated cost changes. Since it is difficult to predict future cost levels, estimated average cost figures for the total time period in question are generally used.

17.8 PROCESS OF MAKE OR BUY DECISION

The make or buy decision can be in many scales. If the decision is small in nature and has less impact on the business, then even one person can make the decision. The person can consider the pros and cons between making and buying and finally arrive at a decision.When it comes to larger and high impact decisions, usually organizations follow a standard method to arrive at a decision. This method can be divided into four main stages as below.

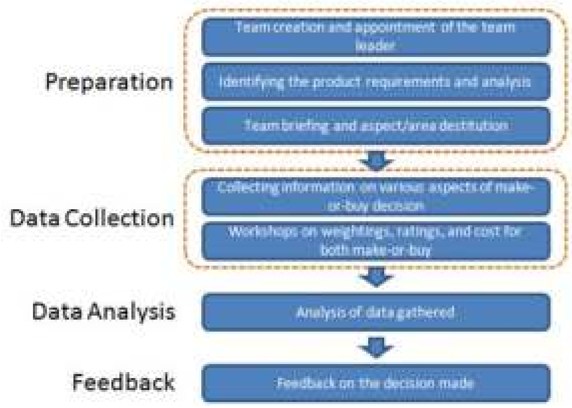

Figure 17.3 Stages of Making Decisions

17.9 ADVANTAGES OF MAKE OR BUY DECISION

Conducting a make-or-buy analysis benefits the firm in the following ways. The following are the advantages of make or Buy Decision:

- **a)** Beat market competition.
- **b)** Reduction in the total cost of the finished product.
- **c)** Integration of external expertise and technology.
- **d)** Identification and fixing bottlenecks within the process.
- **e)** Cope with the fluctuating demand levels.
- **f)** Increased flexibility in production and processes.

17.10 DISADVANTAGES OF MAKE OR BUY DECISION

The following are the advantages of make or Buy Decision:

- **a)** In case the companies make a wrong choice, they have to bear huge losses. For example, if they are not an expert in producing something and still opt for it out of pride or emotional bent, they have to bear costly repercussions.
- **b)** They lose supervision control of products when an external source is handling the production.

17.11 SUMMARY

Make-or-buy decision is one of the key techniques for management practice. Due to the global outsourcing, make-or-buy decision making has become popular and frequent. Companies use the total transaction costs accrued in developing products to reach a make-or-buy decision. Make-or-buy decisions reward firms with a competitive advantage and reduce the cost of production and capital investment. Make-or-buy decisions, like outsourcing decisions, speak to a comparison of the costs and advantages of producing in-house versus buying it elsewhere. There are many factors at play that may tilt a company from making an item in-house or outsourcing it, such as labor costs, lack of expertise, storage costs, supplier contracts, and lack of sufficient volume. Companies use quantitative analysis to determine whether making or buying is the most cost-efficient method.

17.12 GLOSSARY

- **Sunk Cost:** When the costs are not changing with the different alternatives and remain fixed in nature then they become irrelevant or sunk costs.
- **Outsourcing:** The buy side of the decision also is referred to as outsourcing.
- **Make or Buy decision:** It refers to an act of choosing to develop a product in-house or outsource its production from external vendors.
- **Purchase Price:** It specifically refers to the price paid by the firm to purchase the product or component.

17.13 LESSON END EXERCISE

1. Define Relevant and Differential Cost.

2. What does make or buy mean?

3. "Make-or-buy decision is one of the key techniques for management practice". If yes, How?

4. Elucidate the factors affecting the Make or Buy Decision.

5. Discuss the benefits and drawbacks of Make or Buy Decision.

17.14 SUGGESTED READINGS

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ALTERNATE CHOICE DECISIONS

UNIT-IV **Lesson No. 18**

OTHER CHOICE DECISIONS

STRUCTURE

18.1 INTRODUCTION

Costs could shape alternative opportunities and therefore, it influences and shapes future profits. Management is not only interested in the historical cost analysis but it is also interested to study those costs, which are influencing the future operations. When costs are future oriented then only they remain important for the decision maker. Selection of one alternative out of two or more should maximize the profits of the concern. Decision-making is very much related with future planning with a particular goal. In this process, available information regarding the options should be analyzed properly to make a beneficial decision for the benefit of the organization. Before taking decision firstly one should recognize the problem, secondly identify the various alternatives, thirdly evaluate different alternatives with helps of cost benefit analysis and finally adopt the most profitable course of action. Thus, in making the decision, a company must consider the joint costs, or those costs that have been shared by products up to the split-off point. In some manufacturing processes, several end products are produced to from a single raw material input. As with other decisions, management must consider both the quantitative and qualitative aspects. In choosing between alternatives that is, in choosing between keeping and eliminating the product, segment, or service the relevant revenues and costs should be analyzed. One major decision a company has to make is to determine the point at which to sell their product in other words, when it is no longer cost effective to continue processing the product before sale.

18.2 OBJECTIVES

After studying this unit, you should be able to:

- Study the concept of Add or Drop Product Decision
- Explain Sell or Further Process Decision
- Discuss the relevance of Operate or Shut down Decision

18.3 ADD OR DROP PRODUCT DECISION

A decision whether or not to continue an old product line or department, or to start a new one is called an add-or-drop decision. An add-or-drop decision must be based only on relevant information. Relevant information includes the revenues and costs which are directly related to a product line or department. Examples of relevant information are sales revenue, direct costs, variable overhead and direct fixed overhead. Such decision must not be based on irrelevant information such as allocated fixed overhead because allocated fixed overhead will not be eliminated if the product line or department is dropped.

Sometimes when a business sees that a product, department, or location is losing money, the first reaction is to shut it down. Discontinuing operations is a decision that should only be taken after careful consideration and number crunching. When deciding to keep or drop a part of the company, the first thing to do is to create an income statement broken into segments. For example, if a product is unprofitable, create a product line income statement. If there is a location that is not profitable, create an income statement for that location. Use a contribution margin income statement separate variable costs from fixed costs.

	Product A	Product B	Total
Sales	245,000	532,000	777,000
Variable Costs	160,000	230,000	390,000
Contibution Margin	85,000	302,000	387,000
Fixed Costs			-
Direct Fixed Costs	90,000	202,000	292,000
Common Fixed Costs	33,000	66,000	99,000
Total Fixed Costs	123,000	268,000	391,000
Net Income	(38,000)	34,000	(4,000)

Figure 18.1 Example

This is the kind of income statement that would make a company think about dropping a product. Overall, the company has a loss of Rs. 4,000 and it appears that Product A has a Rs. 38,000 loss. On the surface, it might look like dropping Product A and only producing Product B would result in a profit of Rs. 34,000. But is that correct?

Following are some of the considerations that are to be kept in mind if a company should keep or drop a segment (product, department, or location):

1. **Does the segment have a positive contribution margin:** If we look at Product A, it does have a positive contribution margin? This is important because the product is covering all of its variable costs and it is contributing toward foxed costs. While the contribution margin is not high enough to cover all of the fixed costs, increasing sales of Product A would increase contribution margin and lower the loss. If the segment has a positive contribution margin, continue the evaluation.

2. **Can any of the fixed costs be avoided if the segment was discontinued:** There are two types of fixed costs that should be considered, direct fixed costs and common fixed costs.

   a) **Direct fixed costs** are fixed costs that can be directly traced to the segment. Just because a fixed cost is direct does not mean that it is avoidable. There may be depreciation, contractual obligations, and other costs that the company will not be able to cut even if the segment is discontinued. If the fixed costs cannot be avoided, losses will increase if the segment is discontinued because the segment will no longer be contributing to the total contribution margin.

b) **Common fixed costs** are organization sustaining fixed costs that are allocated to the segment. These fixed costs will continue even if the segment has been eliminated; they will just be allocated to the remaining segments.

Let's say, in the example, that none of the direct fixed costs are avoidable. What happens to the loss if Product A is discontinued?

	Product A	Product B	Total
Sales		532,000	532,000
Variable Costs		230,000	230,000
Contibution Margin	-	302,000	302,000
Fixed Costs			-
Direct Fixed Costs	90,000	202,000	292,000
Common Fixed Costs	33,000	66,000	99,000
Total Fixed Costs	123,000	268,000	391,000
Net Income	(123,000)	34,000	(89,000)

Figure 18.2 Example

Since there are no longer sales from Product A. So, we eliminate the revenue and the variable costs from Product A. We also lose Rs. 85,000 in contribution margin that was helping to offset some of the fixed costs. The loss increased by Rs. 85,000 (the amount of contribution margin that was eliminated). What would happen if we could eliminate all of the direct fixed expenses?

	Product A	Product B	Total
Sales		532,000	532,000
Variable Costs		230,000	230,000
Contibution Margin	-	302,000	302,000
Fixed Costs			-
Direct Fixed Costs		202,000	202,000
Common Fixed Costs		99,000	99,000
Total Fixed Costs	-	301,000	301,000
Net Income	-	1,000	1,000

Figure 18.3 Example

If all of the direct fixed costs could be eliminated, now we see positive results.

Notice that the common fixed cost is still Rs. 99,000.

3. **Can the freed up capacity be used for another purpose:** If the segment was discontinued, could the company use the machinery and employees for another purpose? Could the company make additional units of another product or make a new product? Assessing these alternatives helps the company decide if there is something more profitable it could do instead. Idle capacity makes it less likely that fixed costs could be eliminated.

4. **Will discontinuing a segment have adverse effects on the sale of other products:** Imagine that Product A is a cereal bowl and Product B is a matching plate. Do you think that discontinuing Product A would hurt the sales of Product B? I think it would. Before discontinuing a product make sure that sales of remaining products would not be adversely affected.

Let's say that we could eliminate all the direct fixed costs from Product A but sales of Product B would fall 15%. Should we drop Product A? If we remove Product A and it's direct fixed costs but lower the sales and variable costs of Product B by 15%, the results are not good.

	Product A	Product B	Total
Sales		452,200	452,200
Variable Costs		195,500	195,500
Contibution Margin	-	256,700	256,700
Fixed Costs			-
Direct Fixed Costs		202,000	202,000
Common Fixed Costs		99,000	99,000
Total Fixed Costs	-	301,000	301,000
Net Income	-	(44,300)	(44,300)

Figure 18.4 Example

The loss is larger now than it was when the company was making Product A. The negative impact on sales of Product B outweighs the savings from discontinuing Product A. Make a look at the adverse effects on other segments of the company before deciding to drop a segment.

18.4 SELL OR FURTHER PROCESS DECISION

The sell or process further decision is the choice of selling a product now or processing it further to earn additional revenue. Essentially, a company must determine whether it is more profitable to sell a product at a particular intermediate stage or to process it further and then sell the finished product. This decision is especially relevant in industries where products can be sold at multiple stages of the production process. The key to the decision lies in comparing the additional revenues generated from further processing to the additional costs associated with that further processing.

This choice is based on an incremental analysis of whether the additional revenues to be gained will exceed the additional costs to be incurred as part of the additional processing work. For example, if a green widget can be converted into a red widget at an incremental cost of Rs. 1.00 per unit, then processing further is a good idea as long as the incremental price gain to be achieved is at least Rs. 1.01 per unit.

Key Factors to be considered:

- **Incremental Revenue**: How much additional revenue can be generated by processing the product further and selling it as a finished product?
- **Incremental Costs**: What are the additional costs (both variable and fixed) associated with further processing?
- **Opportunity Costs**: Are there other opportunities or uses for the resources that would be employed in the additional processing?

If the incremental (or additional) revenue from further processing exceeds the incremental costs, then it would be financially beneficial to process the product further. If the opposite is true, it's better to sell the product as is. The sell or process further decision most commonly arises when two or more products are generated by a manufacturing process. At the point when the products can be split apart (the split-off point), there is a choice to sell the goods immediately or attempt to capture additional value by engaging in more processing. This decision may vary over time, based on changes in the market prices of a product at each stage of processing. If the market price declines for a later-stage product, it can make more sense to sell it without additional processing. Conversely, if the market price increases for a later-stage product, the better choice may be to continue with additional processing in order to reap higher profits.

A sell-or-process-further analysis can be carried out in three different ways:

- **Incremental (or Differential) Approach** calculates the difference between the additional revenues and the additional costs of further processing. If the difference is positive the product must be processed further, otherwise not.
- **Opportunity Cost Approach** calculates the difference between net revenue from further processed product and the opportunity cost of not selling the product at split-off point. If the difference is positive, further processing will increase profits.
- **Total Project Approach** (or the comparative statement approach) compares the profit statements of both options (i.e. selling or further processing) separately for each product. The option generating higher profit is chosen.

Example of the Sell or Process Further Decision

Dairy Delights Farm produces milk from its herd of cows. Once collected, the milk can either be sold as fresh milk or processed further into cheese. Dairy Delights is evaluating which option would be more profitable.

1. **Data**:

   a) **Selling Milk**:

      i. Revenue from selling one gallon of milk: Rs. 3.00

      ii. Cost of producing one gallon of milk (including feeding the cows, labor, utilities, etc.): Rs. 1.50

   b) **Processing Milk into Cheese**:

      i. Cost to process one gallon of milk into cheese (including additional labor, utilities, aging costs, etc.): Rs. 2.50

      ii. Revenue from selling cheese made from one gallon of milk: Rs. 7.00

2. **Analysis**:

   a) **If Sold as Milk**:

      i. Gross profit per gallon = Revenue – Cost of production

- **ii.** Gross profit = Rs.3.00 (revenue) – Rs. 1.50 (cost) = Rs. 1.50

b) If Processed into Cheese:

- **i.** Incremental revenue from processing into cheese = $7.00 (cheese sale price) –
- **ii.**
- **iii.**
- **iv.** Rs. 3.00 (milk sale price) = Rs. 4.00
- **v.** Net profit from cheese = Incremental revenue – Cost to process into cheese
- **vi.** Net profit = Rs. 4.00 (incremental revenue) – Rs. 2.50 (processing cost) = Rs. 1.50
- **vii.** Gross profit for cheese = Rs. 1.50 (net profit from cheese) + Rs. 1.50 (gross profit if sold as milk) = Rs. 3.00

3. **Decision**: Comparing the profits:

- **i.** Profit from selling as milk: Rs. 1.50 per gallon
- **ii.** Profit from processing into cheese: Rs. 3.00 per gallon

Thus, Dairy Delights would make more profit by processing the milk into cheese rather than selling it as fresh milk. This example demonstrates the "sell or process further" decision. By evaluating the additional revenue and costs associated with further processing, Dairy Delights can make an informed choice to maximize profits. However, they'd also need to consider other factors in a real-world scenario, such as market demand for milk versus cheese, storage costs, and potential risks associated with unsold perishable products.

18.5 OPERATE OR SHUT DOWN DECISION.

Differential cost analysis is also used when a business is confronted with the possibility of a temporary shutdown. This type of analysis has to determine whether in the short-run a firm is better off operating than not operating. As long as the products sold recover their variable costs and make a contribution towards the recovery of fixed costs, it may be preferable to operate and not to shutdown. Also management should consider the investment in the training of its employees which would be lost in the event of temporary shutdown.

Recruiting and training new workers would add to present costs. Another factor is the loss of established markets. Also, a temporary shutdown does not eliminate all costs. Depreciation, taxes, interest, and insurance costs are incurred during shutdown also. The other points (benefits) which should be considered are the following: avoiding operating losses, savings in maintenance and repair costs, savings in indirect labour costs, and savings in fixed costs.Even if sales do not recover the variable cost and the portion of fixed cost that is avoidable, the firm may still be better off operating than shutting down the facility. Closing a facility and subsequently reopening it is a costly process. The shutdown may necessitate the incurrence of maintenance procedures in order to preserve machinery and buildings during periods of inactivity (e.g. rust inhibitors, dust covers, security equipment, etc.).

The shutdown also may require the incurrence of legal expenditures and employee maintenance pay. During the shutdown period, some employees will probably be lost (i.e., they may not wait until the facility is reopened to go back to work), in which case the investment in the training of those employees will be lost. The morale of other employees, as well as company goodwill, may be adversely affected, and the recruiting and training of replacement workers that must be incurred when the facility is later reopened, add to costs.

Although difficult to quantify, the loss of established market share is also a factor to be considered. When a company leaves a market for a while, its customers tend to forget about the company's product. As a consequence, reentering the market at a latter time will probably require reeducating consumers about the company's product. These shutdown costs must be weighed against losses from continued operations.

Example: To illustrate an analysis of possible temporary shutdown, assume that a company operating below 50% of its capacity expects that the volume of sales will drop below the present level of 10,000 units per month. Management is concerned that a further drop in sales volume will create a loss and has under consideration a recommendation that operations be suspended, until better market conditions prevail and also a better selling price.

The present operating income statement is as follows:

		₹	₹
	Sales revenue (10,000 units @ ₹ 30)		3,00,000
Less:	Variable cost @ ₹ 20 per unit	2,00,000	
	Fixed costs	1,00,000	3,00,000
	Net income		0

The following income statements have been prepared for sales at different capacities:

	Units Produced					
	Shutdown	2,000	4,000	6,000	8,000	10,000
Sales revenue @ ₹ 30	0	60,000	1,20,000	1,80,000	2,40,000	3,00,000
Variable costs @ ₹ 20	0	40,000	80,000	1,20,000	1,60,000	2,00,000
Contribution	0	20,000	40,000	60,000	80,000	1,00,000
Fixed costs	40,000	1,00,000	1,00,000	1,00,000	1,00,000	1,00,000
Loss	(40,000)	(80,000)	(60,000)	(40,000)	(20,000)	0

Figure 18.5 Example

It would appear that shutdown is desirable when the sale volume drops below 6,000 units per month, the point at which operating losses exceed the shutdown cost.

This volume of 6,000 units could be arrived at without an income statement as follows:

	₹
Fixed costs if plant operates	1,00,000
Fixed costs if plant shut down	40,000
Additional costs to be recovered when operating	60,000
Each unit of products sold contributes ₹ 10 to fixed costs recovery:	
Selling price per unit	30
Variable cost per unit	20
Contribution	10

Sales of 6,000 units is necessary to recover ₹ 60,000 of fixed costs.

$$\frac{60,000}{10} = 6,000 \text{ units}$$

Figure 18.6 Example

If the selling price is cut to Rs 28, the contribution margin will be Rs 8 per unit. Required sale to recover an additional Rs 60,000 of fixed costs 60,000 /8 = 7, 500 units.

That is, sale of 7,500 units would be necessary to recover an additional Rs 60,000 of fixed costs.

18.6 SUMMARY

Deciding to do more work on a product to develop it into a new product is a choice between alternatives. Add or drop decisions require the computation of segment income. If the product line or segment has a positive segment margin, it is recommended to keep (or add, if new) that segment. When deciding if a company should drop an unprofitable segment, the company should create a segment contribution margin income statement. If the contribution margin is positive, the company should consider direct and common fixed costs, what to do with freed capacity, and the effect on sales of other products. The decision to sell now or process further boils down to which choice will result in higher profits. If the incremental sales revenue is greater than incremental costs, it makes sense to process further. Otherwise, it is better to sell at the split-off point. As long as the products sold recover their variable costs and make a contribution towards the recovery of fixed costs, it may be preferable to operate and not to shutdown.

18.7 GLOSSARY

- **Relevant information:** It includes the revenues and costs which are directly related to a product line or department.
- **Split-off point:** It refers to the moment in the manufacturing process when different products become separately identifiable.
- **Incremental or differential Approach:** It calculates the difference between the additional revenues and the additional costs of further processing.
- **Shutdown point**: It is the point where a company cannot sustain its operations.

18.8 LESSON END EXERCISE

1. Discuss the considerations that need to be kept in mind when a company should keep or drop a segment?

2. Why sell or further process decision is relevant in industries where products can be sold at multiple stages of the production process? Explain the relevance of the statement.

3. Does management should consider the investment in the training of its employees which would be lost in the event of temporary shutdown? Elucidate.

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ALTERNATE CHOICE DECISIONS

UNIT-IV **Lesson No. 19**

PRICING OF SPECIAL ORDERS

STRUCTURE

19.1 INTRODUCTION

Under marginal costing, fixed costs are ignored and price is determined based on variable costs (marginal). In normal business conditions, the price fixed must cover full costs otherwise firm will incur losses. In certain circumstances like trade depression, dumping, seasonal fluctuation in demand, highly competitive market, etc. pricing is fixed with the help of marginal costing rather than full costing During trade depression, the price may go down even below the full cost of Marginal Costing the product. In such a case, the management has to decide whether to close down the production activities until the recession is over or continue the production activities. In case, the production activities are closed down, the firm will incur loss equal to its fixed cost or un-escapable costs. The main emphasis of management is to minimize its losses. The firm should continue its production activities so long as the selling price is more than the marginal costs because any contribution earned will help in the recovery of the fixed costs which results in the reduction of loss.

19.2 OBJECTIVES

After studying this unit, you will be able to:

- Study the concept of Special order
- Explain the relevance of Special order pricing
- Identify the factors to be considered before accepting a special order
- Discuss the Special Order Decisions to be taken

19.3 PRICING OF SPECIAL ORDERS

Special orders are one-time orders that do not affect a company's normal sales. The profit from a special order equals the incremental revenue less the incremental costs. As long as the incremental revenue exceeds the incremental costs, the order should be accepted. If there is no idle capacity, opportunity costs should be included as part of the incremental costs. When analyzing a special order, only the incremental costs and benefits are relevant. Since the existing fixed manufacturing overhead costs would not be affected by the order, they are not relevant.

Occasionally, businesses may receive orders for their products that differ in terms of the profile of their regular orders. This difference is often based on the price paid, the quantity ordered, or the lead time. These special orders can be one-off or they could be a new buyer establishing a relationship with the supplier. The decision to accept a special order depends upon the potential immediate and future quantitative and qualitative benefits that result from the order.

A special order can involve:

1. Selling the same product at lower than the normal sales price
2. Selling a modified product at a higher price.

The first stage in examining the value and impact of a special order is to use a quantitative measure, the contribution (which is the difference between revenue per unit and variable cost per unit). This difference is known as a contribution because it is the amount each item sold contributes toward paying the other costs of the business i.e. the fixed costs or to profits when fixed costs are already covered.

However, there are several other factors that have to be considered before accepting a special order; these will include qualitative (non-financial) factors:

1. **Capacity** – has the business the spare capacity or is this the best way to utilize the spare capacity?
2. **Labour demands** – would the special order be completed during normal hours or would extra hours have to be paid to workers?
3. **Future orders** – could the special order lead to a more regular order?
4. **Existing customers** – will the special order upset existing customer who pays a higher price?
5. **Product adjustment** – would the special order require a product slightly different from the regular product?

This could involve changing the production process, using different materials and training workers.

19.3.1 Acceptance of a Special Order

A special order will typically involve a large quantity of products or services at a specified price. Your accounting manager's feedback will hinge on how to maximize your profit. The proposal should be accepted only if the incremental revenue associated with the special order exceeds incremental costs and if present sales will be unaffected. With fixed costs already accounted for in regular production, you will need to optimize the price point based on the variable costs to turn a profit. Soft benefits, like maintaining a business relationship, should be considered as well.

19.4 SPECIAL ORDER PRICING

Special order price is the price that a company can offer to their customers due to the large quantity or building a good relationship with customers to make potential next order. Due to these reasons, the company will try to offer a special price which is usually below the standard price.

Special order pricing is a technique used to calculate the lowest price of a product or service at which a special order may be accepted and below which a special order should be rejected. Usually, a business receives special orders from customers at a price lower than normal. In such cases, the business will not accept the special order if it can sell all its output at a normal price. However, when sales are low or when there is idle production capacity, special orders should be accepted if the incremental revenue from special orders is greater than incremental costs. This method of pricing special orders, in which the price is set below the normal price but the sale still generates some contribution per unit, is called the contribution approach to special order pricing. The idea is that it is better to receive something above variable costs, than receiving nothing at all.

The following example is used to illustrate special order pricing:

Example: A company is producing, on average, 10,000 units of product A per month despite having 30% more capacity. Costs per unit of product A are as follows:

Direct Material	Rs. 8.00
Direct Labor	Rs. 5.00
Variable Factory Overhead	Rs. 2.00
Variable Selling Expense	Rs. 0.50
Fixed Factory Overhead	Rs. 3.00
Fixed Office Expense	Rs. 2.00
	Rs. 20.50

The company received a special order of 2,000 units of product A at Rs. 17.00 per unit from a new customer. Should the company accept the special order, provided that the customer has agreed to pay the variable selling expenses in addition to the price of the product?

Solution: The increment cost per unit for the special order is calculated as:

Direct Material	Rs. 8.00
Direct Labor	Rs. 5.00
Variable Factory Overhead	Rs. 2.00
	Rs. 15.00

Since the incremental cost per unit is less that the price offered in the special order, the company should accept it. Accepting special order will generate additional contribution of Rs. 2.00 per unit and Rs. 4,000 in total.

19.5 SPECIAL ORDER DECISION

All business decisions should not be evaluated in the same way. Sometimes special orders or one time orders have different characteristics from recurring orders. Therefore, each order should be evaluated based on costs relevant to the situation and the goals of the business firm. The question of special orders arises when a company has excess or idle production capacity and management considers the possibility of selling additional products at less than normal selling prices, provided that such a special order will not affect the regular sales of the same product.

The basic problem is to determine an acceptable price for the special order units. Cost analysis using the contribution approach is a useful technique to determine the short-run profit effects of special order transactions. In deciding the pricing of special orders where normal operations are not disturbed and where unused production capacity exists, it is not advisable to attach fixed costs to products.

Price determination should take into account the recovery of incremental (variable) costs caused by accepting the special order. If the normal fixed costs are included in the price of the special order, the price may be too high and the business firm could lose the entire order and the contribution margin to be earned on the special order. Only the relevant (variable) costs should be used in the decision analysis to arrive at an appropriate price. Fixed cost is relevant only if incurred to facilitate the special order.

When faced with a special order decision, a company should consider the following three items:

1. **Does the company have the excess capacity to fulfill this order:** Remember that a special order is an order that the company did not expect. The company must make sure that there is excess capacity to fill this order without harming the original plan developed for the year.

2. **Will the order be profitable:** Typically, a special order will have a reduced price and/or additional costs. Will the price be high enough to cover the **incremental** costs associated with the order? Think back to overhead allocation. When overhead allocation rates were developed at the beginning of the year, they were based on the planned production. These special orders are in addition to the planned production. Therefore, *fixed overhead would not be applied to these jobs.* This allows the company to make the products needed for the special order at a reduced cost. Although the price might be lower, the company may be able to achieve profit on the job.

3. **Will the order affect planned sales, now or in the future:** The company must ensure that the special order will not hurt other sales. It is important to make sure that the customer requesting the special order does not compete with existing customers or the company itself, which would result in decreased sales at regular prices. Special orders can also lead to unhappy existing customers if they find out about the special deal you gave someone else. Careful consideration must be made when accepting special orders to protect current and future profits.

19.5.1 Importance of Time Span in Special Order:

The special order is a one-time order for specific units, say 1,000 units that will use current excess capacity. Because no special setups or equipment are required to produce the order, it is appropriate to consider only variable costs in computing the order's profitability. But what if the order giver wants the company to sign a multi year contract to provide 1,000 units per month at Rs 925 each? Under these circumstances, management would be well advised to reject the contract because there is a high probability that cost increases would make the order unprofitable in later years. At the very least, management should insist that a cost escalation clause be added to the purchase agreement, specifying that the selling price would increase to cover any cost increases and detailing the cost computation.

Of more concern is the variable nature of all long-run costs. Given adequate time, management must replace fixed assets and may adjust both the number of machines as well as the size of machines used in the manufacturing process. Accordingly, in the long run, all costs (including costs classified as fixed in a given period) are relevant.

To remain in business in the long run, the company must replace equipment, pay property taxes, pay administrative salaries, and so forth. Consequently, management should consider all costs (fixed and variable, manufacturing and non manufacturing) in evaluating a long-term contract.

Example: The following example illustrates the special order decisions:

A manufacturing company produces 20,000 units by operating at 60% of the capacity and sells for Rs 3000 per unit.

The budgeted figures for the year 2022 are as follows:

	Production (20,000 units) ₹
Raw materials @ 425	85,00,000
Direct labour@ 575	1,15,00,000
Variable factory overhead @ 775	1,55,00,000
Fixed factory overhead	1,25,00,000
Variable selling costs 2.75% of selling price	
Fixed selling and administrative costs	72,50,000

The company receives a special order for 10,000 units from a firm. The company desires to earn a profit of Rs 100 per unit and no selling expenses are to be incurred for the special order.

The minimum price on the special order and income statements are as follows:

Pricing of Special Order

	(10,000 units) ₹
Variable costs to be incurred:	
Raw materials	425
Direct labour	575
Variable overhead	775
Variable cost per unit (no selling expenses)	1775
Desired profit	100
Minimum price	1875
Increase in sales = 10,000 units × ₹ 1875 = ₹ 1,87,50,000	

Income Statement

	Without special order (₹)	Special order (₹)	With special order (₹)
Sales	6,00,00,000	1,87,50,000	7,87,50,000
Less: Variable costs:			
Raw materials	85,00,000	42,50,000	1,27,50,000
Direct labour	1,15,00,000	57,50,000	1,72,50,000
Variable factory overhead	1,55,00,000	77,50,000	2,32,50,000
Variable selling costs (2.75% of selling price)	16,50,000	—	16,50,000
Total variable costs	3,71,50,000	1,77,50,000	5,49,00,000
Less: Fixed costs:			
Fixed factory overhead	1,25,00,000	—	1,25,00,000
Fixed selling & administrative costs	72,50,000	—	72,50,000
Total fixed costs	1,97,50,000	—	1,97,50,000
Total costs	5,69,00,000	1,77,50,000	7,46,50,000
Net income before taxes	31,00,000	10,00,000	41,00,000

From the above analysis it is clear that the acceptance of the special order will increase the profit by Rs 10, 00,000. Also the bid price (Rs 1875) is significantly less than the normal price of Rs 3000.

19.5.2 Qualitative Considerations

Although an analysis of cost and revenue information may indicate that a special order would be profitable in the short run, management might still reject the order because of qualitative considerations. Any concerns regarding the order's impact on regular customers might lead management to reject the order even if there is excess capacity. If the order involves a special low price, regular customers might demand a similar price reduction and threaten to take their business elsewhere.

Alternatively, management might accept the special order while operating at capacity if they believed there were long-term benefits associated with penetrating a new market. Legal factors must also be considered if the special order is from a buyer who competes with regular customers.

19.6 SUMMARY

Managers often use differential analysis to decide whether to accept a special one-time order made by a customer. Managers compare sales revenue and costs for each alternative (accept or reject the special order) and select the alternative with the highest profit. Organizations must be careful to consider the long-run implications of reducing prices for special orders. Price determination should take into account the recovery of incremental (variable) costs caused by accepting the special order. If the normal fixed costs are included in the price of the special order, the price may be too high and the business firm could lose the entire order and the contribution margin to be earned on the special order. Only the relevant (variable) costs should be used in the decision analysis to arrive at an appropriate price. Fixed cost is relevant only if incurred to facilitate the special order.

19.7 GLOSSARY

- **Special orders**: These are one-time orders that do not affect a company's normal sales. Special order equals the incremental revenue less the incremental costs.
- **Special order price**: It is the price which a company can offer to their customers due to the large quantity or building a good relationship with

customers in order to make potential next order.

- **Price determination:** *It* refers to a pricing strategy that charges consumer's different prices for identical goods or services.

19.8 Lesson End Exercise

1. Discuss the qualitative factors that have to be considered before accepting a special order.

2. Explain the relevance of special order pricing.

3. What is the relevance of time span in special order?

4. Elaborate the items that a company should consider when faced with a special order decision.

19.9 Suggested Readings

- B.M. Lall Nigam and I.C. Jain, Cost Accounting, Prentice-Hall of India (P) Ltd. Hilton,
- Maher and Selto, Cost Management, 2nd Edition, Tata McGraw-Hill Publishing Company Ltd.
- M.N. Arora, Cost and Management Accounting, 8th Edition, Vikas Publishing House (P) Ltd.
- M.P. Pandikumar, Management Accounting, Excel Books.

ALTERNATE CHOICE DECISIONS

UNIT-IV **Lesson No. 20**

REPLACE OR RETAIN PLANT AND EQUIPMENTS

STRUCTURE

20.1 INTRODUCTION

Asset management is critical for every business's operations. It helps to control downtime and manage unexpected costs. However, damages to the assets are inevitable. That's primarily due to regular wear and tear. Business organizations use physical assets in the form of machines and equipment to produce goods and services. After a particular period of service, there might be a need for the replacement of the existing assets. Therefore, the firms must constantly monitor the performance of the assets to decide whether they should be continued in service or they should be replaced with new assets. Replacement study is carried out to make an economic decision to retain or replace an existing asset. If the decision is to replace, the study is complete. However, if the decision is to retain, the cost estimates and decision will be reconsidered each year to ensure that the decision to retain. The decision needs some cost-benefit calculations taking a lot of your time and effort. A computerized maintenance management software (CMMS) solution makes your decision much more accessible. It gathers and stores maintenance data through real-time asset tracking. This facilitates better planning and optimization of workflows.

20.2 OBJECTIVES

After studying this unit, you should be able to:

- Identify the Replace or return decision
- Study the factors when to replace or retain the asset
- Calculate the current asset value
- Discuss the importance of repair or replace decisions

20.3 REPLACE OR RETAIN DECISION OF PLANT AND EQUIPMENTS

The decision to replace or retain plant and equipment is a capital investment or long-term decision and should be taken very carefully. The differential costs that are important in retain or replace decisions are the following: change in fixed overhead costs, loss on sale of old equipment, capital investment, and related costs such as rate of return and interest. Management should also consider differential benefits likely to be derived such as higher production and increased sales, realizable value of old machines, savings in operating costs, and tax advantages, if any.

20.4 WHEN TO REPAIR OR REPLACE ASSETS

The decision to repair or replace an asset depends upon various factors, including the type of asset, age, wear and tear, and role in the production line. To decide between repairing and replacing an asset, a management company must compare its current value and the repair costs. If repair costs are less than the value of equipment, it is best to get it repaired. However, when the repair costs exceed the value of the equipment, better to replace it.

- Repair
- Repair cost < Current value of the asset
- Replace
- Repair cost > Current value of the asset

Management should take into account several other aspects when determining whether to repair or replace an asset, as mentioned below:

1. Ongoing maintenance expenses over the asset's remaining functional lifespan. If the ongoing costs are much higher or tend to go up in the upcoming years to keep the help functional as compared to the replacement cost, it is a wiser choice to replace the asset.
2. The effects of any repairs on output and product quality. Management should consider replacing the asset if the repairs do not make a huge difference and the product output capacity keeps decreasing. This would help the company to achieve more profit.
3. Expenses related to equipment downtime should also be one of the top priorities when deciding on repairing and replacing assets. This is important because equipment downtime refers to when the purchase is not functioning, mainly due to an unplanned failure. Equipment downtime can cause a substantial loss of productivity cost, leading to business failure.

A CMMS solution is key for ensuring whether you decide to repair or replace all the assets under management, such as global, IT, or infrastructure assets. It has features and facilities that help track asset-related information and calculate repair and replacement costs. Other entities can decide by reviewing the asset repair and replacement costs analyzed by the CMMS.

20.5 CALCULATING CURRENT ASSET VALUE

Every asset loses some value each year due to normal wear and tear. This is known as annual depreciation. We will be able to calculate an asset's current value using the straight-line depreciation method.

This method assumes that the value of depreciation remains constant every year. Here's the formula to find annual depreciation: -

Annual Equipment Depreciation = (Initial Value-Salvage value) ÷ Useful Life

· The initial value is the price paid at the time of purchase of an asset.

· Salvage value is the estimated sale of an asset at the end of its useful life.

· Once all depreciation has been entirely incurred, the market value of an asset or equipment is known as the salvage value. An asset's salvage value is determined by what a business anticipates getting in return for selling or dividing it up after its useful life has passed.

- Useful life is the expected life span over which the asset will remain in a profitable level of service.

Once you know the annual depreciation, the next step is calculating the asset's present value.

Here's the formula for the same.

Current Asset value = Annual Depreciation x Remaining Useful Life of asset (in years)

The last step is to compare the current value with the repair cost.

20.6 IMPORTANCE OF REPAIR OR REPLACE DECISIONS

Every asset has a useful life during which it reaches peak performance. Then, gradually, due to depreciation, its efficiency begins to decline, and maintenance cost starts to escalate.

This leads to:

1. Higher than average energy consumption
2. Compromised safety
3. Increased downtime
4. Risk management
5. Higher labor costs

If the asset requires frequent maintenance causing unnecessary expenses and lowering the profitability, it is a wiser choice to replace the product. On the contrary, replacing assets frequently when they could still function profitably with some repairs is not great investment advice. While replacements are often relatively faster and easier than repairing a piece of equipment, an alternative investment strategy is to repair one that you currently have. Employees become accustomed to the equipment and other resources already in place. Training to equip the technicians with a new asset takes time and money. However, if it feels like your fixed income is spent on a repair is a better alternative than the expenses and time invested in replacing it, repairing it can be the best choice. This is a better investment opportunity and wealth management.

20.7 FACTORS FOR REPAIR OR REPLACEMENT OF MACHINERY

It becomes necessary to replace the old machinery with a new one because of the obsolescence of the old one or the renovation of the old one. The objective of replacing the old machinery by a new machine is to reduce the cost of production and to increase revenue. While deciding the replacement of machinery factors like operating cost, technological development, return on capital, demand for the product, opportunity cost of the capital, availability of raw material, labour etc, should be taken into consideration. The replacement of machinery is assessed either by marginal cost analysis or differential cost analysis but the later is more appropriate and is much in use.

The following are the factors to be considered for the repair or replacement of machinery:

1. **Operating Cost:** A comparative study of the operating cost of the old and the new machinery should be done. Per unit, the cost of production by old machinery and the new one can be analyzed by the comparative statement.
2. **Technological Development:** New inventions are taking place every day. The chances of new inventions should be taken into consideration before the decision on replacement.
3. **Return on Capital:** Return on capital on the new investment should be feasible. What will be the amount of loss while selling the old?
4. **Demand for the Product**: Production will be increased by the use of the new machine and the demand for the increased production should be estimated. If the production at full capacity cannot be sold, then what percentage of the capacity can be sold? At this point of the utilization of the capacity would it be possible to keep the price competitive? Market trends of the product should also be analyzed. If the nature of the product is not going to last for a longer period, then the decision regarding a change of machinery is not required.
5. **Assessment of the Opportunity Cost of the Capital:** If the capital needed for the replacement is being used for any other alternative would the capital yield more? If it is so then the decision of replacement should be dropped.
6. **Availability of Raw Materials and Skilled Labour :** The availability of raw materials and skilled labour to run the machinery should be studied before replacing the machine.

20.8 PRACTICAL PROBLEMS – (EVALUATION OF ALTERNATE CHOICE DECISIONS)

Problem 1: The following facts relate to two machines:

	Existing Machine	New Machine
Capital cost (Rs.)	10,00,000	40,00,000
Marginal cost per unit (Rs.)	60	52
Selling price per unit (Rs.)	120	120
Fixed expenses (Rs.)	1,00,000	4,00,000
Annual output (units)	20,000	40,000
Life of machines (years)	10	10

The existing machine has worked for 5 years. Its present resale value is Rs. 4,00,000. The scrap value of the machine may be taken as nil, advise whether new machine should be installed if rate of interest is 10 %.

Solution 1:

Statement of Differential Cost and Incremental Revenue

Particulars	Existing Machine		New Machine		Incremental	
	Cost Rs.	Revenue Rs.	Cost Rs.	Revenue Rs.	Cost Rs.	Revenue Rs.
Sales		24,00,000		48,00,000		24,00,000
Total Marginal Cost	12,00,000		20,80,000			
Total Fixed Cost	1,00,000		4,00,000			
Interest on additional capital outlay on 36,00,000 @ 10 % (Rs. 40,00,000 — Rs. 4,00,000)			3,60,000			
Depreciation on original cost	1,00,000		4,00,000			
Loss on sale of machinery		14,00,000	1,00,000	33,40,000	19,40,000	
Profit		10,00,000		14,60,000		4,60,000

Decision: It is clear from the above statement that the installation of new machinery is beneficial as incremental revenue is Rs 24,00,000 and the differential cost is Rs. 19,40,000. After installing the new machine, the total increase in revenue will be Rs. 4,60,000.

Working Note:

1. The total cost of the machine is Rs. 10,00,000 and life is 10 years and it has been used for 5 years. The present book value of the existing machine is Rs. 5,00,000. So, the loss on sale of the old machine is = Rs. 1,00,000. (Rs. 5,00,000- 4,00,000).
2. The net amount required to install the new machine is Rs. 3,60,000 i.e., after deducting the amount of Rs. 4,00,000 received on the sale of existing machinery.
3. Loss on sale of existing machinery is to be included in the total cost of new machinery for evaluation of the new proposal.
4. The opportunity cost of the capital has not been considered.

Problem 2:X Ltd. produces and markets ballpoint pens. Due to competition, the company proposes to reduce the selling price. From the following information, examine the effects of reduction in selling price by (a) 5%, (b) 10% and © 15%

	Rs.	Rs.
Present Sales 3,000 units	—	3,00,000
Variable Costs	1,80,000	
Fixed Costs	70,000	2,50,000
Net Profit		50,000

Indicate the number of units to be sold if the company wants to maintain the same profits in each of the above cases.

Solution 2:

Statement of Cost and Profit

Particulars	Present price	Price Reduction by 5%	Price Reduction by 10%	Price Reduction by 15%
Selling price per unit (Rs.)	100	95	90	85
Less: Variable cost (Rs.)	60	60	60	60
Contrubution (Rs.)	40	35	30	25
Contribution for 3,000 units (Rs.)	1,20,000	—	—	—
Contribution required to maintain same profit (Rs.)	—	1,20,000	1,20,000	1,20,000
Required units to be sold	—	3,429	4,000	4,800
Less: Units sold at present price	—	3,000	3,000	3,000
Additional Units required to be sold to earn the same amount of Profit	—	429	1,000	1,800

Decision: If the company reduces the selling price by 5% then it requires 429 pens more to sell to earn the same amount of profit. If it accepts the second option to reduce the price by 10% then it requires 1,000 pens more to sell to earn the same amount, and if it accepts the third alternate to reduce the price by 15% then it requires 1,800 pens more to sell to earn the same amount.

Working Notes:

1. It has been assumed that in all the options, fixed costs remain unchanged and to earn the same amount of profit the contribution should remain the same.
2. Calculation of Required Units to be sold to earn the same amount has been mentioned with the use of the following formulae:

$$\text{Required Sales} = \frac{\text{Required Contribution}}{\text{Contribution per Unit}} = \frac{\text{Rs. } 1,20,000}{\text{Rs. } 35} = \text{3,429 units required to be sold if selling price is being reduced by 5\%}$$

Problem 3: Y Ltd. is working on 80% capacity and its Flexible Budget is as follows: Output 60,000 units, sales value Rs. 12,00,000, material cost Rs. 30,000, wages Rs. 2,10,000, variable expenses Rs. 1,20,000, Semi-variable expenses Rs. 70,000 and fixed costs Rs. 2,00,000. A proposal for additional sale of 7,500 units is available, if it is accepted and supplied at Rs. 14.00 each. The semi-variable overheads increase by Rs. 2,500 for the additional production. Advise the management.

Solution 3:

Statement of Marginal Cost and Profitability

Particulars	Production of 60,000 units Rs.	Production of Additional 7,500 units Rs.	Total Units: 67,500 Rs.
Material @ Rs. 0.50	30,000	3,750	33,750
Wages @ Rs. 3.5	2,10,000	26,250	2,36,250
Variable Expenses @ Rs. 2	1,20,000	15,000	1,35,000
Semi-variable expenses	70,000	2,500	72,500
Marginal cost	4,30,000	47,500	4,77,500
Sales	12,00,000	1,05,000	13,05,000
Contribution = (S-V)	7,70,000	57,500	8,27,500
Less Fixed Costs	70,000	–	70,000
Profit	7,00,000	57,500	7,57,500

Decision: If the proposal for additional supply of 7,500 units is accepted then contribution increases by Rs. 57,500 and profit also increases by the same amount. So it is advisable to accept the offer for additional supply. It is assumed that this supply will not affect the present market for its product.

Problem 4:A factory manager seeks your advice whether he should drop one item from his product line and replace it with another. Present cost and production data per unit are as follows:

Product	Price (Rs.)	Variable Costs (Rs.)	% Sales in Total Sales
Tables	60	40	50
Chairs	100	60	10
Book Stands	200	120	40
Total Fixed cost per annum			Rs. 7,500
Current Sales of the year			Rs. 25,000

The change under consideration consists in dropping the line of chairs and replacing it with a line of Sofa. If this drop and add change is made the manager forecasts the following data regarding cost and output:

Product	Price (Rs.)	Variable Costs (Rs.)	% Sales in Total Sales
Tables	60	40	30
Sofa	160	60	20
Book Stands	200	120	50
Total Fixed cost per annum			Rs. 7,500
Projected Sales of the year			Rs. 26,500

Is this proposal feasible? Advise the management.

Solution 4:

Statement of profitability for current production

Particulars	Tables Rs.	Chairs Rs.	Book Stands Rs.	Total Rs.
Selling Price	60	100	200	–
Less Variable Cost %	40	60	120	–
Contribution	20	40	80	–
P/V Ratio	33.33%	40%	40%	–
Sales of Rs. 25,000 in the ratio of 50%, 10% & 40%	12,500	2,500	10,000	25,000
Contribution (P/V multiplied by Sales)	4,167	1,000	4,000	9,167
Less Fixed Costs	–	–	–	7,500
Profit	–	–	–	1,667

Statement of profitability for projected production

Particulars	Tables Rs.	Sofa Rs.	Book Stands Rs.	Total Rs.
Selling Price	60	160	200	–
Less Variable Cost	40	60	120	–
Contribution	20	100	80	–
P/V Ratio	33.33% or 1/3	62 ½%	40 %	–
Sales of Rs. 26,500 in the ratio of 30%, 20% & 50%	7950	5300	13250	26,500
Contribution (P/V multiplied by Sales)	2650	3313	5300	11,263
Less Fixed Costs	–	–	–	7,500
Profit	–	–	–	3,763

Decision: After analyzing the above statements it is observed that if the proposal is accepted then the profit will increase by Rs. 2,096 (i.e., Rs. 3,763 – Rs. 1,667). It is presumed that the demand for the proposed products will remain in the market. Therefore, the proposal is to be accepted.

20.9 SUMMARY

The decision to repair or replace an asset depends upon various factors, including the type of asset, age, wear and tear, and role in the production line.To decide between repairing and replacing an asset, a management company must compare its current value and the repair costs. While deciding on the replacement of machinery factors like operating cost, technological development, return on capital, demand for the product, opportunity cost of the capital, availability of raw material, labour, etc, should be taken into consideration.

20.10 GLOSSARY

- **CMMS software :** It aids in enhancing the use and accessibility of tangible and intangible assets like machines, transportation, connections, industrial infrastructures, and other assets.

- **Return on capital (ROC) :** It measures a company's net income relative to the sum of its debt and equity value.
- **Depreciation:** Depreciation is the process of deducting the total cost of something expensive you bought for your business.

20.11 LESSON END EXERCISE

1. What are the considerations that need to be taken for the replace or retain the assets?
2. Discuss the factors for the replacement of machinery.
3. How current asset value is calculated?

20.12 SUGGESTED READINGS

- Sekhar.R.C., MANAGEMENT CONTROL SYSTEMS., *Tata McGraw Hill Pub.Co., Delhi*
- Shanmugavel., MANAGEMENT CONTROL SYSTEMS., *Margham Publications Chennai*
- Robert N. Anthony & Vijay Govindarajan, MANAGEMENT CONTROL SYSTEMS, *Tata McGraw Hill Publishing Company Ltd. New Delhi.*
- Saxena V.K and Vashist C.D., MANAGEMENT ACCOUNTING DECISION MAKING., *Sultan Chand & Sons*