



12113CH08

CONTROLLING

8 CHAPTER

Departure Control Systems (DCS)

A Departure Control System (DCS) automates processing an airlines airport management operations which includes managing the informant required for airport check-in, printing boarding pass, baggage acceptance, boarding load control and aircraft checks. Today almost 98% of DCS manage e-ticket using interface from a number of devices including check-in kiosks, online check-in, mobile boarding pass and baggage handling. DCS are able to identify and capture updated reservations from an airline computer reservation system for passengers called passenger name record (PNR). A DCS is used to update reservations typically as checked-in, boarded, and flown or another status. Additionally and increasingly a DCS or some city fare sectors may also interface with immigration control for visa, immigration and passenger no fly watch list.

LEARNING OBJECTIVES

After studying this chapter, you should be able to:

- Explain the meaning of controlling;
- State the importance of controlling;
- Describe the relationship between planning and controlling;
- Explain the steps in the process of controlling; and
- Describe the techniques of controlling.

It is quite clear from the example that all managers need to manage situations intelligently and take corrective action before any damage is done to the business. Controlling function of management comes to the rescue of a manager here. It not only helps in keeping a track on the progress of activities but also ensures that activities conform to

the standards set in advance so that organisational goals are achieved.

MEANING OF CONTROLLING

Controlling is one of the important functions of a manager. In order to seek planned results from the subordinates, a manager needs to exercise effective control over the activities of the subordinates. In other

words, controlling means ensuring that activities in an organisation are performed as per the plans. Controlling also ensures that an organisation's resources are being used effectively and efficiently for the achievement of predetermined goals. Controlling is, thus, a goal-oriented function.

Controlling function of a manager is a pervasive function. It is a primary function of every manager. Managers at all levels of management—top, middle and lower—need to perform controlling functions to keep a control over activities in their areas. Moreover, controlling is as much required in an educational institution, military, hospital, and a club as in any business organisation.

Controlling should not be misunderstood as the last function of management. It is a function that brings back the management cycle back to the planning function. The controlling function finds out how far actual performance deviates from standards, analyses the causes of such deviations and attempts to take corrective actions based on the same. This process helps in formulation of future plans in the light of the problems that were identified and, thus, helps in better

planning in the future periods. Thus, controlling only completes one cycle of management process and improves planning in the next cycle.

Importance of Controlling

Control is an indispensable function of management. Without control the best of plans can go awry. A good control system helps an organisation in the following ways:

- (i) **Accomplishing organisational goals:** The controlling function measures progress towards the organisational goals and brings to light the deviations, if any, and indicates corrective action. It, thus, guides the organisation and keeps it on the right track so that organisational goals might be achieved.
- (ii) **Judging accuracy of standards:** A good control system enables management to verify whether the standards set are accurate and objective. An efficient control system keeps a careful check on the changes taking place in the organisation and in the environment and helps to review and revise the standards in light of such changes.

Managerial Control implies the measurement of accomplishment against the standard and the correction of deviations to assure attainment of objectives according to plans.

Koontz and O' Donnel

- (iii) **Making efficient use of resources:**
By exercising control, a manager seeks to reduce wastage and spoilage of resources. Each activity is performed in accordance with predetermined standards and norms. This ensures that resources are used in the most effective and efficient manner.
- (iv) **Improving employee motivation:**
A good control system ensures that employees know well in advance what they are expected to do and what are the standards of performance on the basis of which they will be appraised. It, thus, motivates them and helps them to give better performance.
- (v) **Ensuring order and discipline:**
Controlling creates an atmosphere of order and discipline in the organisation. It helps to minimise dishonest behaviour on the part of the employees by keeping a close check on their activities.

The box explains how an import-export company was able to track dishonest employees by using computer monitoring as a part of their control system.

- (vi) **Facilitating coordination in action:** Controlling provides direction to all activities and efforts for achieving organisational goals. Each department and employee is governed by predetermined standards which are well coordinated with one another. This ensures that overall organisational objectives are accomplished.

Limitations of Controlling

Although controlling is an important function of management, it suffers from the following limitations.

- (i) **Difficulty in setting quantitative standards:** Control system loses some of its effectiveness when standards cannot be defined in

Control Through Computer Monitoring

Managers at a New York City import-export company suspected that two employees were robbing it. Corporate Defense Strategies (CDS) of Maywood, New Jersey, advised the firm to install a software program that could secretly log every single stroke of the suspects' computer keys and send an encrypted e-mail report to CDS. Investigators revealed that the two employees were deleting orders from the corporate books after processing them, pocketing the revenues, and building their own company from within. The programme picked up on their plan to return to the office late one night to steal a large shipment of electronics. Police hid in the rafters of the firm's warehouse, and when the suspects entered, they were arrested. The pair was charged with embezzling \$3 million over two and a half years, a sizable amount of revenue for a \$25 million-a-year firm.

Source: Hellriegel Don, Susan E. Jackson and John W. Slocum Jr., Management: A Competency-based Approach

quantitative terms. This makes measurement of performance and their comparison with standards a difficult task. Employee morale, job satisfaction and human behaviour are such areas where this problem might arise.

(ii) **Little control on external factors:** Generally an enterprise cannot control external factors such as government policies, technological changes, competition etc.

(iii) **Resistance from employees:** Control is often resisted by employees. They see it as a restriction on their freedom. For instance, employees might object when they are kept under

a strict watch with the help of Closed Circuit Televisions (CCTVs).

(iv) **Costly affair:** Control is a costly affair as it involves a lot of expenditure, time and effort. A small enterprise cannot afford to install an expensive control system. It cannot justify the expenses involved. Managers must ensure that the costs of installing and operating a control system should not exceed the benefits derived from it.

The box on Control System at FedEx gives an overview of the control system used by FedEx and how it helped FedEx to increase its profits.

— *Remain level headed
even when things go wrong*



Relationship between Planning and Controlling

Planning and controlling are inseparable twins of management. A system of control presupposes the existence of certain standards. These standards of performance which serve as the basis of controlling are provided by planning. Once a plan becomes operational, controlling is necessary to monitor the progress, measure it, discover deviations and initiate corrective measures to ensure that events conform to plans. Thus, planning without controlling is meaningless. Similarly, controlling is blind without planning. If the standards are not set in advance, managers have nothing to control.

When there is no plan, there is no basis of controlling.

Planning is clearly a prerequisite for controlling. It is utterly foolish to think that controlling could be accomplished without planning. Without planning there is no predetermined understanding of the desired performance. Planning seeks consistent, integrated and articulated programmes while controlling seeks to compel events to conform to plans.

Planning is basically an intellectual process involving thinking, articulation and analysis to discover and prescribe an appropriate course of action for achieving objectives. Controlling, on the other hand, checks whether decisions have been translated into desired action. Planning is thus,

Control System at FedEx

FedEx operates an \$18 billion delivery system from its eight U.S. and seven international hubs. It operates more than 630 airplanes, 42,500 vehicles, and 44,400 drop-off locations. It delivers more than three million express packages to customers in more than 200 countries. Effective control was one of the key to FedEx's increased profits during the past decade.

An important part of that control system was the ability to track customers' parcels at each stage of collection, shipment and delivery. Also, at FedEx, its controls help identify which customers generate the greatest profits and which eventually end up costing the company. FedEx closes accounts that aren't profitable to serve, such as those in small, widely scattered locations.

The Internet has enabled FedEx to attract and hold new customers by providing them with crucial information as needed. Customers can log onto the Internet and follow the progress of their packages. By providing timely information about services and costs, along with parcel progress to its customers, FedEx has been able to expand rapidly its customer base. More than 2.5 million customers are connected electronically with FedEx.

Source: Hellriegel Don, Susan E. Jackson and John W. Slocum, Jr., Management: A Competency-based Approach, Thompson, 2002

prescriptive whereas, controlling is evaluative.

It is often said that planning is looking ahead while controlling is looking back. However, the statement is only partially correct. Plans are prepared for future and are based on forecasts about future conditions. Therefore, planning involves looking ahead and is called a forward-looking function. On the contrary, controlling is like a postmortem of past activities to find out deviations from the standards. In that sense, controlling is a backward-looking function. However, it should be understood that planning is guided by past experiences and the corrective action initiated by control function aims to improve future performance. Thus, planning and controlling are both backward-looking as well as a forward-looking function.

Thus, planning and controlling are interrelated and, in fact, reinforce each other in the sense that

1. Planning based on facts makes controlling easier and effective; and
2. Controlling improves future planning by providing information derived from past experience.

Controlling Process

Controlling is a systematic process involving the following steps.

1. Setting performance standards
2. Measurement of actual performance

3. Comparison of actual performance with standards
4. Analysing deviations
5. Taking corrective action

Step 1: *Setting Performance Standards:* The first step in the controlling process is setting up of performance standards. Standards are the criteria against which actual performance would be measured. Thus, standards serve as benchmarks towards which an organisation strives to work.

Standards can be set in both quantitative as well as qualitative terms. For instance, standards set in terms of cost to be incurred, revenue to be earned, product units to be produced and sold, time to be spent in performing a task, all represents quantitative standards. Sometimes standards may also be set in qualitative terms. Improving goodwill and motivation level of employees are examples of qualitative standards. The table in the next page gives a glimpse of standards used in different functional areas of business to gauge performance.

At the time of setting standards, a manager should try to set standards in precise quantitative terms as this would make their comparison with actual performance much easier. For instance, reduction of defects from 10 in every 1,000 pieces produced to 5 in every 1,000 pieces produced by the end of the quarter. However, whenever qualitative standards are set, an effort must be made to define them

in a manner that would make their measurement easier. For instance, for improving customer satisfaction in a fast food chain having self-service, standards can be set in terms of time taken by a customer to wait for a table, time taken by him to place the order and time taken to collect the order.

It is important that standards should be flexible enough to be modified whenever required. Due to changes taking place in the internal and external business environment, standards may need some modification to be realistic in the changed business environment.

Step 2: Measurement of Actual Performance: Once performance standards are set, the next step is measurement of actual performance. Performance should be measured in an objective and reliable manner. There are several techniques for measurement of performance. These include personal observation, sample checking, performance reports, etc.

As far as possible, performance should be measured in the same units in which standards are set as this would make their comparison easier.

It is generally believed that measurement should be done after the task is completed. However, wherever possible, measurement of work should be done during the performance. For instance, in case of assembling task, each part produced should be checked before assembling. Similarly, in a manufacturing plant, levels of gas particles in the air could be continuously monitored for safety.

Measurement of performance of an employee may require preparation of performance report by his superior. Measurement of a company's performance may involve calculation of certain ratios like gross profit ratio, net profit ratio, return on investment, etc., at periodic intervals. Progress of work in certain operating areas like marketing may be measured

Standards used in Functional Areas to Gauge Performance

Production	Marketing	Human Resource Management	Finance and Accounting
Quantity	Sales volume	Labour relations	Capital expenditures
Quality	Sales expense	Labour turnover	Inventories
Cost	Advertising expenditures	Labour absenteeism	Flow of capital
Individual job	Individual		Liquidity
Performance	Sales-person's performance		

by considering the number of units sold, increase in market share etc., whereas, efficiency of production may be measured by counting the number of pieces produced and number of defective pieces in a batch. In small organisations, each piece produced may be checked to ensure that it conforms to quality specifications laid down for the product. However, this might not be possible in a large organisation. Thus, in large organisations, certain pieces are checked at random for quality. This is known as sample checking.

Step 3: Comparing Actual Performance with Standards: This step involves comparison of actual performance with the standard. Such comparison will reveal the deviation between actual and desired results. Comparison becomes easier when standards are set in quantitative terms. For instance, performance of a worker in terms of units produced in a week can be easily measured against the standard output for the week.

Step 4: Analysing Deviations: Some deviation in performance can be expected in all activities. It is, therefore, important to determine the acceptable range of deviations. Also, deviations in key areas of business need to be attended more urgently as compared to deviations in certain insignificant areas. Critical point control and management by exception

should be used by a manager in this regard.

1. **Critical Point Control:** It is neither economical nor easy to keep a check on each and every activity in an organisation. Control should, therefore, focus on key result areas (KRAs) which are critical to the success of an organisation. These KRAs are set as the critical points. If anything goes wrong at the critical points, the entire organisation suffers. For instance, in a manufacturing organisation, an increase of 5 per cent in the labour cost may be more troublesome than a 15 per cent increase in postal charges.
2. **Management by Exception:** Management by exception, which is often referred to as control by exception, is an important principle of management control based on the belief that an attempt to control everything results in controlling nothing. Thus, only significant deviations which go beyond the permissible limit should be brought to the notice of management. Thus, if the plans lay down 2 per cent increase in labour cost as an acceptable range of deviation in a manufacturing organisation, only increase in labour cost beyond 2 per cent should be brought to the notice of the management. However, in case of major deviation from the

standard (say, 5 per cent), the matter has to receive immediate action of management on a priority basis.

The box below highlights the advantages of critical point control and management by exception.

After identifying the deviations that demand managerial attention, these deviations need to be analysed for their causes. Deviations may have multiple causes for their origin. These include unrealistic standards, defective process, inadequacy of resources, structural drawbacks, organisational constraints and environmental factors beyond the control of the organisation. It is necessary to identify the exact cause(s) of deviations, failing which, an appropriate corrective action might not be possible. The deviations and their causes are then reported and corrective action taken at appropriate level.

Step 5: Taking Corrective Action: The final step in the controlling process is taking corrective action.

No corrective action is required when the deviations are within acceptable limits. However, when the deviations go beyond the acceptable range, especially in the important areas, it demands immediate managerial attention so that deviations do not occur again and standards are accomplished.

Corrective action might involve training of employees if the production target could not be met. Similarly, if an important project is running behind schedule, corrective action might involve assigning of additional workers and equipment to the project and permission for overtime work. In case the deviation cannot be corrected through managerial action, the standards may have to be revised. The table below cites some of the causes of deviations and the respective corrective action that might be taken by a manager.

The information in the box in next page gives an account of how Saco Defense was able to control a crisis situation.

Advantages of Critical Point Control and Management by Exception

When a manager sets critical points and focuses attention on significant deviations which cross the permissible limit, the following advantages accrue:

1. It saves the time and efforts of managers as they deal with only significant deviations.
2. It focuses managerial attention on important areas. Thus, there is better utilisation of managerial talent.
3. The routine problems are left to the subordinates. Management by exception, thus, facilitates delegation of authority and increases morale of the employees.
4. It identifies critical problems which need timely action to keep the organisation in right track.

Remedial Plan of Action: Analysing deviations



Some examples of Corrective Action

Causes of deviation	Corrective action to be taken
1. Defective material	Change the quality specification for the material used
2. Defective machinery	Repair the existing machine or replace the machine if it cannot be repaired
3. Obsolete machinery	Undertake technological upgradation of machinery
4. Defective process	Modify the existing process
5. Defective physical conditions of work	Improve the physical conditions of work

TECHNIQUES OF MANAGERIAL CONTROL

The various techniques of managerial control may be classified into two broad

categories: traditional techniques, and modern techniques.

Traditional Techniques

Traditional techniques are those which have been used by the

How Saco Defense Controlled the Situation?

At Saco Defense, lack of quality had created a crisis. When the government shut it down because it wasn't meeting quality standards, Saco brought back a TQM programme that had restored quality, increased production, and decreased costs. Based in Saco, Maine, the 178-year-old defense company was unable to adhere to the U.S. Navy's quality standards. Although Saco's weapons worked well, the government questioned the company's quality practices and policies. For example, if an employee discovered a defective bolt near the completion of an assembly process, the operator would replace the bolt but not document the problem. The presence of one defective bolt might mean that others from the same supplier or batch were also bad but were going undetected. Without follow-up, the underlying materials problem would not be identified and resolved.

To solve these problems Saco Defense went through an organisational transformation. The key elements were: (1) empowering employees by giving them the responsibility and accountability for their performance, including the authority to halt production to correct problems; (2) forming work cells, that is, small businesses within the company that manage their production with limited supervision; and (3) reducing the workforce from 760 to about 450 employees and eliminating several layers of management. In addition, ongoing improvement projects at the company range from reducing cycle time and product cost to implementing programmes for skill integration. Productivity has increased, turnover is down, and the company plans to expand its international business.

*Source: Stoner, A.F. James, R. Edward Freeman and Daniel R. Gilbert, Jr., Management, Prentice-Hall of India Pvt. Ltd., 1998
(Ref: Joyce E. Santora, 'A Quality Program Transforms Saco Defense', Personnel Journal, May 1993)*

companies for a long time now. However, these techniques have not become obsolete and are still being used by companies. These include:

- (a) Personal observation
- (b) Statistical reports
- (c) Breakeven analysis
- (d) Budgetary control

Modern Techniques

Modern techniques of controlling are those which are of recent origin and are comparatively new in management literature. These techniques provide a refreshingly new thinking on the

ways in which various aspects of an organisation can be controlled. These include:

- (a) Return on investment
- (b) Ratio analysis
- (c) Responsibility accounting
- (d) Management audit
- (e) PERT and CPM
- (f) Management information system

TRADITIONAL TECHNIQUES

Personal Observation

This is the most traditional method of control. Personal observation

enables the manager to collect first hand information. It also creates a psychological pressure on the employees to perform well as they are aware that they are being observed personally on their job. However, it is a very time-consuming exercise and cannot effectively be used in all kinds of jobs.

Statistical Reports

Statistical analysis in the form of averages, percentages, ratios, correlation, etc., present useful information to the managers regarding performance of the organisation in various areas. Such information when presented in the form of charts, graphs, tables, etc., enables the managers to read them more easily and allow a comparison

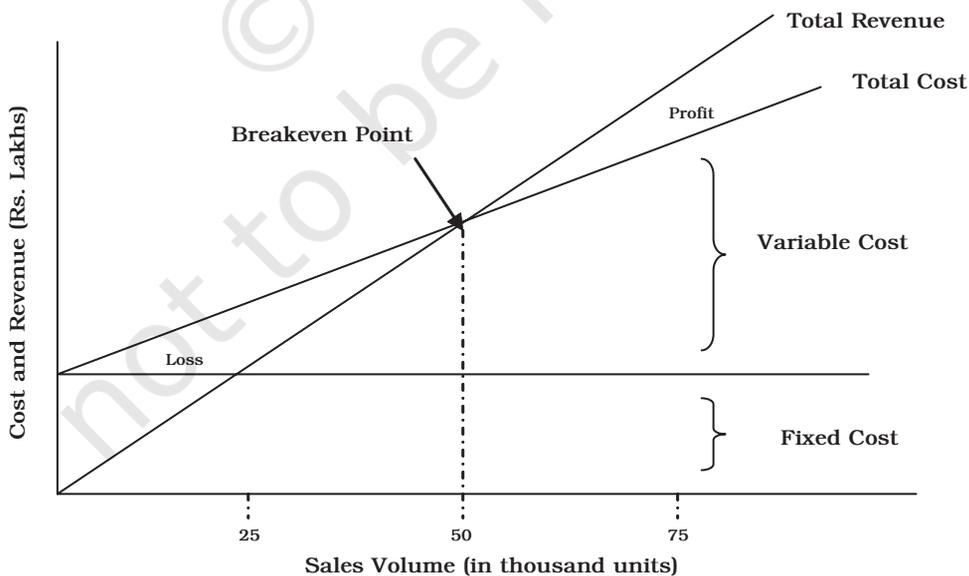
to be made with performance in previous periods and also with the benchmarks.

Breakeven Analysis

Breakeven analysis is a technique used by managers to study the relationship between costs, volume and profits. It determines the probable profit and losses at different levels of activity. The sales volume at which there is no profit, no loss is known as breakeven point. It is a useful technique for the managers as it helps in estimating profits at different levels of activities.

The figure 1 shows breakeven chart of a firm. Breakeven point is determined by the intersection of Total Revenue and Total Cost curves.

 Breakeven Chart



The figure shows that the firm will break even at 50,000 units of output. At this point, there is no profit no loss. It is beyond this point that the firm will start earning profits.

Breakeven point can be calculated with the help of the following formula:

$$\text{Breakeven Point} = \frac{\text{Fixed Costs}}{\text{Selling price per unit} - \text{Variable cost per unit}}$$

Breakeven analysis helps a firm in keeping a close check over its variable costs and determines the level of activity at which the firm can earn its target profit.

Budgetary Control

Budgetary control is a technique of managerial control in which all operations are planned in advance in the form of budgets and actual results are compared with budgetary standards. This comparison reveals

the necessary actions to be taken so that organisational objectives are accomplished.

A budget is a quantitative statement for a definite future period of time for the purpose of obtaining a given objective. It is also a statement which reflects the policy of that particular period. It will contain figures of forecasts both in terms of time and quantities. The box shows the most common types of budgets used by an organisation.

Budgeting offers the following advantages:

1. Budgeting focuses on specific and time-bound targets and thus, helps in attainment of organisational objectives.
2. Budgeting is a source of motivation to the employees who know the standards against which their performance will be appraised and thus, enables them to perform better.

Types of Budgets

- **Sales Budget:** A statement of what an organisation expects to sell in terms of quantity as well as value
- **Production Budget:** A statement of what an organisation plans to produce in the budgeted period
- **Material Budget:** A statement of estimated quantity and cost of materials required for production
- **Cash Budget:** Anticipated cash inflows and outflows for the budgeted period
- **Capital Budget:** Estimated spending on major long-term assets like new factory or major equipment
- **Research and Development Budget:** Estimated spending for the development or refinement of products and processes

3. Budgeting helps in optimum utilisation of resources by allocating them according to the requirements of different departments.
4. Budgeting is also used for achieving coordination among different departments of an organisation and highlights the interdependence between them. For instance, sales budget cannot be prepared without knowing production programmes and schedules.
5. It facilitates management by exception by stressing on those operations which deviate from budgeted standards in a significant way.

However, the effectiveness of budgeting depends on how accurately estimates have been made about future. Flexible budgets should be prepared which can be adopted if forecasts about future turn out to be different, especially in the face of changing environmental forces. Managers must remember that budgeting should not be viewed as an end but a means to achieve organisational objectives.

MODERN TECHNIQUES

Return on Investment

Return on Investment (RoI) is a useful technique which provides the basic yardstick for measuring whether or not invested capital has been used effectively for generating reasonable

amount of return. RoI can be used to measure overall performance of an organisation or of its individual departments or divisions. It can be calculated as under.

$$\text{RoI} = \frac{\text{Net Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total Investment}}$$

Net Income before or after tax may be used for making comparisons. Total investment includes both working as well as fixed capital invested in business. According to this technique, RoI can be increased either by increasing sales volume proportionately more than total investment or by reducing total investment without having any reductions in sales volume.

RoI provides top management an effective means of control for measuring and comparing performance of different departments. It also permits departmental managers to find out the problem which affects RoI in an adverse manner.

Ratio Analysis

Ratio Analysis refers to analysis of financial statements through computation of ratios. The most commonly used ratios used by organisations can be classified into the following categories:

1. *Liquidity Ratios:* Liquidity ratios are calculated to determine short-term solvency of business. Analysis of current position of liquid funds determines the

ability of the business to pay the amount due to its stakeholders.

2. **Solvency Ratios:** Ratios which are calculated to determine the long-term solvency of business are known as solvency ratios. Thus, these ratios determine the ability of a business to service its indebtedness.
3. **Profitability Ratios:** These ratios are calculated to analyse the profitability position of a business. Such ratios involve analysis of profits in relation to sales or funds or capital employed.
4. **Turnover Ratios:** Turnover ratios are calculated to determine the efficiency of operations based on effective utilisation of resources. Higher turnover means better utilisation of resources.

The table given below gives examples of some ratios commonly used by managers.

RESPONSIBILITY ACCOUNTING

Responsibility accounting is a system of accounting in which different sections, divisions and departments of an organisation are set up as 'Responsibility Centres'. The head of the centre is responsible for achieving the target set for his centre.

Responsibility centres may be of the following types:

1. **Cost Centre:** A cost or expense centre is a segment of an organisation in which managers are held responsible for the cost incurred in the centre but not for the revenues. For example, in a manufacturing organisation, production department is classified as cost centre.
2. **Revenue Centre:** A revenue centre is a segment of an organisation which is primarily

Examples of Commonly used Ratios

Type of Ratio	Examples
Liquidity	Current Ratio Quick Ratio
Solvency	Debt-Equity Ratio Proprietary Ratio Interest Coverage Ratio
Profitability	Gross Profit Ratio Net Profit Ratio Return on Capital Employed
Turnover	Inventory Turnover Ratio Stock Turnover Ratio Debtors Turnover Ratio

responsible for generating revenue. For example, marketing department of an organisation may be classified as a revenue center.

3. **Profit Centre:** A profit centre is a segment of an organisation whose manager is responsible for both revenues and costs. For example, repair and maintenance department of an organisation may be treated as a profit center if it is allowed to bill other production departments for the services provided to them.
4. **Investment Centre:** An investment centre is responsible not only for profits but also for investments made in the centre in the form of assets. The investment made in each centre is separately ascertained and return on investment is used as a basis for judging the performance of the centre.

MANAGEMENT AUDIT

Management audit refers to systematic appraisal of the overall performance of the management of an organisation. The purpose is to review the efficiency and effectiveness of management and to improve its performance in future periods. It is helpful in identifying the deficiencies in the performance of management functions. Thus, management audit may be defined as evaluation of the functioning, performance and effectiveness of management of an organisation.

The main advantages of management audit are as follows.

1. It helps to locate present and potential deficiencies in the performance of management functions.
2. It helps to improve the control system of an organisation by continuously monitoring the performance of management.
3. It improves coordination in the functioning of various departments so that they work together effectively towards the achievement of organisational objectives.
4. It ensures updating of existing managerial policies and strategies in the light of environmental changes.

Conducting management audit may sometimes pose a problem as there are no standard techniques of management audit. Also, management audit is not compulsory under any law. Enlightened managers, however, understand its usefulness in improving overall performance of the organisation.

PERT AND CPM

PERT (Programme Evaluation and Review Technique) and CPM (Critical Path Method) are important network techniques useful in planning and controlling. These techniques are especially useful for planning, scheduling and implementing time bound projects involving performance of a variety of complex, diverse and interrelated activities.

These techniques deal with time scheduling and resource allocation for these activities and aims at effective execution of projects within given time schedule and structure of costs.

The steps involved in using PERT/CPM are as follows:

1. The project is divided into a number of clearly identifiable activities which are then arranged in a logical sequence.
2. A network diagram is prepared to show the sequence of activities, the starting point and the termination point of the project.
3. Time estimates are prepared for each activity. PERT requires the preparation of three time estimates – optimistic (or shortest time), pessimistic (or longest time) and most likely time. In CPM only one time estimate is prepared. In addition, CPM also requires making cost estimates for completion of project.
4. The longest path in the network is identified as the critical path. It represents the sequence of those activities which are important for timely completion of the project and where no delays can be allowed without delaying the entire project.
5. If required, the plan is modified so that execution and timely completion of project is under control.

PERT and CPM are used extensively in areas like ship-building, construction projects, aircraft manufacture, etc.

Management Information System

Management Information System (MIS) is a computer-based information system that provides information and support for effective managerial decision-making. A decision-maker requires up-to-date, accurate and timely information. MIS provides the required information to the managers by systematically processing a massive data generated in an organisation. Thus, MIS is an important communication tool for managers.

MIS also serves as an important control technique. It provides data and information to the managers at the right time so that appropriate corrective action may be taken in case of deviations from standards.

MIS offers the following advantages to the managers:

1. It facilitates collection, management and dissemination of information at different levels of management and across different departments of the organisation.
2. It supports planning, decision-making and controlling at all levels.
3. It improves the quality of information with which a manager works.
4. It ensures cost effectiveness in managing information.
5. It reduces information overload on the managers as only relevant information is provided to them.

Key Terms

Controlling | Critical point control | Management by exception
 Breakeven analysis | Budgetary control | Return on investment
 Ratio analysis | Responsibility accounting | Management audit
 PERT and CPM | Management | Information system

Summary

- Controlling is the process of ensuring that actual activities conform to planned activities.
- The importance of managerial control lies in the fact that it helps in accomplishing organisational goals. Controlling also helps in judging accuracy of standards, ensuring efficient utilization of resources, boosting employee morale, creating an atmosphere of order and discipline in the organisation and coordinating different activities so that they all work together in one direction to meet targets.
- Controlling suffers from certain limitations also. An organisation has no control over external factors. The control system of an organisation may face resistance from its employees. Sometimes controlling turns out to be a costly affair, especially in case of small organisations. Moreover, it is not always possible for the management to set quantitative standards of performance in the absence of which controlling exercise loses some of its effectiveness.
- The process of control involves setting performance standards, measurement of actual performance, comparison of actual performance with standards, analysis of deviations and taking corrective action.
- Planning and controlling are inseparable twins of management. Planning initiates the process of management and controlling completes the process. Plans are the basis of control and without control the best laid plans may go astray.
- Personal observation, statistical reports, breakeven analysis and budgetary control are traditional techniques of managerial control.
- Return on investment, ratio analysis, responsibility accounting, management audit, PERT and CPM and Management Information System are modern techniques of managerial control.

Exercises**Very Short Answer Type**

1. State the meaning of controlling.
2. Name the principle that a manager should consider while dealing with deviations effectively. State any one situation in which an organisation's control system loses its effectiveness.
3. State any one situation in which an organisation's control system loses its effectiveness.
4. Give any two standards that can be used by a company to evaluate the performance of its Finance & Accounting department.
5. Which term is used to indicate the difference between standard performance and actual performance?

Short Answer Type

1. 'Planning is looking ahead and controlling is looking back.' Comment.
2. 'An effort to control everything may end up in controlling nothing.' Explain.
3. Write a short note on budgetary control as a technique of managerial control.
4. Explain how management audit serves as an effective technique of controlling.
5. Mr.Arfaaz had been heading the production department of Writewell Products Ltd., a firm manufacturing stationary items. The firm secured an export order that had to be completed on a priority basis and production targets were defined for all the employees. One of the workers, Mr.Bhanu Prasad, fell short of his daily production target by 10 units for two days consecutively. Mr.Arfaaz approached MsVasundhara, the CEO of the Company, to file a complaint against MrBhanu Prasad and requested her to terminate his services. Explain the principle of management control that MsVasundhara should consider while taking her decision. (Hint: Management by exception).

Long Answer Type

1. Explain the various steps involved in the process of control.
2. Explain the techniques of managerial control.
3. Explain the importance of controlling in an organisation. What are the problems faced by the organisation in implementing an effective control system?
4. Discuss the relationship between planning and controlling.
5. A company 'M' limited is manufacturing mobile phones both for domestic Indian market as well as for export. It had enjoyed a substantial market share and also had a loyal customer following. But lately it has been experiencing problems because its targets have not been met with regard to sales and customer satisfaction. Also mobile market in India has grown tremendously and new players have come with better technology and pricing. This is causing problems for the company. It is planning to revamp its controlling system and take other steps necessary to rectify the problems it is facing.
 - a. Identify the benefits the company will derive from a good control system.
 - b. How can the company relate its planning with control in this line of business to ensure that its plans are actually implemented and targets attained.
 - c. Give the steps in the control process that the company should follow to remove the problems it is facing
6. Mr Shantanu is a chief manager of a reputed company that manufactures garments. He called the production manager and instructed him to keep a constant and continuous check on all the activities related to his department so that everything goes as per the set plan. He also suggested him to keep a track of the performance of all the employees in the organisation so that targets are achieved effectively and efficiently.
 - a. Describe any two features of Controlling highlighted in the above situation.(Goal Oriented, continuous and pervasive – any 2).
 - b. Explain any four points of importance of Controlling.

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