Block

3

MANAGEMENT CONTROL: FUNCTIONAL PERSPECTIVES – 1

Ref. No. MCS-SLM-IFHE- 122022B3

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BLOCK 3: MANAGEMENT CONTROL: FUNCTIONAL PERSPECTIVES – 1

The third block of the course on Management Control Systems deals with the first part of the functional perspectives of management control. This block discusses some of the functional perspectives of management control such as financial, marketing, production, and operational perspectives. The block contains four units. The first unit discusses the financial control of an organization. The second focuses on marketing control. Both the third and the fourth units discuss the management control of production and operations.

Unit 10, Financial Control of the Enterprise, defines financial controls, and explains their importance. It discusses the various tools used by organizations for financial control. The unit then discusses the different ways to control the assets employed in the business, and explains how financial information systems are used to control organizational performance. Finally, the unit ends with a discussion on the various roles which exercise financial control and their accountability towards the organization.

Unit 11, Marketing Control, discusses the types of marketing control, the concept of marketing audit, and the concept and usage of sales control. The term control involves measurement, evaluation, and monitoring. Since the resources are scarce and involve cost it is important to monitor and control marketing plansThe unit discusses the constituents of the distribution function and the different methods of distribution control, including channel conflict management. It also discusses the control aspects of advertising, sales promotion, direct marketing, and public relations as elements of marketing communications. The unit discusses the concepts of brand equity and brand measurement, and the technique of brand portfolio management. Finally, the unit ends with a discussion on the usage of information systems like marketing decision support system and marketing intelligence for marketing control.

Unit 12, Management Control of Products and Operations: Products or services bring revenues and profitability to the organization. Hence the management control aspects are required in products and operations. This unit provides concepts of production and operations controls while covering the overview of controlling aspects of products and operations. The unit discusses the concepts of production and operations controls. The unit also explains the concept and importance of supply chain management. It then discusses the external factors that influence the behaviour of consumers. The unit ends with a discussion on the use of information systems in production and operations management.

Unit 13, Management Control of Operations: Cost, Performance and Audit discusses the controlling aspects of operations The organization needs to focus on optimising operational performance Hence introducing various control measures are required. The unit discusses a few techniques for enhancing organizational performance. The unit ends with a discussion on the areas of operational audit and safety audit.

Unit 10

Financial Control of the Enterprise

Structure

"Business requires understanding financial matters, but management is different from running the financial aspects of the business - it requires understanding complex systems, how they operate, the nature of organisations, what happens when people interact in groups and how to motivate and guide people."

- Prof. Rosabeth Moss Kanter (Director and chair of the Harvard University Advanced Leadership Initiative)

10.1 Introduction

Financial control of the enterprise is a complex and multi-faceted activity.

In the last unit of the previous block, we discussed the concept of transfer pricing. In this unit, we shall discuss the financial control of an organization.

From a financial disclosure and regulatory compliance perspective, financial control ensures that financial details are stored as well as reported appropriately, both in terms of disclosing the financial status of the business at a point of time and its financial performance during a specified time period. From an effectiveness and efficiency perspective, financial control helps in planning and forecasting which are required with regard to profit and cash generation.

Organizations that have an effective system for financial planning and control will be well prepared to deal with environmental uncertainties and have useful information for developing business strategies.

This unit will first define financial controls, and discuss their importance. We shall discuss the various tools used by organizations for financial control. We shall then move on to discuss the different ways to control the assets employed in the business, and explain how financial information systems are used to control organizational performance. Finally, we shall discuss the various roles which exercise financial control and their accountability toward the organization.

10.2 Objectives

After studying this unit, you should be able to:

- Describe how a financial control restricts the opportunities for misrepresenting facts and/or committing frauds.
- Familiarize with the financial policies and procedures.
- Recognize how segregation of duties and book keeping provides a check as a financial control.
- Identify the different tools that help in the financial control.
- Interpret how the financial ratios assess the financial performance of an organization vis-à-vis controlling assets employed in the business.
- Visualize how the financial information systems monitor and control the financial performance of an organization on a continuous basis.
- Discuss how the management, employees and external entities play an important role in financial control and accountability of an organization.

10.3 Introduction to Financial Controls

Managing the financial resources of an organization is an important function in the organization and they should be controlled to optimize the resource utilization. Hence some basic issues related to financial control aspects are discussed in following paras.

To establish financial control in terms of effective action control and/or results control, a prerequisite is a controlled environment that reduce opportunities for misrepresenting facts and/or committing fraud. Personnel/cultural controls contribute significantly to creating such a positive control environment. The good character, competence, diligence, and ethical behaviour of supervisors can create the desired financial control environment in an organization. The organizational structure in terms of clearly defined and communicated roles and responsibilities also contributes greatly to the creation of such an environment. Financial control pertains to processes within the finance department as well as to processes in the entire organization. The important components of financial control are -

- Financial policies and procedures
- Segregation of duties
- Book-keeping
- Financial control tools for reviewing and analyzing the organization's financial performance
- Controlling assets employed in the business
- Financial information systems for maintaining records, reporting, and decision support.

10.3.1 Financial Policies and Procedures

A financial policy is a directive on the organization's financial aspects and comprises guidelines that need to be followed for activities that have a financial implication. It also ensures transparency and accountability by ensuring consistency in the various organizational activities. It aims at regulating the tasks that have financial implications and provides for easier decision-making. Budgetary policy, expenditure policy, wages and salary policy, cash and bank policy, and auditing policy are some such policies. Financial policies should be fair and framed such that they comply with the applicable laws. They should also comprehensively address real-life business situations and should be implementable at a reasonable cost.

For implementing financial policies, there are procedures specified, which ensure standardization of work practices. Action controls - behavioral constraints, pre-action appraisal, and action accountability - are effected through these procedures. In an automated work environment, it is easier to implement action controls such as restricting certain classes of users from carrying out certain types of transactions. Automation leads to cost control and delay reduction that could otherwise result from manual enforcement of procedural controls over the initiation and authorization of transactions.

10.3.2 Segregation of Duties

Segregation of duties, an important financial control element, should include the assurance that no one individual has the physical and system access to control all phases of a business process or transaction -- from authorization to custody to record keeping. It is in-built in business processes to prevent and/or detect errors during the regular course of business. There are four categories of duties in financial control - authorization, custody, record-keeping, and reconciliation. These are described in Table 10.1.

Table 10.1: Categories of Duties in Financial Control

Category	Description	Examples
Authorization	The process of reviewing and approving transactions.	• Approving purchase requisitions • Approving time sheets, payroll certifications, leave requests, and leave records • Approving changes in computer system design or programming
Custody	The control over or access to any physical asset such as cash, equipment, supplies or materials.	• Collection of funds • Access to safes, lock boxes, file cabinets, or other places where cash or other assets are stored • Disbursal of payments
Record-keeping	Creating and maintaining records of transactions, manually or in a computerized system.	• Preparation of invoices, purchase orders, and leave records • Maintaining inventory records
Reconciliation	Verifying the processing or recording of transactions to ensure validity, authorization, and regularity.	• Comparing billing documents with billing summaries • Performing physical inventory counts • Reconciling departmental records of revenue, expenditure, and payroll transactions to financial reports.

10.3.3 Book-keeping

Book-keeping is the function of recording the financial data through maintaining and updating various books of accounts like journals and ledgers. Financial statements -- the Balance Sheet, Profit and Loss Account, and Cash Flow

Statement -- present and report the financial outcome of an organization's operations.

Managers analyze these statements on an ongoing basis to determine whether the organization's performance is in line with the expectations or some corrective action is required. Book-keeping focuses on monitoring the organization's financial activities and maintaining documentary evidence of all inflows and outflows. It ensures transparency in the organization's financial position and enforces financial accountability. A good book- keeping system provides regular reports to all those who require them.

Controls help in tracing transactions from the general ledger to the source document to find out the transaction's accuracy, validity, and recording.

Computers are being used for book-keeping and financial reporting to ensure accuracy in the recording of transactions, and to save time and effort. Computers also enable smooth and effective generation of financial reports at any point of time.

10.4 Tools of Financial Control

Financial analysis is a process of identifying financial strength and weakness of a business organization by analysing various financial ratios of the organization. The analysis develops a technical relationship between the various items of balance sheet and income statement. How do we do the financial analysis of any organization to facilitate the financial control? This process is carried out by applying a number of financial tools and techniques. The following paragraphs discuss various aspects of these financial tools for controlling role.

Financial statements and financial ratios are extensively used as tools of financial control. Economic Value Added (EVA), Market Value Added (MVA), Cash Flow Return on Investment (CFROI), and strategic profit model are financial performance indicators used widely as performance measurement tools for the entire organization. The segment margin report helps to analyze the performance of an organization's business units or divisions.

10.4.1 Financial Statements

Balance Sheet, Profit and Loss Account, and Cash Flow Statement are the financial statements prepared by organizations to monitor business performance and exercise financial control.

Balance sheet

The balance sheet (statement of financial position) reflects an organization's financial and wealth position at a given point of time. It is used to determine whether the organization has ample self-owned financial resources or whether it has to go in for borrowings. Balance sheet analysis helps in exercising control over liquidity issues and in evaluating the amount of financial resources blocked in working capital. It also facilitates assessing the effectiveness of the capital structure of the organization in terms of the contribution of debt and equity to capital structure. It indicates the risk of bankruptcy and whether it will be easy or difficult to raise financial resources from the market.

Profit and loss account

The profit and loss account (income statement) is prepared to reflect the results (profit or loss) of the organization's operations over a period of time. It lists out the sources of income, the expenses incurred, and non-cash expenses. The difference between income and expense is recorded as profit or loss. The profit and loss account can be used to control expenses in relation to the income being generated, and also to analyze the trends in income and expenses over time and control them accordingly.

Cash flow statement

The cash flow statement is a periodic statement that presents a picture of cash inflow and cash outflow. It looks at the actual inflows and outflows, and depicts the cash flows under three heads - operating activities, investing activities, and financing activities. Cash flow from operating activities will indicate the quantum of cash being generated through sales minus the cash outflow toward the cost of the products and services sold. Ideally, cash inflows should far exceed the cash outflows in a business, except during the initial stages. Cash flow from investing activities (such as acquisition and disposal of long-term assets) reflects the expenses made in the present toward the creation of future income and cash inflows. Cash flow from financing activities (such as issue of shares, issue and redemption of debentures, and repayment of principal amount of a long-term borrowing) helps to estimate future cash outflow requirements in terms of payments to lenders and shareholders.

10.4.2 Financial Ratios

Each financial statement presents the financial data in a structured format, but it does not reflect clearly the effectiveness of the organization's financial performance. Also, it does not provide an analytical view of the financial data from multiple perspectives. To fulfill these requirements financial ratios have to be relied upon.

The following points should be considered while using financial ratios as a control mechanism.

- A high ratio does not necessarily indicate good performance.
- Financial ratios should be analyzed from an industry perspective. Different industries have different investment and return norms. Ratios of one industry should not be used as a benchmark for another industry.

- Mere calculation of the financial ratios will not reveal much; these ratios need to be compared with those of competitors to arrive at a meaningful conclusion about the organization's performance and for corrective action to be taken, if required.
- The use of ratios as a control tool should be used on an ongoing basis instead of limiting to the end of the financial period or year.
- Financial ratios operate on figures which are the result of accounting practices. When comparing ratios for the same organization across multiple financial periods or with those of its competitors, it is essential to account for any changes or differences that might have taken place in the accounting practices of the organization or its competitors.
- The trend in the value of a ratio over time is often a good indicator of an organization's progress (or lack of it) on a particular dimension - management control is more concerned about the future well-being of an organization than about merely evaluating past performance.

Broadly, financial ratios are of five types - liquidity ratios, leverage ratios, turnover ratios, profitability ratios, and valuation ratios.

Activity 10.1

Anandhi Enterprises, based in a village near Chennai, was owned and headed by Anandhi, a first generation entrepreneur. It started as a small firm developing and marketing natural herb-based skincare products. With growing sales, the firm slowly expanded to the nearby big cities and towns. Anandhi had taken a vocational course where she was taught the nuances of running a business along with the recording of transactions in the form of a profit and loss account. With increasing size of business and responsibilities, she appointed Chetan, an experienced accountant to take care of the finances. Chetan took over and started organizing the financial statements. Using the profit & loss account and other available details, he prepared the cash flow statement and balance sheet for the firm. Anandhi mistook the cash flow statement to be same as profit & loss account. On behalf of Chetan, explain the difference between the two statements to Anandhi.

Answer:

Liquidity ratios

Liquidity ratios give an indication about the organization's capacity to pay off its short-term obligations, i.e., liabilities or debts due within one year, and aims at ensuring that its operations do not lead to bankruptcy. Analyzing liquidity ratios helps control and match an organization's credit policies with reference to the credit period being extended to its customers vis-a-vis the credit period extended by its suppliers. The important liquidity ratios are: current ratio, acid-test ratio, and cash ratio.

Current ratio: It measures the organization's capability to meet its current liabilities. Current assets include cash or bank balances, current investments, sundry debtors or receivables, inventories, loans and advances, and prepaid expenses. Current liabilities are those that have to be repaid within one year and include loans (secured and unsecured) falling due in the next 12 months, and current liabilities and provisions. Acceptable current ratios vary according to the nature of the industry.

Acid test ratio: Also known as quick ratio, this ratio is an extension of the current ratio and is a stricter measure of an organization's liquidity. Inventories are subtracted from current assets because it takes more time to convert inventories into cash when compared to other forms of current assets.

Cash ratio: This ratio is the strictest measure of an organization's liquidity that considers the cash and bank balances and current investments, and matches them with current liabilities. It is essential to separately monitor the cash ratio because a high current ratio need not translate to a high cash ratio. Cash ratio = (Cash and bank balances + Current investments) / Current liabilities.

Leverage ratios

Leverage ratios assess an organization's capital structure (in terms of equity and debt) and the risk arising from the use of debt as a source of funds. These ratios help in controlling the cost of capital and the risk of increased debt. Some of the leverage ratios are financial leverage ratio, debt-equity ratio, debt-assets ratio, interest coverage ratio, fixed charges coverage ratio and debt service coverage ratio.

Leverage ratios can be classified into structural ratios and coverage ratios. Structural ratios are derived from the proportions of debt and equity used by an organization. Important structural ratios are - financial leverage ratio, debt-equity ratio, and debt- assets ratio. Coverage ratios show the relationship between the organization's obligations in repaying debts and the sources from which these obligations will be met. Important coverage ratios are - interest coverage ratio, fixed charges coverage ratio, and debt service coverage ratio.

Financial leverage ratio: This ratio is used to assess the effectiveness with which an organization utilizes external funding to improve shareholders' returns (or net worth). It is the proportion of total assets to shareholders' funds.

Debt-equity ratio: It indicates the proportion of equity and debt an organization is using to finance its assets. A high ratio generally means that the organization has been aggressive in financing its growth with debt, and implies that it is at a higher risk of bankruptcy - as the organization has to make interest payments and principal repayments irrespective of its performance.

Debt-assets ratio: This ratio indicates what proportion of an organization's assets is being financed through debt.

Interest coverage ratio: This ratio is used to determine how easily an organization can pay the interest due on an outstanding debt. A high interest coverage ratio means that the organization can easily pay the interest dues even if its profit before interest and taxes (PBIT) declines to some extent.

Fixed charges coverage ratio: The fixed charges coverage ratio indicates the organization's ability to meet fixed financing expenses, such as interest and leases. It indicates the risk involved in the organization's ability to pay the fixed costs when business activity falls.

Debt service coverage ratio: The debt service coverage ratio is a measure of the cash flow available to meet annual interest and principal payments on debt.

Turnover ratios

Turnover ratios (efficiency ratios or asset management ratios) measure how efficiently an organization utilizes its assets. The inventory turnover ratio, the debtors' turnover ratio, the average collection period, the fixed assets turnover ratio, and total assets turnover ratio are some important turnover ratios.

Inventory turnover ratio: This ratio indicates the number of times an organization's inventory is replaced during a given time period. A high ratio usually means that the organization is able to rapidly convert its throughput into revenue or that there is insufficient inventory. This ratio should be compared against industry averages.

Debtors' turnover ratio: This ratio measures the number of times receivables turn over during the year. A high ratio indicates a short-time period between sales and cash collection.

Average collection period: This indicates the time taken (in days) by an organization to collect its account receivables, and the efficiency of its collection managers.

Fixed assets turnover ratio: This ratio is a measure of the sales generated per rupee invested in fixed assets. It measures the organization's effectiveness in generating revenue from investments in fixed assets. A high ratio indicates the effectiveness of the organization's investments in net property, plant, and equipment.

Total assets turnover ratio: This ratio is a measure of the sales generated per rupee invested in total assets. It measures the organization's effectiveness in generating revenue from investments in total assets.

Profitability ratios

Profitability ratios measure the outcomes or profitability of business operations. Gross profit margin, net profit margin, return on assets, earning power, return on capital employed, and return on equity are some widely used profitability ratios.

Gross profit margin: This is a measure of the gross profit earned on sales by an organization. It indicates how efficiently an organization is using its materials and labor in the production process. It shows the percentage of net sales remaining after subtracting the cost of goods sold. A high gross profit margin indicates that a business can make a reasonable profit on sales, as long as it keeps overhead costs under control.

Net profit margin: Net profit margin indicates the organization's earnings after deduction of taxes as a percentage of net sales. It tells us how much profit an organization makes for every rupee it generates in revenue. Profit margins vary by industry, but other things being equal, the higher an organization's profit margin as compared to its competitors, the better.

Return on assets (ROA): ROA is an indicator of how profitable an organization is relative to its total assets. It indicates how efficient an organization is in managing its assets to generate returns.

Earning power: Earning power is a measure of performance of the business which is not affected by tax or interest charges.

Return on capital employed (ROCE): ROCE is a measure of the returns realized from the total capital employed in the business. It indicates whether the organization is earning adequate revenues and profits through the efficient use of its capital. It considers the impact of taxation as a cost of doing business.

Return on equity (ROE): ROE measures how much profit a company generates with the money invested by the shareholders. It is also known as return on net worth (RONW).

Valuation ratios

Valuation ratios indicate how a company's stock is valued in the capital market. Price earnings ratio, yield, and market value to book value ratio are some important valuation ratios.

Price earnings ratio: It is the ratio of a company's current share price to its per-share earnings. The price earnings ratio shows how much investors are willing to pay per rupee earned by the company.

Yield: Yield is a measure of the rate of return earned by shareholders. Shareholders earn returns in terms of dividends and capital appreciation. It is the sum of dividend yield and capital gains yield.

Market value to book value ratio: This ratio is an indication of the organization's contribution to wealth creation in society. It is desirable to have a market value to book value ratio greater than 1 because it means that the company has been successful in creating wealth for society.

Ratios calculated based on a single set of financial statements may not be enough to assess an organization's performance. Hence, analysis reports comprising graphs and charts are prepared using various ratios calculated over a number of years. A trend- analysis is then done to examine the organization's financial health.

Refer to the example for profitability, turnover and solvency ratios of Larsen & Toubro for FYs 2021 and 2022.

Example: Profitability, Turnover and Solvency Ratios of Larsen & Toubro for the Financial Year ended 31st March 2021 and 31st March 2022

Profitability Ratios	**March 2022**	**March 2021**
Operating Profit Margin (%)	11.20	11.87
Gross Profit Margin (%)	13.08	14.01
Net Profit Margin (%)	6.57	9.49
Return On Capital Employed (%)	10.91	9.28
Return On Net Worth (%)	10.52	15.26
Return on Assets (%)	2.70	3.72
Management Efficiency Ratios		
Inventory Turnover Ratio	2.81	23.36
Asset Turnover Ratio	0.42	43.68
Liquidity And Solvency Ratios		
Current Ratio	1.31	1.42
Quick Ratio	1.27	1.38
Debt Equity Ratio	1.50	1.73
Interest Coverage Ratio	6.55	4.13

Source: Consolidated Key Financial Ratios of Larsen & Toubro 2020-21 and 2021-22
https://www.moneycontrol.com/india/stockpricequote/infrastructure-general/larsentoubro/LT

10.4.3 Economic Value Added (EVA)

EVA, developed by Stern Stewart & Co., is a financial performance metric that captures the correct economic profit of an organization in terms of shareholders' wealth creation. It is net operating profit minus an appropriate charge for the opportunity cost of all capital invested in the organization.

$$\text{EVA} = \text{NOPAT} - (\text{Capital} * \text{Cost of Capital})$$

NOPAT (Net Operating Profit after Tax) is the profit earned from operating activities after tax deduction. It is a good measure of profitability as it does not include non- operating items like income from investments and goodwill amortization. Capital is the amount invested in the business. Cost of Capital is the opportunity cost i.e., the minimum rate of return that would be earned if the money was invested in other investment opportunities of comparable risk, and is calculated as the weighted sum of the cost of debt and the cost of equity.

EVA is an estimate of the amount by which the organization's earnings exceed or fall short of the return which shareholders and lenders could have got had they invested their money elsewhere. EVA indicates the wealth a business has created or destroyed as it considers all capital costs, including the cost of equity. So, a positive EVA indicates that the organization is in good financial health.

EVA helps managers to incorporate into their decision making, the basic purpose of an organization - i.e., to maximize shareholders' wealth. The organization's value depends on the extent to which investors expect the EVA to grow year-on-year. EVA and thereby, the shareholders' wealth can be increased in three ways.

- Improve operating efficiency, so that higher NOPAT can be achieved.
- Invest capital in projects where the rate of return is higher than cost of capital.
- Withdraw capital from projects where the rate of return is less than cost of capital.

Calculation of EVA

The calculation of EVA has been explained with the help of illustration 10.1.

Illustration 10.1

Given below are the profit and loss account and balance sheet of PQR Private Limited for the year 20x1.

Profit and Loss Account of PQR Private Limited for the year ended March 31, 20x1

Particulars	**(₹ Million)**
Net sales	200
Cost of goods sold	135
Profit before interest and tax (PBIT)	65
Interest	25
Profit before tax (PBT)	40
Tax (50%)	20
Profit after tax (PAT)	20

Balance Sheet of PQR Private Limited as on March 31, 20x1

Liabilities	**%**	**Assets**	**(₹ Million)**
Equity	55%	Fixed assets	350
Debt	45%	Net current assets	200
			550

The cost of equity is 25%, interest rate on debt is 10%, and tax rate is 50%. Calculate EVA of PQR Private Limited for the year ended March 31, 20x1.

Solution: NOPAT = PBIT (1 - Tax rate) = 65 (1- 0.5) = ₹ 32.5 million

Capital = ₹ 550 million

Cost of capital = [(Cost of equity) x (Proportion of equity in the capital employed)] +

[(Pre tax cost of debt) x (1- tax rate) x (Proportion of debt in the capital employed)]

= (25 x 0.55) + 10 x (1 - 0.5) x 0.45

= 13.75 + 2.25 = 16%

EVA = NOPAT - (Capital x Cost of Capital)

= ₹ 32.5 million - (₹ 550 million x 16%)

= ₹ 32.5 million - ₹ 88 million = ₹ 55.5 million (-).

Though PQR Private Limited has a PAT of ₹ 28 million, it has a negative EVA for the financial year ended March 31, 20x1, i.e., it has failed to create shareholder wealth. A positive EVA value would have indicated that the organization has been successful in creating shareholder wealth.

Advantages of EVA

- EVA makes a number of adjustments to conventional earnings to eliminate accounting anomalies and bring them closer to true economic results.
- It allows the design of incentive compensation systems for managers based on improvements in EVA.
- EVA helps in achieving goal congruence between managers and shareholders as it links the compensation and incentives of managers and other employees with the EVA measures.
- It facilitates communication and cooperation among divisions and departments by providing a common language for employees across all corporate functions.
- EVA helps to link the strategic planning function with the operating divisions, and it eliminates the mistrust that typically exists between the operations and finance departments.

- It provides significant information beyond traditional accounting measures like Earning per Share (EPS), Return on Assets (ROA), and Return on Equity (ROE).
- It streamlines and speeds up the decision-making process, and provides better goal congruence than ROI.

Limitations of EVA

- EVA is based on financial accounting methods which can be manipulated.
- It does not consider size differences across plants or divisions.
- Too high an emphasis on EVA may make managers focus on short-term results, thus reducing focus on innovation.

Activity 10.2

Given below are the profit and loss account and balance sheet of JKL Limited for the Year 20xx.

Profit and Loss Account of JKL Limited for the Year Ended March 31, 20xx

Particulars	(₹ Million)
Net sales	150.00
Cost of goods sold	124.00
Profit before interest and tax (PBIT)	26.00
Interest	1.50
Profit before tax (PBT)	24.50
Tax (30%)	7.35
Profit after tax (PAT)	17.15

Balance Sheet of PQR Private Limited as on March 31, 20xx

Liabilities	(₹ Million)	Assets	(₹ Million)
Equity	20	Fixed assets	40
Debt	30	Net current assets	10
	50		50

The cost of equity is 15%, interest rate on debt is 5%, and tax rate is 30%. Calculate EVA of JKL Private Limited for the year ended March 31, 20xx.

Answer:

10.4.4 Market Value Added (MVA)

MVA, an extension of EVA, is a measure of the amount of wealth an organization has created since its inception. MVA itself is the stock market's assessment of the net present value (NPV) of EVA.

MVA, in simple words, is the difference between what investors have invested to buy the shares and what they can get back by selling the shares at today's price. A positive MVA signifies that the organization has increased the value of capital invested with it by the shareholders and has been successful in increasing shareholder wealth, while a negative MVA signifies that the organization has decreased the value of capital invested with it by the shareholders.

10.4.5 Cash Flow Return on Investment (CFROI)

CFROI, a concept developed by Holt Value Associates and refined by the Applied Financial Group, measures the real cash return on invested capital. CFROI is adjusted for accounting differences and inflation, and therefore, provides a more realistic picture of the organization's performance. It is calculated by dividing discounted future cash flows by total capital assets. Cash flow refers to the amount of cash received and spent during a particular time period. The net cash flow comprises earnings (profit after tax) and non-cash charges like amortization and depreciation. It does not include non-cash revenue items that are yet to be received (accrued interest income). Cash flow indicates the amount of cash available to the management for facility expansion, new product development, acquisitions, stock buy backs, and dividend payments. The ratio of gross cash flow to gross assets will be translated into an internal rate of return by recognizing the finite economic life of depreciating assets and the residual value of non-depreciating assets. CFROI is not subject to accounting distortions, and it focuses on discounted future cash receipts. It gives a measure of how well an organization is using its assets to generate cash flow. A high and increasing CFROI value means that the organization has increased its sales and earnings.

10.4.6 Strategic Profit Model (SPM)

SPM considers Return on Net Worth (RONW) as the most informative and significant measure of profitability. It uses data from the income statement and the balance sheet to measure the profitability and performance of a business. The formula used in SPM is given here.

Profit Margin x Asset Turnover = Return on Assets

Return on Assets x Financial Leverage = Return on Net Worth

The formula can be broken down as:

Profit of Margin = Net Profit ÷ Net Sales

Asset Turnover	=	Net Sales	÷	Total Assets
Return on Assets	=	Net Profit	÷	Total Assets
Financial Leverage	=	Total Assets	÷	Net Worth
Return on Net Worth	=	Net Profit	÷	Net Worth

Hence, the formula for the strategic profit model will be:

(Net Profit ÷Net Sales)x (Net Sales ÷ Total Assets) = (Net Profit ÷ Total Assets)
(Net Profit ÷Total Assets) x (Total Assets ÷ Net Worth) = (Net Profit ÷ Net Worth)

It can be seen from above that the SPM identifies three focus areas - profit margin management (net profit / net sales), asset management (net sales / total assets), and debt management (total assets / net worth) -- to improve RONW. Profit margin management that involves planning and controlling sales and expenditure is a very important aspect that the managers of a business have to consider for improving business profitability.

A high asset turnover ratio indicates that assets are being converted into sales more frequently and thus, signifies higher profitability. However, for comparison of an organization's financial performance with other industries, asset productivity has to be measured in terms of profits. The return on assets ratio relates the profit margin percentage and the asset turnover ratio to obtain a ratio of net profit to total assets, thus, measuring the asset productivity in terms of profit.

Debt management considers the cost of debt, the impact of debt on shareholder value, and the organization's financial soundness. Financial leverage, in debt management, refers to the owners' and creditors' contributions in financing an organization. The risks assumed by a debt holder are less (as payment is more or less guaranteed) than the risks assumed by shareholders; consequently, the rate of interest that debt holders earn is less than the returns that shareholders earn. The difference in the rates of return earned by debt holders and shareholders leads to financial leverage. Financial leverage deals with increasing the debt component in the capital structure in order to maximize the shareholders' returns. Financial leverage increases with an increase in debt but too high a debt component is not advisable when the interest rates are high.

10.4.7 Segment Margin Report

The performance of a responsibility center or business unit can be evaluated using a segmented income statement in the contribution format. Segment reporting refers to having an income statement for any part of the organization which has both costs and revenues, such as company, division, department, and product line.

To assess organizational performance, it is important to assess the income and the costs of each business unit or responsibility center. Fixed costs can be separated into traceable fixed costs that arise due to the existence of a particular segment and common fixed costs that arise due to the overall operating activities. Common fixed costs support the operations of more than one segment but are not traceable to any particular segment. These costs continue to exist even if one segment or business unit were to be shut down. Traceable fixed costs would cease to exist if the particular segment or business unit were to be shut down or became non-existent.

To arrive at segment margin, first deduct variable costs from revenue to arrive at the contribution margin, and then deduct the traceable fixed costs from the contribution margin. Calculation of segment margin has been explained with the help of illustration 10.2.

Illustration 10.2

TKC Mills has two main divisions -- a textile division and a footwear division. The income statement in the contribution margin format for the textile division is given below.

Income Statement in Contribution Margin Format Textile Division, TKC Mills

Particulars	**₹ Billion**
Sales (a)	550
Variable COGS (b)	300
Other variable costs (c)	25
Total variable costs (d) (d = b + c)	325
Contribution margin (e) (e = a - d)	225
Traceable fixed costs (f)	150
Segment margin (g) (g = e - f)	75

COGS (Cost of Goods Sold) comprises variable manufacturing costs. The segment margin is the contribution of the textile division to the overall operations of TKC. The segment margin of each division becomes part of the company's divisional margin. The summation of the segment margins will become the divisional margin for the company. When common fixed costs are deducted from the divisional margin, it gives the net income of the company. The table given below shows how the segment margin of the textile division fits into the income statement of TKC Mills.

Income Statement of TKC Mills

(₹ Billion)

Particulars	TKC	Textile	Footwear
Sales (a)	1050	550	500
Variable COGS (b)	550	300	250
Other variable costs (c)	100	25	75
Total variable costs (d) (d = b + c)	650	325	325
Contribution margin (e) (e = a - d)	400	225	175
Traceable fixed costs (f)	275	150	125
Divisional margin (g) (g = e - f)	125	75	50
Common costs (h)	30		
Net income (i) (i = g - h)	95		

Check Your Progress - 1

1. Which of the financial statements reflects the financial position of the organization at a given point of time and also its wealth position?
   a. Cash flow statement
   b. Balance sheet
   c. Profit and loss account
   d. Income statement
   e. Auditor's report
2. The fixed assets, long-term investments, and net current assets of a company are ₹ 38,000, ₹ 2,500, and ₹ 16,000, respectively. The shareholders' funds (including share capital, reserves, and surplus) are ₹ 30,000. Identify the financial leverage ratio of the company.
   a. 1.80
   b. 1.88
   c. 2.22
   d. 2.35
   e. 3.50
3. The net operating profit after tax of a company was ₹ 60 million. Its capital was ₹ 300 million. The cost of capital was 17.5%. Using EVA as a tool, identify the shareholders' wealth that the company created during the year.
   a. ₹ 9.5 million
   b. ₹ 7.5 million
   c. ₹ 6 million
   d. ₹ 8.5 million
   e. ₹ 10 million

4. Which of the following financial tools will be considered by the Strategic Profit Model (SPM) as the most informative and significant measure of the profitability of a business?
   a. Profit margin
   b. Return on net worth
   c. Earning power
   d. Return on capital employed
   e. Liquidity
5. Details from an income statement of a business segmented by product line are given here:

(₹ Million)

Product	Sales	Variable Costs	Traceable Fixed Costs
A	3000	75	400
B	2000	100	600
C	1000	60	300

   If common fixed costs are ₹ 1,200 million, which of the following statements is true?
   a. Product B is more profitable than product C.
   b. Product A is less profitable than product B.
   c. Product A's segment margin is ₹ 2,925 million.
   d. Net income of the business is ₹ 4,465 million
   e. Fixed cost and variable cost are marginal costs

10.5 Controlling Assets Employed in the Business

All the business entities will employ assets for operational use and for generating income .The purpose of controlling assets employed in the business are analogous to the purposes for profit centers. The objective is to make sound decisions about assets employed and to motivate the managers to implement these sound decisions in the best interests of the company also, to measure the performance of business units as an economic entity. The following paras discuss on various issues related to assets employed in the business.

An organization's performance cannot be determined only by its earnings or profits - assets employed to earn the profit is a major factor to be considered. Performance can be assessed using various ratios like ROA, ROCE, earning power, and EVA. In each of these cases, performance is tracked with respect to the assets employed or capital employed.

Assets in business can be either tangible or intangible. Protection from pilferage, hazards like fire, etc., are important considerations in the physical control of tangible assets. Tangible assets are classified into fixed assets and current assets. Fixed assets are those owned by the organization over a long period of time like land, infrastructure, and machinery. Current assets are those owned for a short period of time like cash or bank balances, sundry debtors or receivables, and inventory.

10.5.1 Fixed Assets

When investing in fixed assets, organizations should consider the following aspects.

Usefulness of the asset: Before making an investment, it should be checked as to whether the asset will add value to the business and give a positive return on investment over the long run. Decisions like the time at which the investment should be made and how the asset will be paid for should also be made.

Cost vs. benefit: The costs (installation, training, insurance, etc.) that have to be incurred on buying a new asset should be compared with the benefits that will be gained over its useful life.

Financial implications: While acquiring a new asset, it should be ensured that debt should not go beyond manageable levels. Financial implications of buying the asset should be thoroughly checked as higher debts will reduce opportunities for future borrowing.

Buy or lease: Buying an asset could mean buying a new asset or a used one. A new asset will come with the latest technology, a warranty, and will be easier to finance than a used one. However, it suffers from some limitations like higher costs in terms of up gradation of facilities; higher borrowing, if the asset is financed with debt; and deprecation of only a part of the asset cost in the first year. Used assets involve lower initial costs, but come without warranties. Decision to buy a used asset would depend on whether maintenance would help prolong its use.

Decision on whether to lease or buy an asset depends on whether the asset's value goes down over the years and whether it has a short life. Decision to buy the asset is usually made if its value is expected to increase over time or if it will be put to use for a long time. Leasing is taken up if the asset will be put to use for a short term or if it has a short life. These decisions are taken considering the costs incurred by the organization, the financing terms for buying or leasing, the asset's life and its value after that period, the maintenance costs that will be incurred, and the interest to be paid for the borrowed funds.

10.5.2 Working Capital

The net working capital (current assets minus current liabilities) is a measure of the organization's operational efficiency and short-term financial health. A positive working capital reflects that the organization has sufficient current assets to pay off its short-term liabilities.

While calculating the business unit's profitability in terms of return on investment, the cash balance is included as an investment item. Individual business units do not usually maintain individual cash balances - a relatively lower cash balance can be maintained by controlling cash centrally. If this lower actual value of cash balance is used in the investment calculation, it might show the business unit to be more profitable than it actually is. Therefore, a higher value of cash balance (that is, a cash balance each business unit would require if it were an individual company) is considered to facilitate a fair comparison of the business unit's performance with the performance of other companies in that line of business.

Individual business unit managers can control receivables or sundry debtors by fixing credit terms, credit limits, and credit periods with the debtors (customers of that business unit) and by increasing or decreasing sales. For control purposes, management can choose to account for the receivables at either cost price or selling price. The logic behind including receivables at cost price is that the business unit's real investment in receivables is only the cost of goods sold. The logic behind including receivables at selling price is that the business unit could have utilized the amount to be collected from receivables in other investment opportunities.

In some cases, when business unit managers cannot influence the extent of current liabilities, they do not deduct current liabilities from current assets to arrive at the total working capital to be included in their investment calculation. However, this approach results in a higher estimate of investment and hence a lower value of return on investment for that business unit. In other cases, all the current liabilities are deducted from current assets to arrive at the net working capital value to be included in investment calculation.

Net working capital is a good measure of the amount of capital actually required by an organization to run the business unit. However, the business unit manager will get credit even for current liabilities that are not under his/her control. This will also project a higher value of return on investment for that business unit.

Example: Patent Dispute with a US Firm settled by Sun Pharma

On 2nd August 2022 Sun Pharma announced that it had reached an agreement with Celgene Corporation thereby drawing curtains on a patent litigation. Celgene was a wholly owned subsidiary of Bristol Myers Squibb. Sun Pharma stated that along with its subsidiary had agreed with Celgene for resolving a patent litigation pertaining to submission of abbreviated new drug application for generic version of Revlimid in US.

Source: Sun Pharma settles patent dispute with US-based Celgene Corporation | Business Standard News (business-standard.com) dated 2nd August 2022, Accessed on 02.08.2022

Activity 10.3

Given below is the balance sheet of Gayatri Food Products Limited (GFPL) as on March 31, 20x1. Identify the items that should be taken into account if GFPL is following the net working capital approach in arriving at its investment requirements.

Balance Sheet of Gayatri Food Products Limited as on March 31, 20x1			
Liabilities	(₹ Million)	Assets	(₹ Million)
Equity Debt Creditors Bank Overdraft Outstanding Expenses	500 500 100 150 150	Fixed Assets Stock Debtors Cash (in Hand) Cash at Bank Prepaid Expenses	700 200 100 300 100
	1400		1400

Answer:

10.6 Financial Information Systems and Control

Financial information systems in any organization help to monitor and control an organization's (including that of individual divisions in case of a multi-divisional organization) performance on a continuous basis, and facilitate in exercising the financial control duties like authorization, custody, record-keeping, and reconciliation. Let us see how it is implemented in the organization.

Periodic review (weekly or monthly) of financial reports allows the division head to take preventive and/or corrective actions against significant variations in expected outcomes. Computerized financial information systems enable viewing of financial data from multiple perspectives at the click of a button, providing better control over the organization's operations, and facilitating a 'what-if analysis' of financial data.

Information needs vary at different hierarchical levels of management and the reporting mechanism has to be geared to the needs of each level. Summary reports, trend analysis, and year-to-date reports are used to review and control the organization's performance. Middle management relies on analytical reports such as the 'what-if analysis' to control the organization's performance. Operational managers make use of detailed and specific financial reports. Most of the organizational activities are measured in monetary terms, whether they are related to sales, purchase, inventory, production, logistics, etc. The control aspects of financial accounting systems, sales accounting systems, purchase accounting systems, and inventory accounting systems are discussed in this section.

10.6.1 Financial Accounting System

In a computerized financial accounting system, each transaction updates all the relevant books of accounts. For example, when cash is received from a debtor and this transaction is recorded in the system, the cashbook is debited and the debtor's account is credited at the same time. Such entry helps in generating accurate financial statements at any point of time, thus helping in meeting deadlines laid down by the regulatory authorities and financial institutions for periodic submission of audited financial reports.

Financial accounting systems provide the facility to specify budgeted amounts under each expense and income head and to generate variance reports which compare the actual expenses and incomes with the budgeted figures. The trends in income and expenditure figures can also be analyzed. These systems also support ratio analysis on a real-time basis, which enables managers to exercise timely control over the organization's operations. Ratios can also be defined in a flexible manner to suit the financial control needs of the organization. Financial accounting systems also provide for revenue analysis and profit analysis on an overall basis, product line basis, divisional basis, geographical basis, or customer category basis. Expenditures can be monitored on a material category basis, vendor basis, services basis, and so on.

10.6.2 Sales Accounting System

Sales accounting systems focus on the transactions that emerge from an organization's marketing and sales activities. Some financial control goals which sales accounting systems aim to achieve are -

- Monitoring the sales revenues of the branches, regions, salespersons, products, etc.
- Collecting amounts receivable from customers in time, following up on delayed payments, controlling bad debts, and ensuring that discount policies and credit policies are not violated for the sake of achieving higher sales
- Evaluating the performance of various products, customer categories, and distribution channels on parameters like profits, volumes, and cash flows.

Automated sales accounting systems provide for generation of source documents like invoices, debit notes, and credit notes. Invoices are documentary proof of a sale having taken place, while debit and credit notes are used for adjustment purposes. Integrated accounting systems provide for drill-down reports. To achieve the financial control goals mentioned earlier, sales accounting systems generate a variety of reports, some of which are listed in Table 10.2.

Table 10.2: Sales Accounting System – Reports for Financial Control

Financial Control Goal	Reports*
Monitoring sales revenues	Daily sales report
	Sales report – By customer category
	Sales report – By product
	Sales report – By region
	Sales returns – By product
	Sales analysis – By region, product, customer category
	Salesperson performance analysis
	Branch performance analysis
	Slow moving products report
Monitoring amounts receivable and discounts	Daily collections report
	Collections – By region
	Collections – By customer
	Daily receivables outstanding report
	Age analysis of out standings
	Age analysis of out standings – By customer
	Bad debt analysis
	Discount analysis – By customer
Evaluating the performance of various products, customer categories, and distribution channels	Selling expense analysis – By product
	Profitability analysis – By product
	Selling expense analysis – By customer category
	Profitability analysis – By customer category
	Distribution expense analysis – By channel
	Salesperson commission report
	Branch expense analysis

Source: ICFAI Research Center

10.6.3 Purchase Accounting System

The purchase department obtains material and acts as a link between the organization and its vendors. Purchase accounting systems focus on procurement-related transactions like ordering, receipt of goods, and making payments. Some financial control goals which purchase accounting systems aim to achieve are -

- Ensuring that purchases are made at an optimal cost
- Keeping an eye over the timeliness and value of cash and bank outflows to vendors
- Analyzing the input costs of various responsibility centers, products, etc.
- Reducing purchase associated costs like transaction cost of processing orders, and quality related costs of verification, rejection, and replacement of inputs.

The purchase order, which is the source document for the purchase department, is created on the basis of the needs of various other departments. It specifies the goods or services to be procured, the vendor, the payment terms, the quality norms to be met, and the quantity required. An open/blanket purchase order is accompanied by a delivery schedule that specifies the quantities to be supplied at different points of time. Thus, a purchase order helps in exercising control over the quality, quantity, cost, and timeliness of purchases.

Once the purchase order for standard materials is received, the vendor ships the goods with a delivery challan (which is later followed by an invoice) or an invoice-cum-delivery challan. The goods are inspected for quantity and quality and the shipment is accepted. The inventory status in the store is automatically updated, and defective goods are returned to the vendor. The invoice increases the amount to be paid to the vendor (creditor). When the payment is released to the vendor, it reduces the amount outstanding against the vendor and also the cash/bank balance of the organization.

To achieve the financial control goals mentioned earlier, purchase accounting systems generate a variety of reports, some of which are listed in Table 10.3.

Table 10.3: Purchase Accounting System – Reports for Financial Control

Financial Control Goal	Reports*
Ensuring that purchases are made at an optimal cost	Purchase (value) analysis – By vendor
	Purchase (value and quantity) analysis – By material
	Comparison of prices and credit terms – By vendor
Keeping a close watch over the timeliness and value of cash and bank outflows to vendors	Daily payments report
	Payments report – By vendor
	Outstanding analysis of payables – By material
	Age analysis of payables
	Outstanding analysis of payables – By vendor (creditor)

Contd…..

Analyzing the input costs of various responsibility centers, products, etc.	Purchase analysis – By plant
	Purchase analysis – By product
	Purchase analysis – By department and input
	Purchase analysis – By responsibility center
Lowering the associated costs of purchasing, such as transaction costs and quality-related costs	Vendor rating – Adherence to delivery schedules
	Outstanding orders – By vendor
	Number of orders processed – By month
	Material return analysis – By vendor

** Compiled by ICFAI Research Center*

10.6.4 Inventory Accounting System

Inventory accounting systems help in controlling inventory costs and evaluating the effectiveness of inventory management. They ensure that raw materials, consumables, spares, work-in-progress, and finished goods are properly accounted for in the store, plant, and warehouse. Some financial control goals which inventory accounting systems aim to achieve are -

- Monitoring inventory movements and ensuring timely replenishment Optimizing inventory holding costs.
- Assessing inventory-related losses due to reasons like non-conformance with storage standards, physical damage, pilferage, degradation of quality, or expiry of useful life of the goods.
- Apart from purchase and sales processes, in a production environment, the issue of raw materials to production and the receipt of finished goods from production also update the inventory or stock status. Inventory accounting systems track the work-in-progress inventory which includes the value added during the intermediate stages of the production process. These systems also support revaluation of inventory to meet financial disclosure norms, if applicable.
- Control is exercised over inventory in various ways. For example, a reorder level may be set for each item of raw material. When the inventory level of an item in the store reaches its reorder level, the system sends an alert to the purchase department which raises a purchase order for the material. The inventory accounting system may facilitate control by generating an ABC classification report that classifies materials into high usage value (A class), moderate usage value (B class), and low usage value (C class). Inventory control policies and efforts may vary from one classification to another.
- To achieve the financial control goals mentioned earlier, inventory accounting systems generate a variety of reports, some of which are listed in Table 10.4.

Table 10.4: Inventory Accounting System – Reports for Financial Control

Financial Control Goal	Reports*
Monitoring inventory movements and ensuring timely replenishment	Daily issues – By plant and by item
	Daily issues and receipts of raw material – By store
	Work-in-progress (WIP) inventory – Quantity and value
	Material request to material issue variance
	Stock-out items
	Materials at or below reorder level
	Daily issues and receipts of finished goods – By warehouse
Optimizing inventory holding costs	ABC classification report
	Inventory holding costs analysis – By ABC classification
	Slow moving goods
Assess inventory-related losses	Losses during storage – Pilferage of goods
	Rejection of materials issued by stores
	Expired items report – Raw materials
	Expired items report – Finished goods

** Compiled by ICFAI Research Center*

Example: No Data Theft: Punjab National Bank

On 22nd November 2021 Punjab National Bank stated that there had been no breach of its systems and also no pilferage of customers' data. The bank stated that it had checked its systems rigorously and the attempt of the perpetrator monitored and prevented.

PNB announced that it had implemented stringent security controls in all their information and communication technology systems. They had also deployed data leak prevention solutions to prevent any unauthorised data which could be sent by email.

Source: https:5//economictimes.indiatimes.com/industry/banking/finance/banking/punjab-national-bank-denies-any-data-theft-system-breach/articleshow/87859427.cms?utm_source= contentofinterest&utm _medium =text& utm _campaign=cppst dated 23rd November 2021, Accessed on 03.08.2022

10.7 Roles in Financial Control and Accountability

There are various roles in an organization that can and should exercise control over the financial aspects of an enterprise. In a way all employees are responsible for financial control in their respective areas of operations. External entities such as regulators, customers, suppliers, and financial analysts may also contribute to financial control. Some of the organizational roles have been described here.

- The personnel in the finance and accounts function are responsible for record-keeping, reconciliation, reports generation, custody of cash and bank balances, and for authorizing transactions that involve a significant outflow of funds.
- The internal and external auditors carry out auditing function to achieve the control objective of 'reliability of financial reporting' and also for the prudent and effective management of the enterprise.
- The management is responsible for maintaining an environment conducive to financial control; formulating and adhering to financial policies and procedures; preparing budgets and conforming to budgeted limits; analyzing business performance; deciding on and authorizing transactions that have a financial impact; being accountable for custody, record-keeping, and reconciliation duties; verifying financial statements, getting them audited, and submitting them to the board of directors; ensuring financial growth, profitability, and sustainability of the organization; and conducting periodic reviews of financial controls to ensure their adequacy.
- The Board of Directors is responsible for approving policies, budgets, and capital expenditure decisions; reviewing whether the financial resources of the organization are being utilized prudently and optimally; reviewing audited financial statements; appointing members for top management positions, deciding on their compensation, and assessing their performance; appointing external auditors and deciding on their compensation; and guiding the management on strategic decisions that have a long-term financial impact.

Example: Accountability will be Fixed for 'Tech Glitch' at Micro Credit Arm by IndusInd Bank

Bharat Financial Inclusion (BFIL) was a micro loans arm of IndusInd Bank. Nearly 84000 loans had been disbursed without the consent of the customers during May 2021. Bank stated that this happened due to a technical glitch. After getting a review conducted by Deloitte, the bank's board stated that they constituted a committee for assessing staff accountability. BFIL's MD and CEO tendered resignations in November 2021.

Source: IndusInd Bank to probe staff role in 'tech glitch' at micro credit arm | The Financial Express dated 10th March 2022, Accessed on 22.08.2022

Check Your Progress - 2

6. In taking a decision on whether to lease or buy an asset, an organization may decide to buy the asset if its value is expected to ______________over time or if the organization plans to use the asset over a _____________ period.
   a. Decrease; long
   b. Increase; short
   c. Decrease; short
   d. Increase; long
   e. Decrease; nominal
7. Net working capital is an indication of an organization's operational efficiency and short-term financial health. It is calculated as the difference between which of the following?
   a. Current assets; current liabilities
   b. Total assets; current liabilities
   c. Total liabilities; current liabilities
   d. Total assets; current assets
   e. Fund flow; cash flow
8. Financial information systems help in monitoring and controlling the organization's performance on a continuous basis. Which of the following systems will be helpful to provide for generation of source documents like invoices, debit notes, and credit notes?
   a. Financial accounting information system
   b. Sales accounting system
   c. Inventory accounting system
   d. Production accounting system
   e. Cash flow statement
9. Organizations purchase a variety of inputs such as capital or fixed assets, raw materials, consumables, and services. For the purchase department, what is the source document, which is created on the basis of the needs of various other departments?
   a. Debit note
   b. Purchase order
   c. Invoice
   d. Delivery challan
   e. Bills receivable

10. There are various roles in an organization that can and should exercise control over the financial aspects of an enterprise. Identify the responsibilities towards financial control which is not pertaining to the Board of Directors.

    i. Prepare budgets and conform to budgeted limits

    ii. Be accountable for custody, record-keeping, and reconciliation duties

    iii. Review audited financial statements

    iv. Appoint external auditors and decide on their compensation

    a. Only i and ii

    b. Only iii and iv

    c. Only ii, iii, and iv

    d. Only i, iii and iv

    e. i, ii, iii, and iv

10.8 Summary

- Financial control pertains to processes within the finance department as well as to processes in the entire organization.
- The important components of financial control are - financial policies and procedures, segregation of duties, book-keeping, financial control tools for reviewing and analyzing financial performance, controlling assets employed in the business, and financial information systems.
- Financial statements and financial ratios are extensively used as tools of financial control. The three financial statements used extensively are - the Balance Sheet, Profit and Loss Account, and Cash Flow Statement. Financial ratios are required to reflect the effectiveness of an organization's financial performance and to provide an analytical view of the financial data from multiple perspectives. Broadly, financial ratios are of five types - liquidity ratios, leverage ratios, turnover ratios, profitability ratios, and valuation ratios.
- Economic Value Added (EVA), Market Value Added (MVA), Cash Flow Return on Investment (CFROI), strategic profit model, and segment margin report are some of the financial performance indicators that are used widely.
- Measurement and control of assets employed plays a very important part in monitoring and controlling the performance of a company or business unit. When investing in fixed assets, organizations need to consider -- usefulness and cost vs. benefit of the asset; buy or lease options, and financial implications. Net working capital is a measure of the organization's operational efficiency and short-term financial health.

- Computerized financial information systems enable better control over the organization's operations by making available financial data from various perspectives at the click of a button. In keeping with the various activities in an organization (sales, purchase, inventory, production, logistics, etc.), financial information systems comprise financial accounting systems, sales accounting systems, purchase accounting systems, and inventory accounting systems.
- There are various roles - personnel of the finance and accounts function, auditors, management, Board of Directors, etc. - in an organization that can and should exercise control over its financial aspects. Other employees and external entities such as regulators, customers, suppliers, and financial analysts may also contribute to financial control.

10.9 Glossary

Balance sheet: Balance sheet, also known as the statement of financial position, reflects the financial position of the organization at a given point of time and also its wealth position. It is used to determine whether the organization has adequate self-owned financial resources or whether it has to go in for borrowings.

Book-keeping: Book-keeping is the function of storing the financial data through maintaining and updating various books of accounts like journal and ledgers.

Cash-Flow Return On Investment (CFROI): CFROI, a concept developed by Holt Value Associates and refined by the Applied Financial Group, measures the real cash return on invested capital. CFROI is adjusted for accounting differences and inflation, and therefore, provides a more realistic picture of the performance of the organization.

Economic Value Added (EVA): EVA is a financial performance metric that captures the true economic profit of an organization in terms of wealth creation for the shareholders. Developed by Stern Stewart & Co., EVA is net operating profit minus an appropriate charge for the opportunity cost of all capital invested in the organization.

Financial control: Financial controls are a part of the internal control system. They pertain to processes within the finance department as well as to processes in the entire organization. They ensure that the funds are used in an appropriate manner and that necessary evidence is maintained for verifying how the funds have been used. They also aim to safeguard the organization's assets and business documents.

Financial fraud: Financial fraud can be defined as deliberate fraud committed by management that injures investors and creditors through materially misleading financial statements.

Financial leverage ratio: Financial leverage ratios are used to assess the effectiveness with which the organization utilizes external funding to improve returns to shareholders. It is the proportion of total assets to shareholders' funds. Shareholders' funds are also known as net worth.

Financial leverage: Financial leverage, an element in debt management, refers to the contributions of owners and creditors in financing an organization. The difference in the rates of return earned by debt holders and shareholders leads to financial leverage. Financial leverage deals with increasing the debt component in the capital structure in order to maximize the returns to shareholders.

Financial policy: Financial policy is a directive on the financial aspects of the organization and comprises guidelines that need to be followed for activities which have a financial implication. It makes certain transparency and accountability in the system by ensuring consistency in the various activities of the organization.

Financial statement audit: A financial statement audit is conducted to examine the correctness of financial statements, and to establish whether they present a true and fair picture of the company's financial position on a particular date.

Financial Statements: Financial statements - the Balance Sheet, Profit and Loss Account, and Cash Flow Statement - present and report the financial outcome of the operations of the organization. These statements are analyzed on an ongoing basis to determine whether the organization's performance is in line with the expectations or some corrective action is required.

Fixed assets turnover ratio: The fixed assets turnover ratio is a measure of the sales generated per rupee invested in fixed assets. It measures the organization's effectiveness in generating revenue from investments in fixed assets.

Fixed assets: Fixed assets are those owned by the organization over a long period of time like land, infrastructure, and machinery.

Fixed charges coverage ratio: The fixed charges coverage ratio indicates the organization's ability to meet fixed financing expenses, such as interest, leases, etc. It indicates the risk involved in the organization's ability to pay the fixed costs when business activity falls.

Inventory accounting systems: Inventory accounting systems help in controlling inventory costs and evaluating the effectiveness of inventory management. They ensure that raw materials, consumables, spares, work-in-progress, and finished goods are properly accounted for in the store, plant, and warehouse. They also support revaluation of inventory to meet financial disclosure norms, if applicable.

Inventory turnover ratio: The inventory turnover ratio indicates the number of times an organization's inventory is replaced during a given time period. A high inventory turnover ratio usually means that the organization is able to rapidly convert its throughput into revenue, or it could also mean that there is insufficient inventory.

Networking capital: The networking capital is the current assets minus the current liabilities. It is a measure of the organization's operational efficiency and short-term financial health. A positive working capital would mean that the organization has sufficient current assets to pay of its short-term liabilities.

Segregation of duties: Segregation of duties, an important financial control element, should include the assurance that no one individual has the physical and system access to control all phases of a business process or transaction - from authorization to custody to record keeping. These are embedded in business processes to prevent and/or detect errors during the regular course of business. There are four categories of duties in financial control - authorization, custody, record-keeping, and reconciliation.

Structural ratios: Structural ratios are derived from the proportions of debt and equity used by the organization. The important structural ratios are: financial leverage ratio, debt-equity ratio, and debt-assets ratio.

10.10 Self-Assessment Test

1. Financial control pertains to processes within the finance department as well as to processes in the entire organization. Name the components of financial control. How can financial control be established through financial policies and procedures, segregation of duties, and book-keeping?
2. Various tools are used to analyze an organization's past and present financial performance, and to decide on ways to improve future performance. What are the various tools of financial control? How can financial ratios be used as financial control mechanisms?
3. Describe the following financial control tools:
   a. Economic Value Added
   b. Strategic Profit Model
   c. Segment Margin Report
4. Measurement and control of assets plays a vital role in monitoring and controlling an organization's or business unit's performance. What are the various types of assets employed in business? How can they be controlled?
5. 'Financial information systems help in monitoring and controlling the organization's performance on a continuous basis, and facilitate the exercise of financial control duties.' Elaborate. How can financial accounting systems, sales accounting systems, purchase accounting systems, and inventory accounting systems be used in achieving the financial control goals of an organization?

6. There are various roles in an organization that can and should exercise control over the financial aspects of an enterprise. Taking up some of the important roles, bring out their contribution to achieving financial control in an organization.

10.11 Suggested Readings / Reference Material

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10.12 Answers to Check Your Progress

1. (b) Balance sheet

The balance sheet reflects the financial position of the organization at a given point of time and also its wealth position. It is used to determine whether the company has adequate self-owned financial resources or whether it has to go in for borrowings. The balance sheet is also known as the statement of financial position.

2. (b) 1.88

Financial leverage ratios are used to assess the effectiveness with which the organization utilizes external funding to improve the returns to its shareholders. It is the proportion of total assets to shareholders' funds. 'Total assets' refer to the sum of fixed assets, long term investments, and net current assets. Shareholders' funds are also known as net worth. The financial leverage ratio of the company is (38,000 + 2,500 + 16,000) / 30,000 = 1.88(approximately).

3. (b) ₹ 7.5 million

Net operating profit after tax (NOPAT): ₹ 60 million Capital: ₹ 300 million

Cost of capital: 17.5%

Shareholders' wealth created is the Economic Value Added (EVA).

So, shareholders' wealth = EVA = NOPAT - (Capital x Cost of Capital) = [60 - (300 x 17.5%)] = 60 - 52.5 = ₹ 7.5 million.

4. (b) Return on net worth

The Strategic Profit Model considers return on net worth as the most informative and significant measure of the profitability of a business. The model uses data from the balance sheet and profit and loss account, to measure profitability and performance of a business.

5. (a) Product B is more profitable than Product C

Segment margins:

Product A = ₹ (3,000 - 75 - 400) million = ₹ 2,525 million Product B = ₹ (2,000 - 100 - 600) million = ₹ 1,300 million

Product C = ₹ (1,000 - 60 - 300) million = ₹ 640 million=

So, Product A is more profitable than Product B and Product B is more profitable than Product C.

Divisional margin = Sum of the segment margins = ₹ (2,525 + 1,300 + 640) million = ₹ 4,465 million.

So, net income of the business = (Divisional margin - Common fixed costs) = ₹ (4,465 - 1,200) million = ₹ 3,265 million.

6. (d) Increase; long

The decision whether to lease or buy an asset depends on whether the value of the asset reduces over the years and whether it has a short life. Generally, an organization would buy the asset if its value is expected to increase over time or if the organization plans to use the asset over a long period. Leasing may be a better option in case the assets are used by the organization for a short term or if the items have a short life.

7. (a) Current assets; current liabilities

Net working capital is the difference between the current assets and current liabilities of the organization. A positive networking capital would mean that the organization has sufficient current assets to pay off its short-term liabilities.

8. (b) Sales accounting system

The sales accounting system focuses on transactions which emerge from an organization's marketing and sales activities. The automated sales and marketing information systems will provide for generation of source documents like invoices, debit notes, and credit notes.

9. (b) Purchase order

The source document of the purchase department is called the purchase order. The purchase order specifies the goods or services to be procured, the vendor, and the payment terms. It clearly states the quality norms to be met by the material being supplied as well as the quantity required. After the receipt of the purchase order, the vendor ships the goods accompanied with a delivery challan or an invoice cum delivery challan. Debit notes and credit notes are the documents which are used for adjustment purpose between the organization and the vendor.

10. (a) Only i and ii

The role of the board with respect to its responsibilities in financial aspects include - approval of policies, budgets, and capital expenditure decisions; review of utilization of financial resources of the organization for prudence and optimality; review of audited financial statements; appointment of members for top management positions, deciding on their compensation, and assessing their performance; appointment of external auditors and deciding on their compensation; and providing guidance to the management on strategic decisions that have a long-term financial impact. Preparing budgets, conforming to budgeted limits, and being accountable for custody, record-keeping, and reconciliation duties are responsibilities that pertain to the management.

Unit 11

Marketing Control

Structure

"Markets always change faster than marketing."

– Philp Kotler, American Author and Professor

11.1 Introduction

Here, Philip Kotler is emphasizing that more than ever, markets change and develop rapidly. He reminds us that marketers need to strive through control efforts to keep up with the pace, as driven by the markets.

In the previous unit, we discussed the financial control of an organization. In this unit, we shall discuss marketing control.

Two aspects which are very important for any organizational function are: strategy and execution. Marketing control deals with execution of marketing strategies and checking whether the organization's objectives are being achieved or not.

This unit will first discuss the types of marketing control, the concept of marketing audit, and the concept and usage of sales control. We shall discuss the constituents of the distribution function and the different methods of distribution control, including channel conflict management. We shall then move on to discuss the control aspects of advertising, sales promotion, direct marketing, and public relations as elements of marketing communications. We shall also discuss the concepts of brand equity and brand measurement, and the technique of brand portfolio management. Finally, the unit ends with a discussion on the usage of information systems like marketing decision support system and marketing intelligence for marketing control.

11.2 Objectives

After studying this unit, you should be able to:

- Discuss the different types of marketing control in the execution of marketing strategies, and checking whether an organization's targets are attained.
- Describe the marketing audit role in changing the market orientation and practices of an organization.
- Identify the different applications of sales control.
- Describe the constituents of the distribution function and the different methods of distribution control, including channel conflict management.
- Discuss the control aspects of advertising, sales promotion, direct marketing, and public relations as elements of marketing communications.
- Explain the concepts of brand equity and brand measurement, and the technique of brand portfolio management.
- Discuss the usage of information systems for marketing control.

11.3 Types of Marketing Control

Marketing control is a systematic effort of managers in comparing the marketing performance with that of predetermined standards, plans or goals. The objective is to make optimum utilization of marketing resources in the most efficient and effective manner. Let us understand the different types of the marketing controls.

There are four different types of marketing control*:* 1. Strategic control, 2. Annual Plan Control, Profitability Control, and Efficiency and Effectiveness Control.

11.3.1 Strategic Control

Schreyogg and Steinmann define strategic control as "the critical evaluation of plans, activities, and results, thereby providing information for future action." This means that strategic control helps the organization to evaluate its strategies by focusing on the outcomes of the activities undertaken.

Strategic control, according to John F. Preble, has four components: Premise Control, Implementation Control, Strategic Surveillance and Special Alert Control. A major requirement for strategic control is keeping a close watch on the internal and external environments, and checking whether the strategies developed have been adapted to suit those changing environments.

Premise Control

Premise control deals with continuously monitoring (to adapt strategies to the fluctuations in the environment) specific environmental conditions which form the basis of the strategies being devised.

Implementation Control

Implementation control is used to check the impact of the actions on the strategies and to specify whether they have a positive or a negative impact. It is also used to check whether these actions are aligned with the overall organizational objectives.

Strategic Surveillance

Strategic surveillance refers to the scanning of the environment for any possible changes or developments that could affect the implementation process and the overall strategies associated with it. This starts with the implementation phase and goes on continuously until the implementation is over.

Special Alert Control

Special alert control is used to keep the system ready in case any crisis crops up in the organization or in the environment. This is used only in the case of an emergency.

Example: Aviva India's strategic control

According to The Economic Times article (2020), in order to check the impact of actions on the strategies, Aviva India (an India-based insurance company) conducted five coaching meetings between managers and their immediate supervisor each year, one in each quarter and one in particular at the conclusion of the calendar year.

The above information shows that the company had meetings in each quarter to check the impact of action on the strategies.

Source: ETHRWorld (2020), "Re-Evaluating the Performance Evaluation Models amid Covid-19 and Thereafter". Economic Times. Retrieved from

https://hr.economictimes.indiatimes.com/news/workplace-4-0/performance-management/re-evaluating-the-performance-evaluation-models-amid-covid-19-and-thereafter, dated 14th November 2020, Accessed on 13.07.2022

11.3.2 Annual Plan Control

The targets set in the annual marketing plan are used as performance standards in annual plan control. The two important techniques used for tracking results and comparing them with standards are variance analysis and marketing expenses-to-sales analysis.

Variance analysis is used to ascertain the causes of any deviations and their impact on the business of the organization. Marketing Expenses-to-Sales analysis is used to analyze the impact of the expenses incurred on promotional and other marketing activities on sales. Managers often try to keep the ratio (or percentage) of marketing Expenses-to-Sales value as low as possible. A low value of this ratio implies that every unit of marketing expenditure has a high impact on sales.

11.3.3 Profitability Control

Profitability control ensures that profitability is maintained in marketing activities. The Strategic Profit Model (SPM) is a useful technique for profitability control. In marketing control, the model is used to identify the impact of marketing activities on the financials of the firm. The three focus areas that SPM identifies to improve a firm's Return on Net Worth (RONW) are: Profit Margin Management (net profit / net sales), Asset Management (net sales / total assets), and Debt Management (total assets / net worth). The oher important techniques used for profitability control are the segment margin report that generates separate income statements for each customer segment or product line, and the activity based costing (ABC) system that is used to analyze the whole marketing effort by analyzing the marketing function based on different activities.

11.3.4 Efficiency and Effectiveness Control

Efficiency control is used to increase the productivity in the marketing activities. It is a quantitative control and deals with the efficiency with which the marketing activities are directed toward the achievement of the goals of the marketing function. Sales volume, sales generated by each salesperson, number of accounts handled by each salesperson, etc., are efficiency measures used. Effectiveness control is qualitative in nature, and aims at improving the effectiveness of the marketing activities. Customer satisfaction is one measure of effectiveness in selling. Conducting customer satisfaction surveys, tracking customer attitudes, and analyzing customer feedback are some of the activities that help assess the marketing effectiveness from the customers' perspective.

Marketing Effectiveness

The performance of an organization in terms of sales growth, market share, profitability, and customer satisfaction is considered to be a reflection of its marketing effectiveness. The attributes on which marketing effectiveness depend on are given below:

Customer Philosophy: The basic requirement for marketing effectiveness is being oriented to the customer. This involves studying the market, identifying opportunities and selecting the best market segments, and being prepared to provide superior value to the customers. Customer philosophy differs from organization to organization.

Marketing Orientation: The organizational structure should be market oriented if the marketing activities are to be successful. The major functions of marketing should be integrated and controlled by a top-level management executive, and the marketing department should work in harmony with the other departments. The organization should develop a structure which will help meet the requirements of the target market segments.

Information about Marketing: Adequate information should be available for planning and implementing the marketing activities. It should be up-to-date about the preferences of the customers and their buying behaviour.

Strategic Orientation: Marketing effectiveness depends on whether the management can formulate a marketing strategy based on organizational philosophy, structure, and information resources. To be strategically oriented, the organization should have a formal planning system that can operate on a long term basis.

Operational Efficiency: Marketing plans that are developed have to be put into action carefully and marketing actions should be implemented cost effectively. This will determine the operational efficiency of the organization.

11.4 Marketing Audit

Audit identifies the process defined in the activity that is under audit and what is being practiced actually. Hence the purpose of a marketing audit is to ensure the existing practices are effective to meet the objectives of the organization. The growing complexity of the current market environment needs more systematic evaluation process to evaluate the organizational marketing performance in the dynamic market.

Marketing audit deals with the systematic evaluation of plans, objectives, strategies, activities and organizational structure as well as its marketing staff. The broad and different aspects of marketing audit helps the organization in understanding its strength and weakness. It should be used as a mechanism to evaluate the entire marketing system.

The functional management audit of the marketing function is referred to as marketing audit. It plays two important roles: 1. It introduces or changes the market orientation and practices of the organization and hence acts as an intervention strategy; 2.It acts as a framework for organizational analysis and control.

The uses of marketing audit are :

- It helps an organization in learning about the external business environment and the industry.
- It can be used in assessing the past performance and also in enhancing the future performance.
- It may be used as a vehicle by the management to communicate organizational policies and marketing ideas to the employees throughout the organization.

- It can be used to structure the flow of marketing information in an organization.
- It enables the organization to analyze the viability of its marketing activities against its marketing objectives.
- It helps a manager in decision-making and in framing policies for each level of the organizational hierarchy.

11.4.1 External and Internal Marketing Audits

Factors over which the organization has total control like production capacity and budget allocations are called controllable factors. Factors like market demand, the business environment, customers, and competitors, over which the organization has no control are called uncontrollable factors. Based on scope, marketing audit is of two types: 1. External Audit (concerned with uncontrollable factors) and 2. Internal Audit (concerned with controllable factors).

External Audit

External Audit entails analysis of the external environment of the organization. It should be able to identify the opportunities and threats faced by the organization in the marketing area and to formulate the strategies to achieve the marketing objectives.

Internal Audit

Internal Audit is the analysis of the internal environment or the controllable factors. It can be used to structure the flow of marketing information in an organization. It also enables the organization to analyze the viability of its marketing activities against its marketing objectives. Finally, it helps a manager in decision-making and in framing policies for each level of the organizational hierarchy. Internal audit also analyzes the marketing budget of the organization.

11.4.2 Characteristics of an Effective Marketing Audit

The marketing audit is a detailed and systematic analysis and helps the management in identifying the strengths, weaknesses, opportunities and threats of the organization. A good marketing auditing should be:

- **Systematic:** It should follow a logical sequence of analytical steps and should have a well-defined framework and should suggest improvements that will help accomplish the organization's objectives.
- **Comprehensive**: It should take into consideration all the factors that have an impact on the organization's marketing performance. This means that it should go beyond obvious factors like sales turnover and market share.
- **Independent**: Audits should be conducted by people external to the organization to avoid biased results. Conducted by specialists or external consultants, audits are more objective. Also, the external consultants have a broader knowledge about different industries.

- **Periodic**: A marketing audit is usually carried out in crisis situations, that is, when sales have fallen or when the morale of the personnel is very low. However, it would be beneficial to conduct audits at regular intervals, without waiting for a crisis situation to crop up.

Example: Colgate-Palmolive Marketing Audit

In 2022, Colgate had increased its prices across product portfolio to deal with the increased costs of raw materials and logistics. Aftermath, the company witnessed a decline in sales. The company said that after the change in the prices they were watching customers' reaction. Colgate was planning to spend around $240 million to streamline and reduce its supply chain costs.

The above information showed the comprehensive and periodic characteristics of marketing audit.

The above information showed that the auditor was independent of the organization, hence it was a characteristics of an effective marketing audit.

Source: Daniela Sirtori-Cortina (2022), "Colgate Warns Higher Prices Will Scare Away Some Shoppers". Bloomberg. Retrieved from https://www.bloomberg.com/news/articles/2022-01-28/colgate-warns-that-higher-prices-will-scare-away-some-shoppers, dated 28th January 2022, Accessed on 13.07.2022

11.4.3 Conducting a Marketing Audit

Marketing audit is the starting point of the marketing planning activity. It is a dynamic activity that differs from organization to organization. In the marketing audit process, the initial activity is a meeting between the person from the top management of the organization and the auditor. Together, they identify the objectives of the audit, the format of reporting, and other related issues. The auditor then reviews the business plans, the financial data of the organization, and the structure of the organization; conducts interviews with customers and competitors; analyzes the marketing budgets, product costs, and sales; and presents the findings in the form of a marketing audit report.

This audit has three stages, which involve the following activities:

1. Extensive analysis of the present and past marketing activities of the organization
2. Forecast of the organization's growth relative to the changing market conditions
3. Giving suggestions for improving the quality of plans and the marketing performance.

Marketing Audit Checklist

A marketing audit should be conducted before the start of marketing planning process. Its objective is to have a closer look on the existing business landscape, internally and externally.

The marketing audit checklist comprises questions that prompt to examine the different environments and practices to evaluate what the company is doing, why is it doing, and the outcome of such doing. The following is the model checklist.

Marketing Audit Checklist - Agree / Disagree / Uncertain

i. Company has sometimes failed to meet production targets	xi. Level of sales returns is negligible.
ii. Suppliers are very reliable.	xii. Level of purchase returns is negligible.
iii. The majority of our sales are in one product.	xiii. Company collects feedback from after-sales complaints.
iv. We do not introduce new products as often as our competitors.	xiv. xiv. Company uses feedback from sales to influence new products.
v. Our product range matches customer wants.	xv. Markets are sensitive to price changes.
vi. We monitor new product development in the industry.	xvi. Prices are in line with the competitors.
vii. We are aware of and comply with current legislation.	xvii. Profit margins are wide enough to meet price competition.
viii. We are aware of how our customers perceive our products.	xviii. Credit terms and discounts are in line with competitors.
ix. We do have a system of quality control.	xix. An increase in credit sales will lead to cash-flow problems.
x. We monitor the quality of incoming supplies.	xx. Company follows competitors in pricing the product/services.

The process of conducting a marketing audit requires the deep involvement of both the management and the auditors. This ensures that the management learns to formulate policies based on the insights gained through its direct involvement in the work and from the auditors. However, the marketing audit cannot be defined as a set of pre-determined activities. It is a dynamic activity that differs from one organization to another.

In the marketing audit process, the initial activity is a meeting between the person from the top management of the organization and the auditor. Together, they identify the objectives of the audit, the format of reporting, and other related issues. The auditor then reviews the business plans, the financial data of the organization, and the structure of the organization; conducts interviews with customers and competitors; analyzes the marketing budgets, product costs, and sales; and presents the findings in the form of a marketing audit report.

Activity 11.1
Kafflin Coffee Hut are the producers of three coffee variants namely Espresso, Cappuccino, and Café Latte. The firm markets their products in-house as well as in other Café Outlets. The firm’s sales objective is to achieve 50% market share of targeted segments through excellence in sales. Manjit, the Manager of Sales Division had set the products sales growth objective for the fiscal year 20x1 – 20x2, to achieve 15% market growth. But the firm’s market showed no growth prospective in the first quarter of the respective financial year and was stable at 5% as previous year and attained only 4% market share out of its total market segment.   As a Marketing Auditor, what proposals and reconsiderations would you suggest to Manjit, to achieve the firm’s sales growth objective? Specify the essential characteristics of a marketing audit?   **Answer:**

11.5 Sales Control

Sales is a critical functional activity of any commercial organizations is. Hence it is important area for control. An important responsibility of a sales manager is to exercise control over sales and on its related activities. This should be either on a continuous, overall or periodical basis. The activity of sales control helps in ascertaining which level of sales have been achieved, in case of any variance with the targeted sales then the reason for such variance, and measures taken to attain the targeted sales. Let us discuss some of the aspects related to sales control.

Sales control includes the control of sales function and especially the sales force of the organization. The first step for the said control is the laying of sales budget.

11.5.1 Sales Budgets

Sales budget is a component of the operating budgets of the master budget of an organization. The sales manager prepares three types of budgets:

- *Sales Revenue Budget:* It is a detailed plan showing the expected sales revenue for a future period.
- *Selling-Expense Budget:* It is a plan that estimates the expenses that the sales department will incur for achieving the planned sales. The selling-expense budget is closely linked with the sales budget, as the selling expense budget is determined by the number of products supposed to be sold in a given period of time.
- *Sales Department Administrative Budget:* It consists of budget allocation for administrative expenses like rent and electricity.

Due to the difficulties of following a stringent budget, managers generally follow rolling budgets or flexible budgets. The rolling sales budget provides for an additional time period apart from the actual budget period which allows managers to revise the performance in the budget period and carry forward pending activities/outcomes to the next budget period easily. Flexible sales budgets are useful in situations of uncertainty as it allows managers to revise and update the targets set at the beginning of the budget period.

Methods of Budgeting for Selling Expenses

The different methods that organizations use for developing selling-expense budgets for the activities of the sales force are:

- *Affordability Method:* It is developed depending on the organization's ability to spend on the sales function.
- *Percentage-of-Sales Method:* It is prepared by multiplying sales revenues by a given percentage of sales.
- *Competitive Parity Method:* It is based on a comparable (size or revenue) competitor's budget so that the organization does not lose market share to competitors.
- *Objective-and-Task Method:* Budgets are developed based on objectives to be achieved.
- *Return-oriented Method:* Budgets are developed with the help of tools like Return-on-Investment (ROI), Return on Assets (ROA), and Return on Total Assets (ROTA).

Controlling through Budgets

Controlling is a process of making a disciplined effort to follow an established plan of action and to identify any deviations that occur. Deviations from the plan can be easily identified by conducting periodic reviews. In large organizations, budgets are used for achieving coordination between different business segments and for evaluating the performance of those segments.

Example: Porsche AG's Return-Oriented Method

In 2022, Lutz Meschke, Porsche AG's vice chairman and a member of the executive board in charge of finance and IT, asserted that despite all of the problems the global business was facing, things were still moving forward. "Porsche benefited greatly from a favourable first-quarter sales mix, disproportionate growth in the other business divisions, and favourable currency effects.

Contd….

The business expected to generate a return on sales of at least 15% in the fiscal year 2022. The above information showed that the Porsche follows return-oriented method for its sales budgeting.

Source: Mint (2022), "Porsche sales revenue grows over 4%, Cayenne tops selling chart Tacan came third" Retrieved from https://www.livemint.com/auto-news/porsche-sales-revenue-grows-over-4-cayenne-tops-selling-chart-tacan-came-third-11651846642742.html, dated 6th May 2022, Accessed on 13.07.2022

11.5.2 Sales Quotas

Quotas are the quantitative sales goals assigned to salespeople for a given time period. Sales quotas are given to the individual sales persons but also for a sales team or territory. Sales quotas should be fair, challenging, flexible, and easy to understand. The management can set sales volume quotas based on market potential and/or sales forecasts, past experience, executive judgment, or sales force compensation. Failure to achieve quotas is usually followed by consequences such as warnings, extension of probation period, or dismissal, so that they retain their effectiveness as a sales force control mechanism.

Importance of Sales Quotas

The purpose of assigning sales quotas is to achieve organizational objectives and provide a direction to sales activities. They serve as targets that help sales personnel orient their activities toward achieving these targets and also serve as a means for sales managers to direct the activities of the sales force. In other words, sales quotas motivate and control the sales force. Setting the sales quotas for the organization is important for the following reasons: providing performance targets to guide and direct the activities of sales personnel; providing standards for measurement of actual sales results and a uniform basis for comparing the performances of sales personnel throughout the organization; providing control by facilitating evaluation of sales force performance; providing change of direction of the efforts of sales personnel in the desired course to achieve the organization's long-term goals; and motivating the sales force to enhance their efforts and performance.

11.5.3 Sales and Cost Analysis

Sales analysis involves gathering, classifying, and studying the sales data of organizations. It is one of the means by which an organization can analyze its performance and helps the sales managers to plan and direct the sales efforts. It helps identify the strengths and weaknesses of the organization, thereby allowing the management to formulate suitable marketing strategies for it. Sales analysis also helps the management in production planning, cash management, inventory management, and other non-marketing functions. Marketing cost analysis involves the collection, classification, comparison, and study of marketing cost data. Conducting a marketing cost analysis helps an organization identify opportunities to increase the effectiveness of its marketing expenditure.

The following are some of the analysis that can result into financial control of an organization.

Sales Variance Analysis

Sales variance analysis is used to identify the discrepancies between the expected outcomes and the actual outcomes. The sales value analysis is of two types:1. the value method (where the variances are calculated in terms of sales value) and 2. the profit method / margin variances (where variances are calculated in terms of their impact on profit). Sales value analysis can be further divided into sales price variance and sales volume variance. Sales volume variance is sub-divided into Sales Quantity Variance and Sales-Mix Variance.

Market Share Analysis

Market share analysis aims to find out the market share of an organization by comparing its sales with the total sales in the industry. Since market share is not a static figure and keeps changing from time to time, the marketer has to conduct the analysis on a regular basis. Market share acts as a standard for developing action plans and forecasting demand, with a higher market share indicating that the firm is doing well in the market. Market share analysis also helps a firm that operates in international markets. Regular analysis of market shares helps an exporter to know the organization's relative position in the world market. Based on this analysis, exporters can formulate strategies for the foreign market to counter competition from domestic players of the importing country and other exporters.

Marketing Expense-to-Sales Variance Analysis

Marketing expenses are a function of sales value. They are made up of two components -- fixed and variable. The fixed component does not vary with sales. The variable component is calculated as a percentage of sales. The actual sales and expenses are compared with the budgeted sales and expenses. If the actual sales are higher than the budgeted, and the actual expenses are lower than the budgeted, the variance is favorable. If the actual sales are lower than the budgeted and the actual expenses are higher than the budgeted, then the variance is unfavorable.

Illustration 11.1

Rohan Woodworks International manufactures and markets its own products. The marketing manager of the company has set the budget for marketing expenses at ₹ 100 million for the year 20x1. This budget has been allocated to different functions as mentioned below:

Budgeted Marketing Expenses

(₹ Million)

Item of expense	Fixed	Variable	Total
Selling and distributio	15	20	35
Advertising	10	20	30
Sales Promotion	10	15	25
Other marketing expenses	10	-	10
Total		55	100

The sales for the year were budgeted at ₹ 500 million. The quarterly sales that were budgeted for each quarter are given below.

Budgeted Quarterly Sales

(₹ Million)

Period	Budgeted Sales
Quarter I	150
Quarter II	100
Quarter III	130
Quarter IV	120

At the end of two quarters, the actual sales and the actual expenses for the first two quarters were compared with the budgeted sales and budgeted expenses, respectively. The actual sales for Quarters I and II were ₹ 175 million and ₹ 80 million, respectively; actual marketing expenses for these periods were ₹ 22.5 million and ₹ 19 million, respectively. Using fixed budgets, identify the situation the company is in with respect to sales and marketing expenses in Quarters I and II.

Note: If fixed budgets are used, the total marketing expense budget of ₹ 100 million will be uniformly spread out over the year with the quarterly marketing expense budget being ₹ 25 million per quarter.

In Quarter-I, the actual sales (₹ 175 million) are more than the budgeted sales (₹ 150 million) for the quarter. Therefore, it is a favorable situation for the company. The marketing expenses were budgeted at ₹ 25 million for Quarter-I while the actual expenditure incurred was ₹ 22.5 million. This is again a favorable situation for the company as the company has spent less than the budgeted expenses.

On the other hand, in Quarter II, the actual sales (₹ 80 million) were less than the budgeted sales (₹ 100 million) which resulted in an unfavorable variance. The actual marketing expenses (₹ 19 million) were less than the budgeted marketing expenses (₹ 25 million), and hence the situation was favorable for the company in Quarter II.

11.5.4 Sales Reporting

Sales reporting is used as a method for tracking and monitoring the performance of the sales force. Information on sales, expenses, etc., is collected from the sales personnel through a formal reporting system. Sales managers are expected to evaluate the sales representatives and give their appraisals (sales representatives) on a quarterly or monthly basis. The reports generated help in this evaluation process. Reports can be obtained from the sales force and also from the sales management team.

Reports from the Sales Force:

The different types of reports submitted by the field staff or sales force are:

- **Call Reports**: Call reports cover details about the calls made daily or weekly. These reports include information regarding the different customers, their preferences, competition and their products, etc.
- **Expense Reports**: Expense reports cover the reimbursements that the sales personnel receive for the expenses they incur such as travel expenses, and promotional activity expenses.
- **Sales Work Plan**: Sales work plan helps the management track the sales representative's calls when he/she is in the field.
- **Potential New-business Report**: This report generates information on the possible new areas where business can be developed or new prospects who can contribute to the business.
- **Lost Sales Report:** Lost sales report checks the capabilities of the sales force in retaining customers and fighting competition. It helps the management in gauging the requirements for sales training and improvements in customer service and products.

Reports from Sales Management

The regional and divisional sales managers submit periodic reports to the senior management regarding the expected sales and actual sales in a specific month or quarter or year. They have to report on the sales that are expected from each of the sales representatives in their region or division. The reports should include, information regarding the promotional activities to be undertaken by the sales team in a specified time period and the forecast or result of the activity in terms of sales.

Activity 11.2

Sujitha has been appointed as the Head Counselor, with Akira Educational Services that offers courses in Web Analytics and Digital Marketing. One of her major job responsibility is to set targets and assign the same to her team members. Each team member has to produce a daily sales report on Actual vs

Targets, which would be consolidated and reported to her immediate manager Ms.Kavitha. As a new joinee, she wants to re-orient her team members on how to draft the sales reports and its importance. What are sales reports? State its importance and the different types of reports that can be used by the sales team of Akira Educational Services.

Answer:

11.5.5 Credit Control

Credit control refers to the control of the credit facility extended to customers and channel members. A proper credit control mechanism involves two steps: i) analyzing the accounts receivables and bad debts, and ii) credit rating of customers and channel members.

Receivables Management

Analyzing the accounts receivables or receivables management is an important step in devising a credit control policy. Three important ways in which the profitability from the receivable management can be increased are:

1. Devising and Implementing an appropriate portfolio strategy
2. Precise order fulfillment and invoicing
3. Having an efficient conflict resolution procedure in place.

Credit Rating

Credit rating helps in calculating the amount of credit that can be given to customers or channel members with minimum risk. Depending upon the credit rating, the customers are graded from no-risk to high-risk customers. Such rating helps the organization in knowing to whom it can give credit and to whom it cannot.

11.5.6 Performance Evaluation and Performance-based Compensation

Performance evaluation is a formal and planned system using which sales managers monitor and measure the performance of the sales force. Though the basic objective of performance evaluation is to assess the performance of a salesperson, it can be used as a tool by the management to motivate the sales personnel and in developing the sales plan, which will help to improve the performance of the person in future. Performance evaluation also helps the salesperson to adjust his/her work to suit the expectations of the management, on the basis of the feedback received.

The output or sales volume generated by the sales person generally depends on his/her individual effectiveness. So, the incentives provided to them also depend on the sales volume they generate. In this situation, the organization has to ensure that all the salespersons are treated equally. There should not be any factor that will unduly influence the output of any salesperson. While developing a performance measurement system, organizations have to be aware of the external factors that may affect sales as these factors cannot be controlled by the organization. If generation of sales volume is not directly related to the efforts put in by the salespeople, then the salespersons can be evaluated on the basis of their efforts like number of sales calls made, the frequency of these sales calls, and soon.

Sales Force Compensation and Incentive Systems

The compensation of the sales force is made up of two components: 1.Salary and 2. Incentives. When the output is not attributable to the performance of a single person, the salary component of the compensation should be higher than the incentives component. If the sales person has to put higher efforts in selling the products and services, then, incentives should be given more importance in the total compensation than the salary of the sales person.

11.5.7 Sales Force Management Audit

Sales force management audit is a cross-functional exercise that evaluates the entire selling operation in an organization which includes sales management environment, sales management planning system, sales management organization evaluation, and the sales management functions. Evaluation of the organization's sales force management process helps the sales manager improve the performance of the sales force and to effectively allocator sources for achieving the sales objectives.

Check Your Progress -1

1. Which of the following is one of the components of strategic controls of marketing and is used only in the case of emergency?
   a. Strategic surveillance
   b. Premise control
   c. Implementation control
   d. Special alert control
   e. Quality control
2. Which of the following techniques is used in marketing profitability control that generates separate income statements for each of the

customer segments or product lines?

a. Activity-based costing

b. Segment margin report

c. Profit margin management

d. Strategic profit model

e. Uniform costing

3. There are different methods that organizations use for developing selling-expense budgets for the activities of the sales force. In case of the competitive parity method, the budget is prepared on the basis of which of the following?

   a. Based on a comparable (size or revenue) competitor's budget

   b. By multiplying sales revenues by a given percentage of sales

   c. Based on objectives to be achieved

   d. Based on the organization's ability to spend on the sales function

   e. By dividing current assets with current liabilities

4. In the analysis of sales variance, sales volume variance is further divided into which of the following?

   a. Sales price variance; sales quantity variance

   b. Sales mix variance; sales value variance

   c. Sales value variance; sales price variance

   d. Sales quantity variance; sales mix variance

   e. Sales volume variance; sales mix variance

5. Sales force management audit is a cross-functional exercise that evaluates the entire selling operation in an organization. Which of the following is not an aspect of sales force management audit?

   a. Sales management environment

   b. Sales variance analysis

   c. Sales management planning system

   d. Sales management organization evaluation

   e. Sales mix analysis

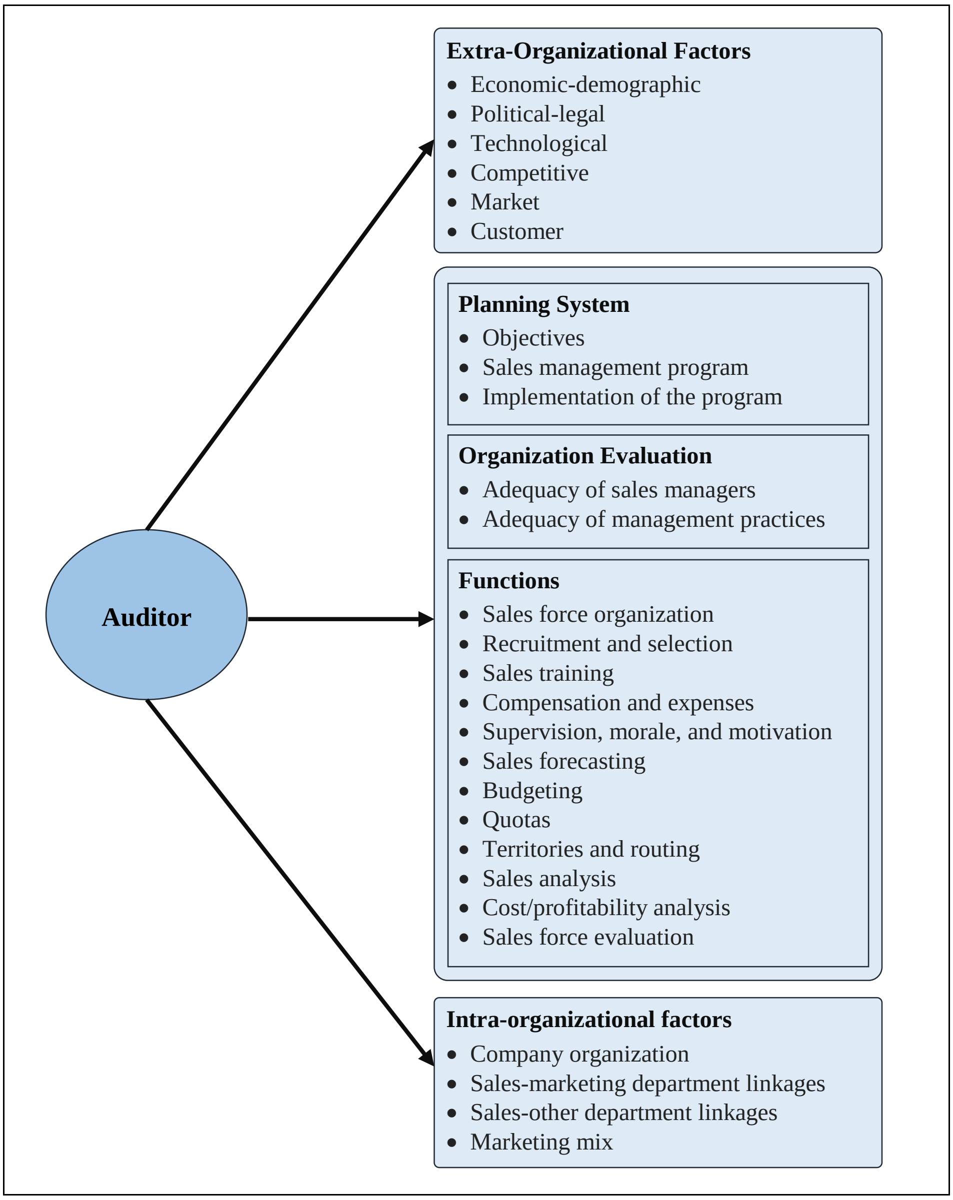
11.6. Distribution Control

As we have discussed earlier, sales is a very important functional area where controlling measures are strictly to be monitored. Sales take place in different modes in the organization. So also implementation process of control measures. Let us examine these issues. Performance standards can be set for the sales volumes generated by the distributors (sales force), the number of accounts maintained by each distributor, their contribution to the total sales as percentage, and costs incurred by the firm to maintain a relationship with the distributors.

For logistics partners like warehousing firms and transportation companies, performance standards may be set for the ratio of cost of transportation to the sales revenue, costs incurred in warehousing and inventory management, etc. Let us understand the control measures in distribution.

To connect, sales force management audit perspective is depicted in the following Figure 11.1.

Figure 11.1: Sales Force Management Audit



Source: ICFAI Research Center

The different ways through which distribution channels can be controlled are: channel integration, channel management, evaluating channel performance, and channel conflict management.

11.6.1 Channel Integration

Channel integration involves cooperation from various channel members which includes manufacturers and retailers. The functions served by channel integration are: maintaining minimum inventory levels, improving mutual relationships among channel members, reducing transaction costs, helping organizations manage their skills and resources better, and enabling organizations to develop competitive advantage over their rivals in different markets. Two ways in which channel integration can be achieved are: 1. Vertical Marketing Systems and 2. Horizontal Marketing Systems.

1. Vertical Marketing Systems (VMS)

   In a vertical marketing system (VMS), one of the channel members owns the channel or exerts a substantial influence or control over the activities of the members along the channel. This 'channel leader' oversees the functions of the channel members and ensures that everyone performs only those functions at which they are good. A VMS usually consists of manufacturer(s), distributor(s), and retailer(s) pooling their individual strengths together to achieve operating economies or a competitive advantage. VMS can be divided into: corporate VMS (company-operated retail outlets), administered VMS (big retailer's hold on small suppliers), and contractual VMS (franchiser's hold over franchisees).

2. Horizontal Marketing Systems (HMS)

   A horizontal marketing system (HMS) is an arrangement within a distribution channel in which two or more organizations at the same channel level work toward a common goal. In this system, the two organizations are unrelated to each other and come together with the objective of cashing in on a market opportunity. This type of arrangement is arrived when the organizations on their own do not have resources, experience, or know-how to exploit marketing opportunity. The success of a horizontally integrated system depends on operational (standardization of the production and distribution processes between the cooperating firms), intellectual (sharing of information about the requirements among the cooperating firms), and social integration (ability of personnel at the same levels in the cooperating firms to discuss matters with their counterparts, analyze issues, and implement joint programs) among the cooperating organizations.

11.6.2 Channel Management

Efficient channel management helps organizations reduce costs, reach potential customers, and earn profits. The steps involved in managing a channel efficiently are:

- Recruiting and selecting the right channel members. The selection criteria may include: a member's ability to sell the organization's products in the market; the channel member's expertise and knowledge of the products to be handled; potential channel member's past performance including the type of customers handled in the past and their satisfaction levels; the amount of work the channel member is handling; the distributor's pricing patterns and risk factors; the channel member's commitment to the organization's progress; and the costs incurred in selecting a member and subsequent dealings with all stakeholders of the organization.

- Focusing on motivating the channel members and increasing profitability. Relationship management, personal contact with distributors, and formal mechanisms such as distributor advisory councils are useful in determining the needs and problems of channel members. Appropriate benefits and incentives should be offered to distributors to help them improve the supply chain, reduce the capital employed, lower the operating costs, lower the risks involved, enhance customer finance schemes, and engage in sales promotions.
- Periodically evaluating the performance of the channel members to ensure that they remain competitive in the market.
- Suitably modifying the existing channel arrangements based on market changes.

11.6.3 Evaluation of Channel Performance

In evaluating performance, the channel's financial performance and societal contributions made by the individual members of the channel are assessed. Channel performance is evaluated both at the macro-level and micro-level.

Evaluation of Macro-level Performance

Performance at the macro-level is evaluated in terms of the contribution made by the intermediaries to society. The major elements that determine the contribution of an intermediary are channel efficiency, productivity, effectiveness, and equity. Channel efficiency deals with the ability of intermediaries to undertake necessary channel functions by incurring minimal costs. Productivity deals with the extent to which the total channel investment in the form of inputs has been optimised to yield maximum outputs. Channel effectiveness is a dimension that measures channel performance and considers its ability to satisfy customer needs. Channel equity refers to the distribution of opportunities available to all customers in accessing the market channels of a region.

Evaluation of Micro-level Performance

Evaluation of the channel at the micro level involves a closer look at the performance of individual intermediaries associated with a marketing channel. The objectives to be considered for evaluating performance are: profitability, goal attainment, pattern maintenance, integration, and adaptation.

Channel profitability considers the financial performance of channel members in terms of Return on Investment (ROI), liquidity of the channel member, financial leverage, growth pattern, and potential for sales and profits. Goal attainment refers to the organization achieving its goals by interacting with the task environment and maximizing outputs. Pattern maintenance involves coordination of processes and functions among organizational units to help the system function smoothly. Integration refers to the coordination among the components of a channel or an organization to meet common objectives and maintain the entity as one single unit. Adaptation is the modification of resources required to meet system objectives.

Example: LTTS is Designated as Supplier of the Year by John Deere

John Deere (a US based company) received a variety of services from L&T Technology Services Limited (LTTS) (an India based company). In its "Achieving Excellence" programme, John Deere evaluated its suppliers' performance in a number of important areas, including quality, cost control, and technical assistance, among others. In accordance with the John Deere Achieving Excellence (AE) Program, LTTS was designated Supplier of the Year in 2021 and Partner-level supplier.

The above information showed how John Deere evaluated performance of its channel partner.

Source: ANI Press Release (2022), "L & T Technology Services earns recognition as a John Deere "Supplier of the Year" & "Partner-level Supplier"" Retrieved from https://www.business-standard.com/content/press-releases-ani/l-t-technology-services-earns-recognition-as-a-john-deere-supplier-of-the-year-partner-level-supplier-122032900401_1.html, dated 29th March 2022, Accessed on 13.07.2022

11.6.4 Channel Conflict Management

The two main sources for channel conflict are: structural causes and attitudinal causes. Faulty channel design; goal divergence; goal incompatibility; clashes over domains; differences in attitudes and perceptions; unexpected changes in the competitive environment, consumers, and markets; differences in economic and ideological objectives among channel members; etc., are examples of causes of channel conflicts. The various conflict resolution strategies are: negotiation and bargaining, problem- solving strategies, persuasion, political strategies, and co-optation.

Conflict Resolution Strategies

The commonly used conflict resolution strategies are - negotiation and bargaining, problem-solving strategies, persuasion, political strategies, and co-optation. Table 11.1 describes these strategies briefly.

Table 11.1: Conflict Resolution Strategies

Strategy	Description
Negotiation and bargaining	• Used to resolve conflicts arising due to issues related to price, cash credits, discounts, delivery, etc. • Used to reach a consensus; no attempt is made to change the objectives of the members involved. • Generally takes place between the marketer and channel member and not between two channel members.
Problem-Solving Strategies	• Used when both the marketer and the channel member have common objectives but are not able to reach a common decision. • Information is transferred openly, and solutions sought through cooperation.
Persuasion	• Marketers try to influence decisions by changing the objectives and perspectives of the channel members.
Political Strategies	• A third party is appointed for conflict resolution. • Used when the marketer and the channel member are not able to reach a consensus.
Co-optation (selection of new member)	• An information-intensive mechanism which involves free transfer of information between the members. Coordination and cooperation are prerequisites for co-optation. • A new member from outside the organization is selected and involved in the top management decisions and policies. • Involves responsibility sharing; members from different levels can become prominent in the entire channel system and are committed to the programs and policies of one another.

Compiled from various sources.by ICFAI Research Center

11.7 Marketing Communications Control

The fundamental goal of marketing is to reach the customer with the product or services converting them into sales revenue. To market a product successfully, the information about its availability, utility, and price must be effectively communicated to prospective buyers. Hence the control aspects in various elements of marketing communication are presented below:

11.7.1 Advertising

Advertising is the paid form of communication in various media (newspapers, magazines, television, radio, hoardings, the internet, etc.) used to convey information about products or services in a way that can persuade people to make a purchase.

Measuring Advertising Effectiveness

A commonly used method for measuring the effectiveness of advertisements is copy testing or message testing. The effectiveness of an advertisement can be measured either before the ad campaign takes off (pre-testing) or after the advertisement is run in select media (post-testing). While pre-tests help advertisers avoid the risk of releasing ineffective ads, post-tests provide useful information about the performance of the ad campaigns that have already been released. This can be used for planning future advertisements. The following parameters may be monitored in measuring the effectiveness of an advertisement: recognition, recall, persuasion (attitude change), and purchase behavior.

Measuring Effectiveness of Internet Advertising

The Internet has become an effective medium for advertising. In launching an advertisement campaign on the Internet, the purpose (to directly sell a product, create more leads, generate donations, etc.) of launching a website needs to be decided and the effect it has on the customer checked.

The various aspects to be monitored are the value of the intended outcome; the number of times the purpose is fulfilled; and the cost incurred to gain the revenue. These measurements help organizations bring out better Internet advertisements and use the generated information to improve the effectiveness of their online advertisements.

Example: Kantar's Measure of Effectiveness of Advertisements

In 2022, Kantar, a brand consulting company, did a consumer testing on 1300 Indian advertisements of 2021. The testing essentially consists of a survey, and the questions were compared to a database of norms that were established. Within in 12-month period, an advertisement was often tested with 200–300 customers.

Contd….

As per measure of effectiveness of advertisement by kantar, Amazon, HUL, Marico, Whirlpool, and Mondelez listed for the most effective advertisements of 2021 in the television category.

The above information showed the measuring of the effectiveness of the advertisements.

Source: Varuni Khosla (2022), "Amazon, HUL, Marico ads among 'most effective' in 2021" Retrieved from https://www.livemint.com/industry/advertising/amazon-hul-marico-ads-among-most-effective-in-2021-11656057494161.html, dated 24th June 2022, Accessed on 13.07.2022

11.7.2 Sales Promotion

There are two types of sales promotions. They are: Trade promotions and Consumer promotions.

Trade promotions are targeted at channel members to motivate them to stock the organization's products and promote them more effectively. They aid in the implementation of the 'push' marketing strategy. Consumer promotions are aimed at end consumers so as to create a consumer pull for the product. They help an organization implement its 'pull' marketing strategy.

Measuring the Sales Promotion Effectiveness

Depending on the objective of a sales promotion, effectiveness of sales promotions can be measured in two ways: direct evaluation and indirect evaluation. In direct evaluation, sales volume is used as the parameter of measurement whereas in indirect evaluation, indicators of sales (e.g.: number of promoted units sold and profits from the sales, number of un-promoted units sold whose sales can be attributed to the promotion, increase in number of units in distribution and display, and increase in impulse buying) are used as the parameters of measurement.

11.7.3 Direct Marketing

According to the Direct Marketing Association of Washington, direct marketing is "an interactive system of marketing which uses one or more advertising media to effect a measurable response and/or transaction at any location." It involves direct communication with customers to obtain an immediate and measurable response. The main advantages of direct marketing are measurability and flexibility. The different ways in which organizations undertake direct marketing are: direct mailing, telemarketing, mass media advertising and Internet advertising. The issues to be decided by the organization at the time of developing a direct marketing campaign are: objectives of the campaign, profile of the audience and different media that it wants to use, and content of the campaign. The specific set of target customers is then decided. The direct marketing implementation process involves launching the campaign, receiving orders, processing the orders, managing the inventory, and managing customer queries and complaints.

Evaluation of Direct Marketing Campaigns

The organization evaluates the campaign in terms of the response to it and its profitability. Response needs to be evaluated both quantitatively and qualitatively. The quantitative measurement of response is conducted in terms of the number of responses received per a certain number of contacts with the customer. The quality of the response is measured in terms of the number of sales inquiries and the number of information requests that are generated. A high quality response is one which generates more sales inquiries than information requests.

Profitability analysis is another way of measuring the effectiveness of the direct marketing campaign. This is done by assessing the costs incurred and the profits generated by the organization. Costs can be measured in terms of cost per 1000 mailings, cost per order, or cost per response. Profits can be measured in terms of the sales obtained from the campaign, profit margin, and the actual profit obtained. The evaluation should be done on a continuous basis so that the organization can identify the issues that arise during the campaign and take corrective action to achieve the set objectives.

11.7.4 Public Relations

The Institute of Public Relations defines public relations (PR) as "the deliberate, planned, and sustained effort to establish and maintain mutual understanding between an organization and its public." PR efforts are aimed at identifying and closing the gaps that exist between the image that the public holds about the organization and the image that the organization wants to project. PR measurement and evaluation is a process which involves assessment of the success or failure of PR strategies, activities, and tactics in producing the desired output, outtakes, and outcomes. The different ways to measure the effectiveness of public relations campaigns are: PR output measurement, PR out-take measurement, and PR outcome measurement.

PR Output Measurement

PR output is the short-term result achieved by a PR effort and includes the amount of press coverage received or exposure gained by a specific message. Some tools used for measuring PR outputs are: media content analysis, cyber space analysis, trade show and event measurement, and public opinion polls

PR Out-take Measurement

PR out-takes relate to the information that the public gather or obtain from a particular PR effort. Measurement of PR out-takes is important as it is necessary for the organization to know what the target audience has gathered from a particular PR effort. Outtakes can be measured based on parameters such as understanding, recall, and interest. Some tools for measuring outtakes are: awareness and comprehension measurements, and recall and retention measurements. Surveys, ethnographic studies, and experimental research are other tools and techniques that can be used for the purpose.

PR Outcome Measurement

Outcomes are the end responses that a PR effort aims to achieve from its target audience. PR outcomes are usually long term in nature and refer to the behavioral and business impact of the PR efforts. The measurement of the PR outcomes is important as the results of the PR programme are not immediate. The measurement process of the PR outcome involves the use of various statistical tools and survey techniques like correlation and regression analysis, multivariate studies, focus groups, and qualitative attitude surveys. PR outcome measures include: attitude and preference measurement and behaviour measurement.

11.8 Marketing Control in Branding

A brand is the proprietary, visual, emotional, rational, and cultural image that one associates with an organization or the product. It denotes the value of a brand to the customer and the organization. Brand equity not only creates a positive brand image, but also drives demand because customers are often attracted towards a brand with better brand equity. Hence the organization has all responsibility to introduce controlling mechanism in branding

The below discussion clearly illustrates the activity of marketing control in the branding and its marketing performance.

11.8.1 Brand Equity and Brand Measurement

Brandequityaddsvaluetothefirmbygeneratingmarginalcashflowapartfromadding value to the customer. It helps organizations attract new prospects and retain old customers. High brand equity facilitates premium pricing and cost savings, because an organization spends less on promotion. It also paves the way for brand extensions. Strong brand equity, when extended, will draw people to buy it depending on their perceptions about the parent brand.

Brand equity also provides an advantage in the distribution channel, as more dealers and retailers will be willing to store more units of the product expecting good sales in the future. It also acts as a barrier for competitors by providing a competitive edge to the organization. The three underlying concepts through which brand equity can be understood are: brand assets (attributes of the brand that affect the consumers' decisions); brand strength (the power that the brand exerts due to the presence of the brand assets at any given point and in any of the markets); and brand value (capability of the brand to generate profits for the organization).

Brand measurement

Brand measurement is used to evaluate the brand equity of a brand and helps in integrating the brand with organizational performance. Brand measurement can be conducted by: perception measurement, performance measurement, and financial measurement. Perception measurement includes the attributes like brand awareness and customer perceptions of quality, credibility, etc. Performance measurement is based on attributes like customer preference and repeat purchase. Financial measurement includes market share analysis and market capitalization.

The balanced scorecard for the brand helps the organization to measure the important behavioral dynamics and compare the position of the brand *vis-a-vis*its competitors. The scorecard framework varies from business to business depending on the business environment, the maturity of the business, and the industry in which it operates.

Example: Brand Equity of Good Day

According to The Economic Times article (2020), Good Day, the main brand of a leading food and confectionery company Britannia, had relied on just one concept for the past three decades: "spread happiness every day." Even while in theory that may appear ideal, the business had continuously stayed true to the idea and been successful in winning the smiles and confidence of customers. It was one of the most trusted brands in India with a coverage of almost 50% of Indian households.

The information showed how the brand equity of Good Day was built.

Source: Priyanka Nair (2020), "Most Trusted Brands 2020: Good day's pursuit of happiness" Retrieved from https://brandequity.economictimes.indiatimes.com/news/marketing/most-trusted-brands-2020-good-days-pursuit-of-happiness/74834639, dated 27th March 2020, Accessed on 13.07.2022

11.8.2 Brand Portfolio Management

Brand portfolio includes all the brands that are managed by the organization. It is a common observation that 20 percent of the brands in the brand portfolio contribute to an organization's profit. One of the ways of rationalising the number of brands in their portfolio is by conducting a brand audit.

Brand Audit

The process of conducting a brand audit involves review of all the brands in the portfolio in terms of their respective market shares, their percentage contribution to the yearly sales and profits, and their positioning in the market. The figures showing the market shares and the percentages of sales and profits help in understanding whether investing in any specific brand is feasible or not. Brands which are not ranked high are the ones that have to be removed from the portfolio. The four strategies that organizations can adopt once the brands that are to be removed are shortlisted are: merge (when the products serve a specific segment in the market that has the potential to grow in the future); sell (when a particular brand does not fit the corporate strategy of the organization); milk (when a product cannot be removed due to some strategic reasons or due to the emotional bonding that the customers have with the product); and kill (when brands do not appeal to the customers and the retailers).

11.9 Information Systems for Marketing Control

To make speedy decisions in an ever changing business environment, the decision maker should have the necessary data and information at his/her disposal, and the relevant tools to analyze these inputs and take effective decisions. How do we do this? How the information system accommodates marketing controls in the organization is discussed in the following paragraphs.

Marketing decision support system and marketing intelligence are two important ways through which information systems can be used in marketing control.

11.9.1 Marketing Decision Support System

Marketing Decision Support System (MDSS) is a set of decision models with supporting hardware and software made available to marketing managers to assist them in analyzing relevant business data and making better marketing decisions. MDSS is mainly used in situations where semi-structured or unstructured data is available, that is, in situations where a lot of uncertainty exists and in which managers are forced to take decisions. These situations can be either internal or external to the organization. MDSS can be used in the controlling function due to its ability to provide features such as system integration, aggregation and disaggregation of the organization's data and analytical efficiency.

MDSS acts as a supportive tool, provides information about various activities, and helps in information analysis. Some benefits that an organization can derive from MDSS are listed below:

- MDSS increases the effectiveness of marketing decision-making by providing quality information.
- It can break down complex chunks of information into simple parts, thereby allowing the decision-maker to analyze each part thoroughly.
- It can be used to integrate information with other departments in the organization. This enhances coordination between departments and leads to effective functioning of all the departments.
- MDSS also analyzes the decision situations and presents the analysis reports to the decision-makers. This reduces the time consumed in analysis and this time can be used to select the best course of action from the choice set.
- It helps the marketing managers in the controlling function by identifying the deviations at an early stage. This gives the managers sufficient time to control the deviations and prevent their recurrence.
- MDSS is flexible enough to allow the decision-makers to tackle unforeseen marketing situations efficiently and effectively.

11.9.2 Marketing Intelligence

Business intelligence involves collecting information through various means and analyzing the information with respect to both the internal and external environments in which the organization operates. The business intelligence system used in marketing is called as the marketing intelligence system.

The systems for customer relationship management and database marketing utilize the most sophisticated business intelligence functions. These systems help to measure the correlation between marketing activities and their business outcomes. Marketing intelligence systems also help managers monitor the performance of their sales force and assess the contribution of the marketing function to the organization's profits.

11.9.3 Sales Force Automation as a Control Tool

Managers find that sales force automation gives them more control over the activities of their sales force. Sales force automation can be used in the following ways:

- **Surveillance and Control**: Surveillance is used for closely supervising and monitoring the behavior of the sales force. Sales force automation brings about standardization in the way business is done. It may help in preventing the sales force from giving unwarranted and unacceptable discounts to customers.
- **Accountability:** Sales force automation helps in increasing the amount of interaction between the managers and the sales force. This increase in interaction encourages the sales force to take responsibility for their actions. It also helps the sales force by allowing them to voice their questions and concerns easily and to get answers faster.

Mobile CRM

Mobile Customer Relationship Management (Mobile CRM) makes interaction of mobile field forces such as sales, service, and technicians to interact with customers, for convenient and efficient. Typical Mobile CRM solution examples are: Mobile Sales Force Automation (Mobile SFA) and Mobile Field Services (FSM). Mobile SFA is an extension of corporate CRM/SFA systems to mobile devices. It enables field sales personnel to access product information, pricing, and inventory status and customer information on their mobile devices and enables them to perform contact management, calendar entry, opportunity analysis, and order management functions while away from their office. Mobile FSM involves extending the relevant components of FSM to a mobile device used by the service technician to deliver service to the customer in the field. This facility enables bi-directional interaction with customer support, scheduling and dispatch, service order and contracts management, service parts management, and possibly other components of the FSM application such as knowledge management.

Enterprise-wide Applications

Enterprise-wide applications are used by many organizations to improve the overall control over business operations like customer relationship management, enterprise resource planning, etc. Sales force automation is a part of enterprise-wide applications.

Example: Penna Cement Automates its Sales Operations with the help of SalesForce Cloud

According to The Economic Times article (2021), Penna Cement had entirely digitalized all of their sales operations with Salesforce Sales Cloud, including lead management, order management, sales loss capture, inventory monitoring, and even PAN data verification. The system gave sales teams a single source of truth about the consumer, making it simpler for them to track customer needs, foresee opportunities, and convert more leads.

The above information showed how Penna Cement has automated its sales operations

Source: ET (2021), "How Salesforce helped Penna Cement to make faster and informed decisions" Retrieved from https://economictimes.indiatimes.com/industry/indl-goods/svs/cement/how-salesforce-helped-penna-cement-to-make-faster-and-informed-decisions/articleshow/82607019.cms, dated 13th May 2021, Accessed on 13.07.2022

Check Your Progress - 2

6. Which of the following is/are a common model of channel integration, in which one of the channel members owns the channel or exerts a substantial influence or control over the activities of the members along the channel?
   a. Horizontal marketing systems
   b. Vertical marketing systems
   c. Incentive systems
   d. Channel management
   e. Quality management
7. The evaluation of the performance of a marketing channel assesses the channel's financial performance and looks into societal contributions made by individual members of the channel is a dimension which is evaluated at the macro-level and not at the micro-level. Which of the following is determining factor at macro level?
   a. Goal attainment
   b. Adaptation
   c. Equity
   d. Pattern maintenance
   e. Integration

8. Which type of conflict resolution strategy is used when both the marketer and the channel member have common objectives but are not able to reach a common decision?

    a. Persuasion
    b. Political strategies
    c. Problem-solving strategies
    d. Negotiation and bargaining
    e. Pattern maintenance

9. Direct marketing involves direct communication with customers to obtain an immediate and measurable response _________ and _________ are the main advantages of direct marketing.

    a. Measurability; economy
    b. Flexibility; economy
    c. Economy; rigidity
    d. Measurability; flexibility
    e. Flexibility;

10. Match the given attributes with the types of brand measurement in which they are used.

    i. Attributes
    ii. Brand awareness and customer perceptions of quality, credibility, etc.
    iii. Customer preference and repeat purchase
    iv. Market share analysis and market capitalization
    v. Types of brand measurement
    vi. Perception measurement
    vii. Financial measurement
    viii. Performance measurement
    a. i/p, ii/q, ii/r
    b. i/q, ii/r, iii/p
    c. i/p, ii/r, iii/q
    d. i/r, ii/p, iii/q
    e. i/p,ii/q, iii/p

11.10 Summary

- Marketing control deals with execution of marketing strategies and checking whether the objectives of the marketing function are achieved or not.

- The four types of marketing control are: strategic control, annual plan control, profitability control and efficiency and effectiveness control.
- The performance of the organization in terms of sales growth, market share, profitability, and customer satisfaction is considered to be a reflection of its marketing effectiveness.
- The functional management audit of the marketing function is referred to as marketing audit.
- Marketing audit is of two types: external or internal; while the former is concerned with the uncontrollable factors; the latter is concerned with the controllable factors.
- An effective marketing audit is characterized by being systematic, comprehensive, independent, and periodic.
- Sales control involves the control of the sales function in the organization. The sales manager prepares three types of budgets: sales revenue budget; selling- expense budget; sales department administrative budget. The different methods that organizations use for developing selling-expense budgets for the activities of the sales force are: affordability method, percentage-of-sales method, competitive parity method, objective-and-task method, and return-oriented method.
- Sales quotas are the quantitative sales goals assigned to sales people for a given time period. Sales analysis involves gathering, classifying, and studying the sales data of the organization. Marketing cost analysis involves the collection, classification, comparison, and study of marketing cost data in order to identify opportunities to increase the effectiveness of the marketing expenditure.
- Sales reporting is used as a method of tracking and monitoring the performance of the salesforce.
- Credit control refers to the control of the credit facility extended to customers and channel members. The two steps of a proper credit control mechanism are: analyzing the accounts receivables and bad debts, and credit rating of customers and channel members.
- Performance evaluation is used by the sales managers to monitor and measure the performance of the sales force, which in turn affects performance-based compensation.
- Sales force management audit is a cross-functional exercise that evaluates the entire selling operation in an organization which includes, sales management environment, sales management planning system, sales management organization evaluation, and the sales management functions.

- The different ways in which distribution channels can be controlled are: channel integration, channel management, evaluating channel performance, and channel conflict management.
- Channel integration involves cooperation from various channel members. The different ways through which channel integration could be achieved are: vertical marketing system and horizontal marketing system. Efficient channel management helps organizations reduce costs, reach potential customers, and earn profits.
- In evaluating channel performance, the channel's financial performance and societal contributions made by the individual members of the channel are assessed.
- The two important causes for channel conflict are: structural causes and attitudinal causes. Conflict resolution strategies include: negotiation and bargaining, problem-solving strategies, persuasion, political strategies, and co-optation.
- The control aspects of advertising, sales promotion, direct marketing, and public relations are components of marketing communications control.
- Advertising effectiveness can be measured through copy-testing or message testing, and by monitoring recognition, recall, persuasion (attitude change), and purchase behavior.
- In launching an advertisement campaign on the Internet, the purpose (to directly sell a product, create more leads, generate donations, etc.) of launching a website needs to be decided and the effect it has on the customer checked.
- Depending on the objective of a sales promotion, effectiveness of sales promotions can be measured in two ways: direct evaluation and indirect evaluation. Organizations evaluate direct marketing campaigns in terms of the response to it and its profitability.
- The three aspects involved in evaluating a public relations campaign are: PR output measurement, PR outtake measurement and PR outcome measurement.
- The three underlying concepts through which brand equity can be understood are: brand assets, brand strength, and brand value. Brand measurement is used to evaluate the brand equity of a brand. One of the ways of rationalising the number of brands in an organization's portfolio is by conducting a brand audit.
- Marketing decision support system and marketing intelligence are two important ways through which information systems can be used in marketing control.

11.11 Glossary

Annual Plan Control (in marketing): Annual plan control involves the use of annual marketing targets as performance standards. Projected values of sales volume, market share, and profits are some of the typical performance standards under this type of control.

Direct Marketing: Direct marketing is an interactive system of marketing which uses one or more advertising media to effect a measurable response and/or transaction at any location. It involves direct communication with customers to obtain an immediate and measurable response.

Efficiency and Effectiveness Control (in marketing): Efficiency control is a quantitative in nature and mainly focuses on the sales volume, the sales generated by each salesperson, number of accounts handled by each salesperson, etc. Effectiveness control is qualitative in nature and aims at improving the effectiveness of the marketing activities. Customer satisfaction is one measure of effectiveness in selling.

Horizontal Marketing System (HMS): An HMS is an arrangement within a distribution channel in which two or more organizations at the same channel level work toward a common goal. In this system, the two firms are unrelated to each other and come together with the objective of cashing in on a market opportunity.

Marketing Audit: A marketing audit is a functional management audit of the marketing function. It helps the senior management to identify the strengths and weaknesses of their organization, along with the opportunities and threats in the marketplace. It is used as a communication tool, an analytical framework to help in decision-making and for framing policies.

Marketing Controls: Marketing controls are used to implement marketing strategies and check whether the objectives of the marketing function are achieved or not.

Marketing Cost Analysis: Marketing cost analysis involves the collection, classification, comparison, and study of marketing cost data. Conducting a marketing cost analysis helps a company to identify opportunities to increase the effectiveness of its marketing expenditure.

Marketing Decision Support System (MDSS): MDSS is a set of decision models with supporting hardware and software made available to marketing managers to assist them in analyzing relevant business data and making better marketing decisions.

Marketing Expenses: Marketing expenses are a function of sales value. They are made up of two components - fixed and variable. The fixed component does not vary with the sales. The variable component is calculated as a percentage of sales.

Marketing Profitability: Marketing profitability is the profitability achieved through the performance of marketing activities and is calculated based on the investment made in these activities. Some of the techniques used for profitability control are strategic profit model, segment margin report, and activity based costing.

Strategic Control (in marketing): Strategic control can be defined as the critical evaluation of plans, activities, and results, thereby providing information for future action. It has four components - premise control, implementation control, strategic surveillance, and special alert control.

Vertical Marketing System (VMS): VMS is a common model of channel integration in which one of the channel members owns the channel or exerts a substantial influence or control over the activities of the members along the channel.

11.12 Self-Assessment Test

1. Marketing control deals with execution of marketing strategies checking whether the organization's objectives are being achieved or not. What are the different types of marketing control?
2. Discuss the roles, uses, and types of marketing audit. What are the characteristics of an effective marketing audit? Describe the three stages in the marketing audit process.
3. Sales control, which includes the control of sales function and sales force, is one of the most important components of marketing control. Elucidate the concepts of sales budgets and sales quotas.
4. Sales analysis involves gathering, classifying, and studying the sales data of an organization. What is the difference between sales variance analysis, market share analysis, and marketing expense-to-sales variance analysis?
5. Sales reporting is used as a method of tracking and monitoring the performance of the sales force. What are the different types of reports submitted by the sales force to the sales management and by the sales management to the top management of the organization?
6. Channel integration involves cooperation from various channel members. What are the two ways in which channel integration can be achieved?
7. Efficient cooperation and coordination among the channel members can help prevent channel conflicts and resolve them when they arise. What are the most commonly used conflict resolution strategies?
8. A brand is the proprietary, visual, emotional, rational, and cultural image that one associates with an organization or a product. Explain briefly the terms brand equity and brand measurement.

9. Marketing Decision Support System (MDSS) and marketing intelligence are two ways in which information systems can be used in marketing control. Explain the concept of MDSS and its various benefits.

11.13 Suggested Readings / Reference Material

1. Stephen P Robbins, David A. De Cenzo and Mary Coulter (2022). *Fundamentals of Management: Essential Concepts and Applications*, Fifteenth Edition| Pearson Paperback, 30 June 2022.
2. Subhash Chandra Das (2019). Management Control Systems – Principles and Practices, PHI Learning Pvt. Limited, Paperback – 15 July 2019.
3. Pravin Durai (2019). Principles of Management: Text and Cases, First edition, Pearson India Education Services Pvt. Ltd.; Second edition (31 August 2019).
4. Merchant, Kenneth A (2017). "Management Control System: Text and Cases", Pearson Education Asia.
5. Saravanavel, P (2022). Management Control Systems – Principles and Practices. First edition, Himalaya Publishing House.

11.14 Answers to Check Your Progress Questions

1. (d) Special Alert Control

Special alert controls are used to keep the system ready in case of any crisis in the organization or in the environment. So, this component is used only in case of an emergency.

2. (b) Segment Margin Report

Two important techniques used for profitability control are the: (1) segment margin report that generates separate income statements for each of the customer segments or product lines, and the (2) activity-based costing (ABC) system that is used to analyze the whole marketing effort by analyzing the marketing function based on different activities.

3. (a) Based on a Comparable (size or revenue) Competitor's Budget

In the competitive parity method, the budget is based on a comparable (size or revenue) competitor's budget so that the organization does not lose market share to the competitors.

4. (d) Sales Quantity Variance; Sales-mix Variance

Sales variance can be divided into sales price variance and sales volume variance. Sales volume variance is further divided into sales quantity variance and sales mix variance. Sales quantity variance measures the variance of the sales quantity and sales mix variance analysis measures the proportion variance in the total sales mix of the organization.

5. (b) Sales Variance Analysis

Sales variance analysis is not an area under sales force management audit but is an aspect of sales and cost analysis in sales control.

6. (b) Vertical Marketing Systems

There are two ways in which channel integration can be achieved. They are: vertical marketing systems and horizontal marketing systems. Vertical marketing systems are the most commonly used model of channel integration. In this model, a channel member owns the channel or exerts a substantial influence or control over the activities of the members along the channel. Vertical marketing systems (VMS) can be divided into contractual VMS and administered VMS.

7. (c) Equity

The performance of a marketing channel at the macro-level is evaluated in terms of the contributions made by the intermediaries to society. The major elements that will determine the contribution of an intermediary are channel efficiency, productivity, effectiveness, and equity.

8. (c) Problem-solving Strategies

Problem-solving strategies are used when both the marketer and the channel member have common objectives but are not able to reach a common decision. Under the problem-solving strategies, the information is transferred openly and the solutions are sought through cooperation.

9. (d) Measurability; flexibility

Direct marketing refers to marketing the goods directly to the customers without any intermediaries. The main advantages of direct marketing are measurability and flexibility.

10. (c) i/p, ii/r,iii/q

Brand measurement can be conducted through different types of measurements: perception measurement, performance measurement, and financial measurement. Perception measurement includes attributes such as brand awareness and customer perceptions of quality, credibility, etc. Performance measurement includes attributes like customer preference and repeat purchase. Financial measurement includes market share analysis and market capitalization.

Unit 12

Management Control of Products and Operations

Structure

"Good companies manage Engineering. Great companies manage Product."

– Thomas Schranz, Founder and CEO of Blossom

12.1 Introduction

Products or services bring revenues and profitability to the organization. Hence the management control aspects are required in products and operations.

In the previous unit, we discussed marketing control. In the next two units, we shall discuss the management control of production and operations. In this unit, we shall discuss production controls, operations controls, control of the entire supply chain, and the role of information systems in production and operations management from a control perspective.

In a manufacturing organization, production activity involves conversion of inputs to outputs, while operations involve processes like procuring the inputs and ensuring optimal supply of finished goods to customers or consumers. Production and operations are interrelated activities that influence an organization's performance. Production operations include the various activities executed during the production process. Operations management and control covers both production and non-production operations. Production and operations, when combined and synchronized, would be classified as supply chain management (SCM). SCM ensures that the organization produces products that are demanded by the market in right quantities. It covers activities like procuring inputs, which in turn, includes activities like inbound logistics, improving production activities to match market demand, and outbound logistics.

This unit will first provide an overview and the significance of control of production and operations. We shall discuss the concepts of production and operations controls. We shall then move on to discuss the concept and importance of supply chain management. Finally, we shall discuss the use of information systems in production and operations management.

12.2 Objectives

After studying this unit, you should be able to:

- Discuss how the control of production and operations ensure optimum utilization of the production capacities, minimization of wastages, and reduction in the machine downtime.
- Describe how production performance can be measured and the production control reports impact on the production performance as a part of 'Production Control'.
- Enumerate the workings of quality controls, inventory controls, purchasing controls and warehousing controls as a part of 'Operations Control'.
- Illustrate the meaning of supply chain management and its evaluation.
- Discuss the roadmap towards modern information systems in production and operations management.

12.3 Control of Production and Operations - An Overview

Production and operations should be controlled to ensure optimal utilization of the production capacities, minimization of wastages, and reduction in the machine downtime. Production management controls the production activities by achieving quick conversion cycles, optimal scheduling of operations on the plant floor, efficient movement of material on the plant floor, and avoiding spillages and accidents. It will also identify the various work points and measure the work point efficiencies to ensure high productivity levels. Let us review how the control measure are to be kept in place in production and operation functions.

In production operations, quality control checks or quality assurance is conducted on the materials used to ensure high product quality, Control of production methods, laying down quality standards for materials, and laying down standard operating procedures for activities taking place on the shop floor, are important aspects of controlling production operations.

Operations management assumes great importance in service organizations as the core product is an intangible service whose quality is difficult to assess.

The finished product is the result of operations and its quality depends on how the operations are executed. The production process is also intangible and it is difficult to identify the control parameters. Successful service organizations are those which come up with controls that develop clearly measurable yardsticks for controlling the organization's operations.

Manufacturing Vs. Service Operations

Following are some of the points that clearly differentiate service operations from manufacturing operations.

- Unlike manufacturing operations where consumption is followed by production, both production and consumption take place simultaneously in service operations.

  E.g.: In a restaurant, once the order is placed, the production begins and the consumption takes place immediately as soon as the production gets completed.

- A product in a manufacturing operation has a shape, size, and can be seen and touched. This is not possible in case of services as they are intangible.

- *E.g.: The service provided by an air hostess on an airline or by a teacher in a college cannot be defined.*

- Manufacturing operations comprise inventories of stock. There is no inventory in case of service operations.

  E.g.: The empty seats on an airline cannot be reserved or saved for a later period of time. Once the flight takes off, the seats will be gone.

- Consistency can be maintained in case of manufacturing operations as the production process is carried out based on a predefined process that involves complete specifications and strict quality control. This is not possible in case of services as they are intangible. There will be variations in service delivery from time-to-time.

  E.g.: A waiter may not serve you in the same way as he/she has served you a few days back.

- Service operations comprise both substantive and peripheral components.

  E.g.: In a hotel, food will be the substantive component, while ambience would be the peripheral component.

12.4 Production Controls

Production control is one of the control functions of management. Management Control on this aspect plays a crucial role. Let us how is done in organizations. There is no “the ideal system” for production control. Reasons are obvious. Each organization is unique. No two organizations are alike some are small while some are large, the systems are different in each of the organization. But, every organization has to plan and control its production and operations activities so that the manufactured product is supplied in the right quantity and quality, at the right time, and at the minimum cost. Let us discuss on some of the aspects of production controls.

Production controls in manufacturing organizations are dependent on two broad variables - the nature of the production process (process production or discrete production) and the degree of mechanization (high or low) involved in the production process.

In process (continuous) production (e.g., petroleum refining and petrochemicals industry, pharmaceutical industry, the food and beverages industry), the plant supervisor controls the settings of various machines in accordance with the production plan of the day. Control is exercised to a large extent through visual inspection and less through manual intervention. In discrete (assembly line) production (e.g., car manufacturing, television manufacturing, and computer manufacturing), a variety of components are combined to make the final product. Production controls in such organizations focus on the following issues:

- Producing the finished components as per design specifications and the pre-determined time standards laid down
- Synchronizing the production processes of all the components and ensuring the right balance of production capacity of different production chains of the various components
- Ensuring the right production capacity within a component production process
- Ensuring that the work layout is appropriately designed and there is a smooth flow of materials on the shop floor
- Specifying the quantum of materials to be stacked on the production floor of both the inputs and the outputs
- Specifying the number of persons who can be present on the shop floor, the uniform or dress which the employees have to wear, and the safety precautions which have to be followed
- Defining the wastage and spoilage norms, and benchmarking the actual wastage and spoilage against these norms
- Defining the quality norms which are to be met at each stage of production process and strictly adhered to, to consistently deliver a high quality product.

In a manual production process, say a printing press, each activity has to be closely controlled to ensure uniform quality of the finished product, and to minimize wastage and spoilage. If the production process is highly mechanized and uses advanced techniques like robotics and Computer Numeric

Control (CNC) machines where there is a high degree of precision and low scope of error commitment, the control element is built into the production activity itself to a large extent.

12.4.1 Measuring Production Performance

Productivity is a controlling tool used to measure the production performance of the organization and ensure that all the resources are judiciously and efficiently utilized. It measures the organization's efficiency in terms of ratio of outputs to inputs; higher the ratio, greater will be the efficiency. Productivity helps to track progress in terms of efficient resource utilization in the production process and identify inefficient activities in the process in terms of effort spent, material consumed, etc.

Productivity measurement

Productivity can be measured in relation to a single factor (single factor productivity), a combination of factors (multifactor productivity), or all the factors taken together (total productivity). Single factor productivity and multifactor productivity are also called partial productivity as all the factors of production are not considered in these measures. A few productivity measures are discussed in Table 12.1.

Table 12.1: Productivity Measures and their Descriptions

Productivity Measure	Description
Labor productivity	• Labor is one of the major sources of production costs for organizations, therefore, most productivity ratios are calculated considering labor as the specific input. • This partial productivity ratio is referred to as the labor productivity index or output per work-hour ratio. Labor Productivity = Goods and/or Services Produced (Output) ÷ Labor Hours/Man-hours Spent (Input)
Material productivity	• Material costs also affect productivity as they may add up to 30% to 40% of the overall costs, or even more. Material Productivity = Goods and/or Services Produced (Output) ÷ Quantity of Material Used (Input)

Contd.....

Multifactor productivity	• Specific ratios are developed that gauge productivity in terms of change in combined inputs. • These inputs can include raw materials and labor hours used in the production of a particular output. Multifactor Productivity = Goods and/or Services Produced (Output) ÷ Quantity of Raw Material Used+ Labor Hours Used (Input)
Total productivity	• Many organizations measure productivity in terms of partial productivity (single factor or multifactor) as it is difficult to measure total productivity due to the difficulty in identifying/understanding the particular input variable (s) (among many variables) that has led to lower productivity. • The problem with total productivity is that all the variables (inputs and outputs) must be expressed in the same units. *Total Productivity =Goods and/or Services Produced (Output) ÷[Labor+ Capital+ Energy- Technology- Materials] (Input)*

Source: ICFAI Research Center

12.4.2 Production Control Reports

Decision making in production control depends on the proper use of quantitative inputs in a timely manner. The queuing theory model can be used to find out the probability of machines breaking down on a given day using various inputs like the number of machines, their average breakdown rate, and the replacement time required. Some of the input parameters used in this model are: number of machines that can be used for backup, number of workers who can repair the machines, the mean time between failures (MTBF), the mean repair time, cost of the workers who can repair the machines, and cost in terms of production that has been lost due to the breakdown.

Example: Missing Service Level Agreements (SLAs), Failing to Meet Customer Expectations

The Uptime Institute's 2022 Outage Analysis Report said that with the use of cloud technologies and distributed resiliency, server-level failures have reduced, despite an added costs and complexity.

Contd….

However, many failures were caused by network, software or lack of change control systems. When it came to the cause of outages, the report stated that the power failures were 43 percent. Network-related outages were between configuration/change management errors and a third-party software errors. In 2021, the number of reported outages lasting more than 48 hours had increased to 16 percent, from 4 percent in 2017, while those outages lasting between 24 and 48 hours stood at 12 percent. The cost of outages had also risen. In 2019, 60 percent of major failures were estimated to have costs less than $1,00,000, while 28 percent of failure costs were between $1,00,000 and $1 million. However, in 2021, only 39 percent of failures costs were less than $1,00,000, and 47 percent of failures costs were between $1,00,000 and $1 million. During the same period, the proportion of outages with costs over $1 million grew from 11 percent (2019) to 15 percent (2021).

Source: Theregister.com, 8 Jun 2022 Don Robinson, https://www.theregister.com/2022/06/08/it_outages_powerl, Accessed on 29062022

Management requires regular reports on various production-related parameters and activities for effective production control. These are described in Table 12.2.

Table 12.2: Reports and their Features

Reports	Features
Production planning report	• Used to plan the production activity for a particular shift or day. • Production planning takes care of crucial resources like manpower, machines, and materials of the organization. • Lack of proper production planning will lead to wastage of the resources used in the production process. • The important points considered in the production planning reports are targeted production, cumulative production, capacity per shift, etc.
Daily production report	• Provides information to the production manager about the activities carried out on the shop-floor during a day. • Used to rectify any anomalies in the production process.

Contd…..

Downtime analysis report	• The downtime analysis report is used to control the downtime. • Provides the production manager with the reasons for and the length of the downtime. • To ensure effective management of the shop floor, the production manager has to increase the efficiency of the production department by cutting down the downtime of the machines.
Shift handover report	• Contains information about all the developments that have taken place during a particular shift. • As the production process is carried out in two or three shifts, it is the responsibility of the person-in-charge of a particular shift to give a report on the happenings in his/her shift to the person-in-charge of the next shift. • Contains details about the production achieved, the materials used, the utilities used, the problems that occurred during the shift, the actions taken to resolve or reduce the problems, etc.

Source: ICFAI Research Center

Activity 12.1

Shruti resigned from the production manager's position of an engineering tools manufacturing company to pursue other interests. Her position was taken up by Bhargav who was new to the manufacturing sector. Before leaving the company, Shruti had to not only hand over her work to Bhargav but also ensure that he became proficient with the techniques and terminology used in the company. He was not very clear about the need for different kinds of production control reports. On behalf of Shruti, explain the need for different production control reports and the frequency with which they should be prepared / reviewed.

Answer:

Check Your Progress - 1

1. Which of the following statements are true about operations management in the context of service organizations?

   i. The core product is an intangible service, the quality of which is difficult to assess.

   ii. The finished product is the result of operations and its quality depends on how the operations are executed.

   iii. The production process is intangible and it is difficult to identify the parameters for control.

   iv. These organizations need to come up with controls that develop clearly measurable yardsticks for controlling the operations of the organization.

   a. Only i

   b. Only i and iii

   c. Only ii, iii, and iv

   d. Only i, iii and iv

   e. i, ii, iii, and iv

2. Productivity is a measure of the organization's efficiency in terms of the ratio of outputs to inputs. Which of the following productivity measures is also known as output per work-hour ratio?

   a. Material productivity

   b. Labor productivity

   c. Multifactor productivity

   d. Total productivity

   e. Workplace productivity

3. In a manufacturing concern, the two broad variables on which production controls are dependent are

   i. Nature of the production process

   ii. Degree of mechanization in the production process

   iii. Organization structure

   iv. Organizational hierarchy

   a. i and ii

   b. i and iv

   c. ii and iii

   d. iii and iv

   e. ii and iv

4. Identify the nature of the production process prevalent in the mobile phone manufacturing industry.
   a. Process/ Assembly line production
   b. Discrete/ Continuous production
   c. Discrete/ Assembly line production
   d. Process/ Continuous production
   e. Process/Discrete line production
5. Which of the following reports used in production control may be utilized to rectify anomalies in the production process?
   a. Production planning report
   b. Daily production report
   c. Downtime analysis report
   d. Shift handover report
   e. Stock report

12.5 Operations Controls

In the business context, an operation is a set of activities carried out to achieve a specific purpose. Components of the operations value chain such as purchasing, quality, inventory and manufacturing have associated impacts in terms of process efficiencies, technologies costs and service levels. Hence "controlling" is required in this functional area of operations. The following paras cover how the control aspects are monitored in operations

For instance, purchase operations comprise activities like identification of vendors, comparing vendors, placing orders with vendors, and scheduling and monitoring deliveries from the vendors. Purchase operations ensure timely supply of various materials (raw material or packaging material) required to carry out manufacturing activities and aims at procuring the materials at optimal costs and quality. All these set of activities should be operated in a controlled environment within the organization

Operations of a manufacturing organization can be classified as internal and external operations. Internal operations are executed within the organizational boundaries and have limited or no external linkages. The control elements to such operations are largely defined by the organization and thus can be easily controlled. Internal operations include production operations taking place in the organization, inventory and warehouse operations, and the quality assurance mechanism implemented with respect to the production process and the finished product. However, there may be significant dependencies on external entities.

For example, the sales department's inputs on the product mix desired for a future period is an important consideration for production planning, inventory planning, and purchase planning. The marketing and sales, and purchase operations have an external focus as they deal with customers and vendors, respectively, who are external to the organization. They also deal with third- party service providers (transporters) to achieve the goals. Quality controls and inventory controls are two important control areas in internal operations, while purchasing controls and warehousing controls are two important control areas in external operations.

12.5.1 Quality Controls

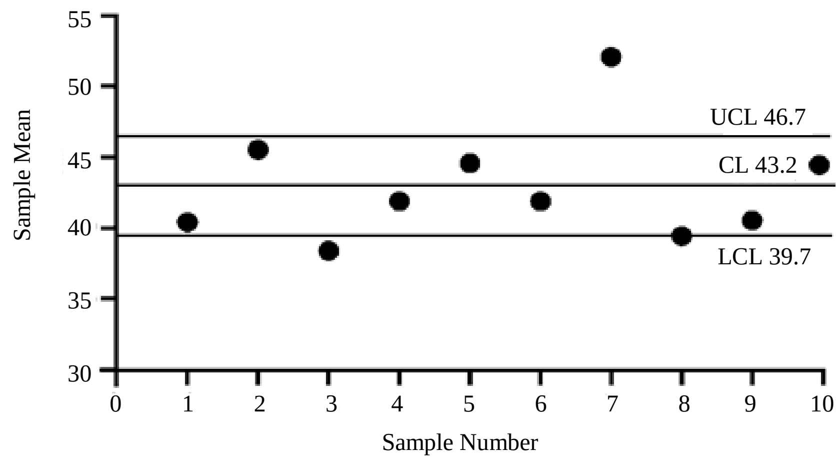
Quality controls involve setting quality norms for the product or service to be produced and for the various operations of the organization. The quality norms of product will relate to product characteristics or attributes. The products have to adhere to these quality norms before they are dispatched and delivered to the customers. If not, then the production department may have to rework on the product till the norms are adhered to, or the product may be sent for recycling or disposal. The finished product's quality is an outcome of both the quality of inputs being used and the quality of the operations which are executed on the inputs. Quality norms are laid down for the incoming material and if it fails to meet these standards, it is rejected and sent back to the vendors. They are also laid down for various processes or operations executed in the production process which are to be adhered to. Quality inspection points in the production process are predefined and inspection may be carried out regularly or periodically on a random basis.

A number of tools and techniques like random sampling, destructive quality control, and control charts, are adopted as per the need of the process or product. In control charts, different measurement criteria are plotted on the chart with a central line representing the mean value and two control limits above and below that central value. A process is said to be under control if the noted variable and attribute values fall between these control limits. It is said to be out of control if the values fall outside these control limits, and remedial actions are taken to rectify these discrepancies. Control charts are easy to develop, analyze, and understand.

Quality control is also exercised over activities that are outside the production domain. It ensures that products satisfy the customer expectations and that the services offered by the organization are able to resolve problems quickly and properly. Total Quality Management, a management philosophy, aims to build and inculcate the quality element in the work ethic of the business itself, and does not view quality as a separate organizational function.

The following Figure 12.1 depicts an illustrative to it.

Figure 12.1: Control Chart



Source: ICFAI Research Center

12.5.2 Inventory Controls

Inventory controls aim at maintaining stocks of materials in desired quantities at various production stages to ensure uninterrupted production, at the same time, keeping the production costs to the minimum. It helps in identifying and tracking the stock available with a department at a particular time. It is carried out for all items used in the production process and ensures that materials are appropriately stocked; correct safety procedures are followed; and storage standards are complied with based on the nature of the material. Inventory policy and procedures include clear rules for stock taking and stock verification to identify and control pilferages and thefts. Efficient inventory control leads to holding right amount of stock in the right place and at the right time, and ensures that the capital does not unnecessarily get tied up in inventory.

12.5.3 Purchasing Controls

An organization's purchase policy lays down purchasing controls and procedures for executing the purchase process. These controls will track the costs of the materials being procured, the vendors' effectiveness in terms of the quality and timeliness of supplies, and the rejection rates. Purchase operations will also involve vendors' evaluation based on their reliability, capability, and capacity.

An organization's purchase function can be either centralized or decentralized. A centralized system exercises a large degree of control on procurements. It allows pooling of all requirements so that the benefits of bulk purchasing can be realized. It also leads to consistency in buying policies and uniformity in maintenance of purchase records. In a decentralized purchasing system, the procurement managers of different departments purchase the required materials based on their requirements. This gives flexibility to each department to alter its purchasing policy based on its requirements. To provide for the right balance between control and flexibility, most organizations use a combination of both the systems. Each department identifies its specific purchasing requirements while a central authority, such as a purchase manager, manages the actual purchasing activities. The purchase activity is segregated to ensure control over the procurement process and eliminate the possibility of bribery and other malpractices.

Activity 12.2

The management of a dairy product manufacturing company, which operated in a number of states in India, received a suggestion from its Senior Purchase Manager to decentralize its purchasing system. As the company was consistently growing in size and number of products, it was becoming more and more difficult to manage purchases from the company headquarters at Ahmedabad (in Gujarat). On considering the suggestion, the management came to the conclusion of using a combination of centralization and decentralization in its purchasing system. How do you think such a system would work? Substantiate your answer by making a comparative analysis of the advantages of having such a system compared to those of having either a centralized or a decentralized system of managing purchases.

Answer:

12.5.4 W0arehousing Controls

The objective of warehousing controls is to ensure prompt order fulfillment by ensuring that the finished goods are properly stocked, and that the packing and picking lists are prepared. They also ensure that correct safety standards are being complied with in stocking and that correct packaging norms are being followed.

Example: Cold Storage: An Exercise in Precision

The Marine Products Export Development Authority (MPEDA) was responsible for the conservation and management of off-shore and deep-sea fisheries. It laid down several stringent guidelines for maintenance of cold supply chain and care handling norms to prevent fish spoilage. Due to this, say, M/s ABC Marine Products had chosen to outsource their cold storage requirements to a third party logistics provider to overcome the high setup and operational costs of self-regulated refrigerated warehouses.

Contd….

Taking this as a pathway, many other marine exporters have started using cold supply chain from such third party logistics provider. Due to this, the demand for the movement of refrigerated goods had increased exponentially thereby the need for value-added services such as repack operations, transportation, helpdesk, etc. had increased operational costs as well as compliance costs, resulting into the lowest return on investment (ROI) for the provider. To meet the costs and to remain profitable, the logistics provider devised several warehouse controls which included bundled services as well as the optional services and pricing plans based on time duration, storage space, etc.

Sources: Winnesota, October 5, 2020

i) https://www.winnesota.com/news/coldstorage; accessed on 30/06/2022;

ii) https://www.eicindia.gov.in/WebApp1/pages/menuInfo/approvedCommoditiesList.xhtml?CT=FFP; dated © 2021; Accessed on 17.11.2022

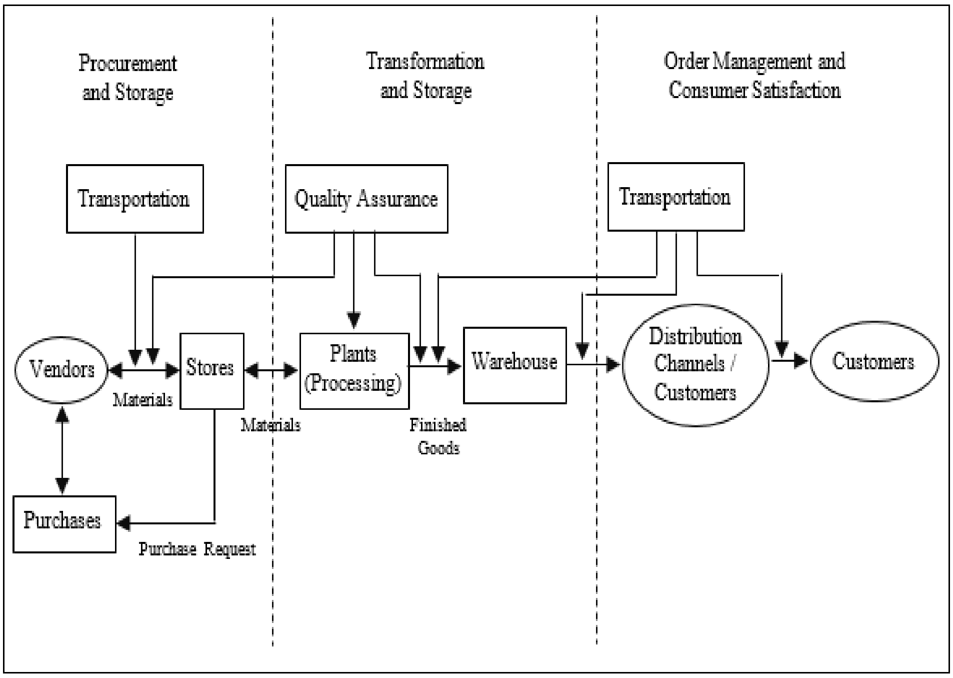
12.6 Supply Chain Management

The traditional approach toward operations control related to purchases, inventory, production, and warehouse being viewed as separate and distinct operations, on which control was to be exercised independently. Now, the management of operations starting from inputs procurement to finished goods distribution is collectively referred to as Supply Chain Management (SCM). Let us go into some details of supply chain management.

The supply chain dealing with the post-production activities is referred to as the downstream chain and involves controlling the outbound logistics. The chain dealing with purchases and inventory leading up to production is referred to as the upstream chain and involves controlling inbound logistics.

The supply chain can be classified into three broad sets of processes - procurement and storage, transformation and storage, and order management and customer satisfaction. Figure 12.2 represents the supply chain processes. An organization can enhance its performance by influencing any of these processes. The procurement and storage process is to do with inbound logistics which deal with ensuring timely receipt of material and involves consideration of the transportation element. The transformation and storage process deals with the actual production and storage in the warehouse. Supply chain controls ensure that products produced are in line with the material availability and as per the market demand. The inbound supply chain component provides alerts to the production department on the likelihood of shortages in the near future, and the purchase and stores department work jointly to provide for such shortages. The order management and consumer fulfilment process directs attention to the movement of finished goods from the warehouse to the customer locations and finally to the consumer. The customer orders are fulfilled by packing the products on the basis of packing lists (what should be packed) and picking lists (from where should the goods be picked). Outbound logistics deal with the scheduling of the dispatches, the routes to be taken by the dispatch trucks and the various stopover points, the combination of one or more dispatches in a single shipment, and which mode of shipment to be used till what stage in the dispatch route. If the customer is different from the end consumer, the organization should ensure that the product reaches the end consumer on time and that he/she is happy with the product.

Figure 12.2: Supply Chain Processes



Source: ICFAI Research Center

Transportation plays a key role in logistics control and management. Through transportation, goods are moved from one place to the other in the supply chain. The various issues involved are timing, routing, promptness, and scheduling of the tasks involved. Timing is important as any delay or errors in delivery would lead to financial losses to the organization, and erosion of the brand image or corporate reputation. Routing and scheduling are concerned with the way to be taken and the plan to be followed, respectively, in the transportation of the goods. These should be framed in such a way that the goods are delivered at the required places in the planned sequence. SCM aims at complete synchronization of every supply chain cycle with the customer's final demands. It also aims at controlling and monitoring the vendors' supply chains.

The current global business environment is characterized by increased distances and longer lead times between the placing of orders and receipt of goods; more complicated transportation routes and distribution patterns; large number of participants in the supply chain; increase in the number of trading partners; difficulty in responding to the consumer demand in a timely fashion; increase in impact of weather or natural disasters on the plans; increase in communication problems; more demanding customers; decreasing product life cycles and time for research and development; increase in the variety of products demanded; and the need for effective coordination among supply chain partners. By focusing on the supply chain element, an organization can control its response to all these challenges, and directly control and influence its speed to market, reduce costs, and fulfil customer needs more effectively than its competitors.

12.6.1 Performance Assessment of the Supply Chain

Supply chain performance can be evaluated by using metrics like inventory turns and cycle time. These metrics help in giving ideas about the ways to optimize the supply chain performance. They also allow the management to identify problem areas and compare similar organizations using tools like industry benchmarking. There should always be people or departments responsible for achieving a target on the metric. Some of the supply chain metrics are explained in Table 12.3.

Table 12.3: Supply Chain Metrics and their Descriptions

Supply Chain Metric	Description
Inventory turns or inventory turnover	Refers to the number of times an organization's inventory turns over per year. Calculated by dividing the annual cost of sales by the average inventory level.
Projected inventory turns	Refers to the number of times an organization projects or estimates its inventory to turn over per year. Calculated based on estimates and not on actual values. Calculated by dividing the total cost of a 12-month sales plan by the total cost of goal inventory.
Cycle time	Refers to the total time that elapses in moving a unit of work from the beginning to the end of a physical process. Includes process time during which the unit is acted upon to bring it closer to an output, and delay time, during which the unit of work is spent waiting to take the next action.
Customer order promised cycle time	Refers to the anticipated or agreed upon cycle time of a purchase order. Gap between the purchase order creation date and the requested delivery date.

Contd.....

Customer order actual cycle time	Refers to the average time taken to actually fulfill a customer's purchase order. The length of time between the date on which the order is sent/received/entered and the date of delivery to the customer.
Cash to cash cycle time	Refers to the number of days between paying for the raw materials and receiving payment for the finished product. Calculated by inventory days of supply plus days of sales outstanding minus average payment period for material.
Supply chain cycle time	Refers to the total time that would be taken to satisfy a customer order if all inventory levels were zero. Calculated by adding up the longest lead times in each stage of the cycle.
Defects Per Million Opportunities (DPMO)	DPMO (total number of defects per one million opportunities) is a measure of process performance used in Six Sigma calculations. DPMO = [Total number of defects ÷ (Number of units x Number of opportunities per unit)] x 1,000,000.

Source: ICFAI Research Center

Example: From Zepto to Blinkit, all the Apps Offer 10 to 15 Minute Delivery Service in India

Zepto was a 10 minute instant grocery app. Customers were allowed to place orders for their requirements from thousands of popular branded items and, also to buy online fresh farm vegetables and fruits, groceries, dairy and more. The company Zepto had claimed that it takes around 8 minutes 40 seconds on an average to deliver ordered items. The 10 minute-food-delivery app was developed using an optimized inventory model, first selects Ordered Items from their own micro-warehouse located in the neighborhood of customer to ensure a quick delivery. Blinkit (earlier known as Grofers) was known for delivering groceries and essential household items within 10-minute time. Big Basket, also has an instant grocery delivery service via BB Now. Big Basket App promised a 10-20 min delivery. Under normal conditions, any failure to deliver within a promised times, it allowed a 5 per cent cashback. Time compression and speed were vitally important elements in supply chain success, especially for organizations operating in more competitive markets.

Source: Indian Express, March 23, 2022, https://indianexpress.com/article/technology/social/zomato-instant-zepto-blinkit-apps-that-offer-10-15-minute-delivery-service-in-india-7831106/ Accessed on 30/06/2022

Activity 12.3 The operations manager of a ready-made garments manufacturing company used inventory turns as a supply chain metric. His/Her deputy suggested a shift toward using DPMO. Describe the DPMO metric and explain how inventory turns is different from DPMO. **Answer:**

12.7 Information Systems in Production and Operations Management

Today, the role of information systems in production and operations management has evolved from the piecemeal, standalone approach to a tightly knit integrated approach (integrated information system). Progress in telecommunication technologies and networks has enabled development and implementation of integrated production and operations information systems. Information systems integrate the entire supply chain. Operations information systems are designed to automatically initiate, plan, and execute the logistics of stock movement from the warehouse to the branches or the customer locations. Third party transportation companies also facilitate the tracking of the exact location of the shipment at any given point of time, en route to the destination.

Example: Managing Technology in Operations Management

With the use of Information Technology and AI driven machines or robots in operations management, organizations were able to minimize operational costs, improve productivity levels, streamline operations and improve product or service quality and focus on customization requirements, thereby maximize product or service value for customers. Software systems such as Enterprise Resource Planning (ERP), Supply-Chain Management (SCM), and Customer Relationship Management (CRM) have enabled integration of all business functions like production, marketing, human resource and finance through APIs (Application Program Interfaces). Integrated Software Systems had not only reduced database errors but also delivered value to customer thus, ensuring faster delivery and order fulfilment. However, the use of technology in all disciplines of operations management could be limited because of high initial investment costs, high maintenance costs and possible mismanagement by untrained people.

Source: Prachi Juneja, 2022, https://www.managementstudyguide.com/managing-technology-in-operations-management.htm Accessed on 01/072022

The information system should be used in production and operations management to build separate systems for the functional areas of purchase, inventory, production, and warehouse.

The purchase system was used to compare vendor quotations and raise purchase orders. The inventory management system was used to enter receipts from vendors, enter issues to plants and departments, calculate the stock of materials, and indicate their storage location. The production system was used to calculate material consumption, to calculate wastages, to record machine downtimes, to develop the production plan and production schedules, and to keep track of employees on the shop floor. The warehouse system was used to record the receipts and dispatches of finished goods, and the location of the various types of finished goods.

Check Your Progress - 2

6. Identify the type of operations control that ensures appropriate stocking and preparation of packing lists, and picking lists for speedy fulfilment of orders.
   a. Quality
   b. Inventory
   c. Purchasing
   d. Warehousing
   e. Security
7. The operations starting from procurement of inputs to distribution of finished goods are grouped together and are collectively referred to as which of the following?
   a. Supply Chain Management
   b. Logistics
   c. Order Management
   d. Product Life Cycle
   e. Quality Control
8. Transportation plays a key role in the supply chain activities of an organization. Which of the following are issues involved in transportation?
   i. Routing
   ii. Timing
   iii. Correctness of delivery
   iv. Scheduling of delivery
   a. Only ii and iii
   b. Only i, ii, and iii

c. Only ii, iii, and iv
d. Only iii and iv
e. i, ii, iii, and iv

9. Which of the following is not one of the challenges to supply chain management, in the global business environment?
   a. A large number of participants in the supply chain
   b. Difficulty in responding to consumer demand in a timely fashion
   c. Increasing product life cycles
   d. Increase in the variety of products demanded
   e. More complicated transportation routes
10. In the performance assessment of the supply chain, which metric refers to the number of times a company's inventory turned over per year?
   a. Projected inventory turns
   b. Inventory turnover
   c. Cycle time
   d. Supply chain cycle time
   e. Product life cycle

12.8 Summary

- For a manufacturing organization, the manufacturing of finished product (Output) from raw materials (Inputs) is the manufacturing activity. So far as its operations are concerned, the activity covers the processes involved in procuring the inputs and ensuring the optimal supply of finished goods to the customers or consumers in order to satisfy their needs.
- Production operations include the various activities executed during the production process. Operations management and control covers both production and non-production operations. Production and operations, when combined and synchronized, would be classified as supply chain management (SCM).
- The production controls which are established in a manufacturing organization are dependent on the nature of the production process (process (continuous) production or discrete (assembly line) production) and the degree of mechanization (high or low) involved in the production process.
- Productivity is used as a control tool to ensure that all the resources are utilized judiciously and efficiently. Productivity can be measured in relation to a single factor such as labor or material (single factor productivity), a

combination of some factors (multifactor productivity), or all the factors taken together (total productivity).

- A variety of reports are made use of to ensure effective production control like production efficiency report, production planning report, daily production report, downtime analysis report, and shift handover report.
- In the context of a business, an operation is a set of activities carried out to achieve a specific purpose. The various operations of a manufacturing organization can be classified as internal and external operations. Quality controls and inventory controls are two important control areas in internal operations. Purchasing controls and warehousing controls are two important control areas in external operations.
- Operations starting from procurement of inputs to distribution of finished goods are grouped together and are collectively referred to as SCM. The chain dealing with the post-production activities is referred to as the downstream chain and involves controlling the outbound logistics. The chain dealing with purchases and inventory upto production is referred to as the upstream chain and involves controlling the inbound logistics.
- The performance of the supply chain can be evaluated with the help of metrics like inventory turns or inventory turnover, projected inventory turns, cycle time, customer order promised cycle time, customer order actual cycle time, cash to cash cycle time, supply chain cycle time, and defects per million opportunities (DPMO).
- Information systems play a crucial role in production and operations management. Information systems of the present day integrate the entire supply chain. The present day automated operations information systems plan, execute, and reliably track the logistics of stock movement from the warehouse to the branches or the customer locations.

12.9 Glossary

Defects Per Million Opportunities (DPMO): DPMO is a measure of process performance used in Six Sigma calculations. It is the total number of defects per one million opportunities.

Defects Per Opportunity (DPO): DPO is calculated by dividing the total number of defects by the total number of opportunities for a defect. DPO multiplied by 1 million gives DPMO.

Discrete production: In discrete (assembly line) production, a variety of components are combined to make the final product. Examples of this kind of production process include car manufacturing, television manufacturing, and computer manufacturing.

Downstream chain: In supply chain management, the chain dealing with the post-production activities is referred to as the downstream chain. It involves controlling the outbound logistics.

Inventory control: Inventory control ensures that materials are being appropriately stocked, that correct safety procedures are being followed, and that storage standards are being complied with - depending on the nature of the material being stored.

Inventory turns: Inventory turns or inventory turnover refer to the number of times a company's inventory turns over per year. It is one of the most commonly used supply chain metrics. It is calculated by dividing the annual cost of sales by the average inventory level.

Measurement of productivity: Productivity can be measured in relation to a single factor (single factor productivity), a combination of factors (multifactor productivity), or all the factors taken together (total productivity). Single factor productivity and multifactor productivity can also be termed as partial productivity as all the factors of production are not considered while calculating productivity.

Operations management: Operations management and control cover both production, as well as non-production operations.

Operations: Operations cover the processes involved in procuring the inputs and ensuring the optimal supply of finished goods to the customers or consumers in order to satisfy their needs.

Production management: Production management controls the production activities from the point of view of achieving quick conversion cycles, optimal scheduling of operations on the plant floor, efficient movement of material on the plant floor, and avoiding spillages and accidents. It will also identify the various work points and measure the work point efficiencies to ensure high productivity levels.

Productivity: Productivity is a measure of the organization's efficiency in terms of the ratio of outputs to inputs. The higher the numerical value of this ratio, the greater the efficiency.

Purchasing controls: Purchasing controls track the costs of material being procured, the effectiveness of the vendors in terms of the timeliness and quality of supplies, and the rejection rates.

Quality controls: Quality controls involve setting quality norms for the product or service to be produced for the customer or consumer and for the various operations of the organization. The quality norms with reference to the product will relate to the characteristics or attributes of the product.

Quality: The quality of a product/service can be defined as the basic characteristic of a product/service which should meet or exceed the expectations of the customer relating to its features and performance. Quality encapsulates many dimensions like performance, features, reliability, conformance, durability, serviceability, and aesthetics.

Queueing Theory: The queueing theory is a mathematical model which is widely used in capacity management. It may be considered as the knowledge of waiting lines.

Supply Chain Cycle Time: Supply chain cycle time is the total time that would be taken to satisfy a customer order if all inventory levels were zero. It is calculated by adding up the longest lead times in each stage of the cycle.

Supply Chain Management (SCM): Supply chain management aims at ensuring that the organization produces those products which are being demanded by the market in the right quantities. Activities such as procuring the inputs, which include inbound logistics, fine-tuning production activities to match market demand, and ensuring the timely transportation of the finished products (outbound logistics) in the desired combinations at the various locations fall within the purview of supply chain management.

Upstream chain: In supply chain management, the chain dealing with purchases and inventory leading up to production is referred to as the upstream chain. It involves controlling the inbound logistics.

Warehousing controls: Warehousing controls will ensure appropriate stocking of finished goods and preparation of packing lists and picking lists to ensure speedy fulfilment of orders. These controls also ensure that correct safety standards are being complied with in stocking and that correct packaging norms are being followed.

12.10 Self-Assessment Test

1. "Production controls are dependent on two broad variables - the nature of the production process (process production or discrete production) and the degree of mechanization involved in the production process". Substantiate the given statement. How can production performance of an organization be measured? What are the various production control reports?
2. Operations of a manufacturing organization can be classified as internal and external operations. What are the internal operations and external operations in an organization? What are the control areas in internal operations and external operations? Explain in detail.
3. The operations starting from inputs procurement to finished goods distribution are together referred to as supply chain management. What are

the various processes in a supply chain? How can the performance of the supply chain be assessed?

4. Explain the emerging role played by information systems in managing production and operations in an organization.
5. Productivity can be measured based on single factor, multifactor or total productivity. Give a description on various productivity measures to ensure its performance.
6. 'SCM facilitates the industry in providing solutions, helping the organizations to transform their business or reengineering the operations'- Elucidate the significance of SCM and its process.

12.11 Suggested Readings / Reference Material

1. Stephen P Robbins, David A. De Cenzo and Mary Coulter (2022). *Fundamentals of Management: Essential Concepts and Applications,* Fifteenth Edition| Pearson Paperback, 30 June 2022.
2. Subhash Chandra Das (2019). Management Control Systems – Principles and Practices, PHI Learning Pvt. Limited, Paperback – 15 July 2019.
3. Pravin Durai (2019). Principles of Management: Text and Cases, First edition, Pearson India Education Services Pvt. Ltd.; Second edition (31 August 2019).
4. Merchant, Kenneth A (2017). "Management Control System: Text and Cases", Pearson Education Asia.
5. Saravanavel, P (2022). Management Control Systems – Principles and Practices. First edition, Himalaya Publishing House.

12.12 Answers to Check Your Progress Questions

1. (d) i, ii, iii, and iv

Operations management assumes high significance in the case of service organizations as the core product is an intangible service, the quality of which is difficult to assess. The finished product is the result of operations and its quality depends on how the operations are executed. Further, the production process is also intangible and it is difficult to identify the parameters for control. Successful service organizations are those which come up with controls that develop clearly measurable yardsticks for controlling the operations of the organization.

2. (b) Labor productivity

Labor is one of the major sources of production costs for organizations. Most productivity ratios are calculated considering labor as the specific input. This partial productivity ratio is referred to as the labor productivity index or output per work-hour ratio.

3. (a) i and ii

The two broad variables on which the production controls are established are the nature of the production process and the degree of mechanization in the production process.

4. (c) Discrete/Assembly line production

The nature of the production process is defined in terms of whether it is a process-oriented production or discrete (assembly line) production. In assembly line production, a variety of components are combined to make the final product. In the manufacturing process of mobile phones, the various components like the keypad, transmitter/receiver, antenna, and power sources are manufactured separately and assembled together to make the final product.

5. (b) Daily production report

The daily production report helps the production manager get an idea of the activities carried out on the shop floor for the day. It can be used to rectify any anomalies in the production process.

6. (d) Warehousing

Warehousing controls ensure appropriate stocking and preparation of packing lists and picking lists to ensure speedy fulfillment of orders; they make sure that correct safety standards in stocking and correct packaging norms are being followed.

7. (a) Supply chain management

The traditional approach toward operations control relating to purchases, inventory, production, and warehouse was to view them as separate and distinct operations, and to exercise control independently on each one of them. However, the operations starting from procurement of inputs to distribution of finished goods are now being grouped together and are collectively referred to as supply chain management.

8. (e) i, ii, iii, and iv

Transportation plays a key role in the supply chain activities of an organization.

Timing is important in transportation as the goods have to be delivered on time. A delay in the delivery of the required materials may result in financial losses to the organization or an erosion of the brand image or corporate reputation. Another aspect related to timing is the correct delivery of the goods at the required place. Any errors in delivery like delivering the wrong quantity and/or wrong goods will result in the same extent of damage as delayed delivery of goods. The routing and scheduling of the goods to be delivered should be so framed that the goods are delivered at the required places in the planned sequence.

9. (c) Increasing product life cycles

The challenges to supply chain management in the dynamic global business environment are: increased distances and longer lead times to manage; more complicated transportation routes and distribution patterns; large number of participants in the supply chain; increase in the number of trading partners; difficulty in responding to the consumer demand in a timely fashion; increase in the impact of weather or natural disasters on the plans and increase in communication problems; more demanding customers; decreasing product life cycles and time for research and development; increase in the variety of products demanded; increasing necessity to pay heed to the needs of customers; and the growing need for effective coordination among supply chain partners.

10. (b) Inventory turnover

Inventory turnover is one of the performance metrics for assessment of the supply chain. This refers to the number of times a company's inventory turns over per year.

Unit 13

Management Control of Operations: Cost, Performance and Audit

Structure

"Poor management can increase software costs more rapidly than any other factor. Particularly on large projects, each of the following mismanagement actions has often been responsible for doubling software development costs."

- Barry Boehm, American software engineer and distinguished professor

13.1 Introduction

It is important to control operating costs in an organization or else the ability of an organization to compete in the market place gets difficult and sustainability will be a problem.

In the previous unit, we discussed production controls, operations controls, control of the entire supply chain, and the role of information systems in production and operations management from a control perspective.

Strategic cost management ensures cost reduction, in addition to enhancement of the various processes of organizations.

This unit will focus on controlling cost of operations and a few techniques for enhancing organizational performance. We also discuss the areas of operational audit and safety audit.

13.2 Objectives

After going through this unit, you should be able to:

- Explain the roadmap of the strategic cost management process.
- Discuss the various techniques that enhance an organizational performance.
- Enumerate how an operational audit plays a vital role in appraising the management about an operation's efficiency, effectiveness, and profitability.
- Describe the classification and conduct of operational audit.
- Discuss how safety audit evaluates the safety performances in terms of predetermined targets and how it can be improvised for better performance in future.

13.3 Controlling Cost of Operations

The operating costs are the costs incurred to carry out the day to day business operations of an organization. It is a component of an operating statement and is reflected in an organization's income and expenditure statement. It excludes the capital outlays but includes all costs that are necessary for operating a business like employee salaries, sales and marketing costs, travel costs, etc. It is important to control these costs or else the ability of an organization to compete in the market place gets impaired. The operation costs can be controlled in the manner discussed below.

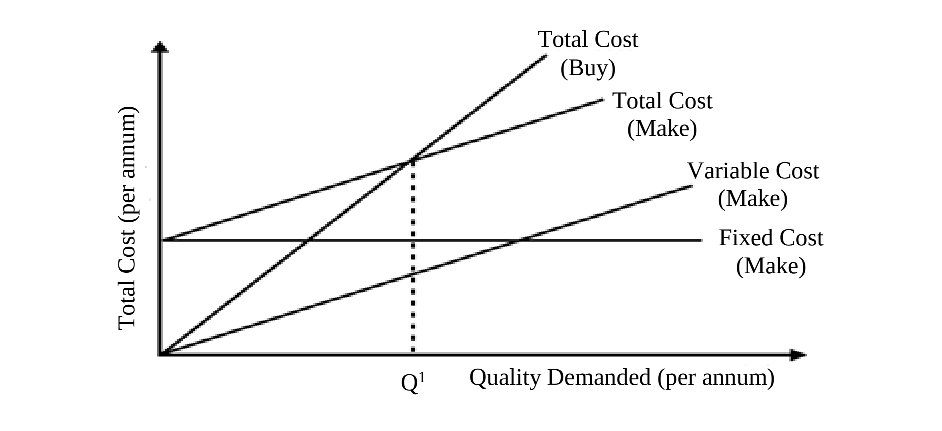
Conventional cost control systems focus on maintaining current level of costs rather than on working toward reducing them. Strategic cost management involves identifying areas that have the potential to reduce costs and working to improve process efficiency and effectiveness in these areas. The important strategic cost management techniques address areas which include:

- Costs associated with making versus buying a component (make-or-buy analysis)
- Life cycle costing
- Cost management based on the ability and willingness of the customer to pay a certain price (target costing)
- Activity-specific costs incurred on production and operations (activity-based costing)
- Costs associated with each step of value creation (cost management across the value chain)
- Environmental cost management

13.3.1 Make-or-Buy Analysis

Make-or-buy analysis helps managers determine whether it is more economical to produce an item in-house or to purchase it from external vendors. A typical make-or- buy decision is based on break-even analysis. Refer to Figure 13.1 for a diagrammatic representation.

Figure 13.1: Make-or-Buy Analysis



Source: ICFAI Research Center

In the case of buying an item from external sources, there are no fixed costs associated. The total cost of buying is the product of price per unit (P) and the number of units demanded (Q), i.e.,

Total Cost buy = P x Q

On the contrary, if the item is made in-house, some fixed cost (F) on equipment and facilities installation is incurred. Also, variable production cost is equal to variable cost per unit (V) multiplied with the number of units demanded (Q) that is incurred. The total cost of making will be:

Total Cost make = (VQ) + F

At the break-even point, the total cost of buying is equal to the total cost incurred on making the item in-house. Let us assume that the break-even point is reached at Q_1 units.

$P \times Q_1 = (VQ_1) + F$

$Q_1 = F/(P-V)$

If the annual demand for the product is less than Q_1, the total cost of purchasing the product from an external vendor will be less than the total cost of making it in-house.

If demand is greater than Q_1, the total cost of making the product in-house will be less than the cost of purchasing it from an external vendor.

Apart from the cost of the product, organizations consider many other factors before making a make-or-buy decision -- availability of raw materials in the long run and the ability to monitor and control quality are some such factors. Many organizations maintain both make and buy capabilities to ensure prompt delivery of materials.

Organizations may opt for in-house production to have control over all the value chain activities, to put excess plant capacity to productive use, or to ensure that confidentiality of product design is maintained. Organizations may opt for outsourcing of a material to take advantage of the expertise of suppliers, to avoid infrastructure expenditure when the volume of material required cannot justify in-house production, or to maintain a multiple source policy.

Example: Controlling Business Costs of Operations via Digital Transformation

At Virgin Atlantic Controlling of Costs was an important and an indispensable function of management. Each quarter their IT research team identified on-prem and cloud applications that were being used to ensure optimum utilization of resources while taking corrective measures for the deviations in the operations. Virgin Atlantic always worked on the principle: maximize profits, minimize gains. Digital transformation led to creating processes that deliver opportunities for robust value-creation. Digital transformation initiatives were taken in all three vital areas of business: operations, management and strategy and, cost reduction was definitely one of the key drivers. Digital transformation helped Virgin Atlantic to save 40% of the overall costs. It has been observed that. several businesses have switched to cloud storage and cloud computing, since cloud-based systems had contributed to saving 50% compared to conventional infrastructure management.

Source: apps run the world, 2022, https://www.appsruntheworld.com/customers-database/customers/view/virgin-atlantic-airways-uk Accessed on 21/11/2022

Activity 13.1

Kailash Engineering Works Ltd., uses electric motors to run the heavy machinery in its factory. To execute a recently acquired order, the organization needs 28 new heavy electric motors. It has to decide whether to purchase the motors or to make them in-house. Each electric motor is priced at ₹ 70,000 in the outside market. If the company decides to manufacture the motors in-house, it has to upgrade its facilities incurring a fixed cost of ₹ 700,000. A variable cost of ₹ 35,000 per machine would also be incurred to manufacture the motors. As the purchase manager, which option would you suggest - make the motor in-house or buy it from external sources?

Answer:

13.3.2 Life Cycle Costing

The three stages of a typical product life cycle are: the planning and design stage, the production stage, and the service and abandonment stage. Life cycle costing analyzes the costs incurred on a product throughout its life cycle, i.e., both during the pre- and post-manufacturing phases of the product. Thereby, it helps to correctly determine the profitability of the product.

Life cycle costing helps the management identify the areas where cost reduction techniques are to be implemented. It also helps to find out new products that can be introduced. In life cycle costing, certain costs known as committed or locked-in costs, are involved. These are costs that are not yet incurred but will be incurred in future due to decisions that have already been taken. A major portion of such costs is committed to during the planning and design stage of the product life cycle, although a significant amount of costs is actually incurred at the manufacturing stage.

13.3.3 Target Costing

Target costing concentrates on managing costs during the planning and design stage of a product. It involves four stages:

i. Identifying the price that customers are ready to pay for the product

ii. Deducting the target profit margin from the target price to determine the target cost.

iii. Estimating the actual cost of the product

iv. Finding ways to reduce the actual cost to meet the target cost -- in case of estimated cost exceeding the target cost.

Target costing is primarily a customer-focused method. Through market research, an organization tries to estimate the value, which customers may attach to the product (based on features and attributes) vis-a-vis competing products. The planned return on investment determines the target profit margin from the product. The target cost is calculated by deducting the target profit margin from the target price of the product. It is then compared with the predicted actual cost of production. If the predicted actual cost is more than the target cost, then efforts are made to reduce costs wherever possible to match the two costs.

A team is constituted with personnel from design, marketing, finance, production, and purchasing departments to arrive at a target cost of production, at a predetermined level of functionality and quality. It is ensured that preferences and recommendations of all functional areas are represented equitably in this process. The target cost is arrived at by adding only those product features that will be valued by customers. The product cost should be monitored during the development stage to ensure that the product is developed within the target cost. The advantage of target costing is that it is done during the planning and design stage of the product life cycle and as a result can have a significant impact in determining the committed costs. The target cost process is iterative where several design alternatives are analyzed. Such products or product designs should not be taken to production if the cost of designing the product exceeds the target cost. Products should be designed in such a way that the costs of producing them are equal to or less than the target costs, no compromises having been made on their functionality.

13.3.4 Activity-based Costing

Activity-based costing is based on the premise that if activities can be managed, then the costs associated with them can also be managed. It involves allocating costs to each and every activity of the organization and determining the cost driver for each major activity. The aim of activity-based costing is to satisfy the needs of customers by utilizing minimal organizational resources. It provides information about the output derived from each activity that may cross departmental boundaries -- the activity's cost is spread across all the departments in which costs have been incurred. Else, the entire cost of the activity will be assigned to one department, although costs related to the activity have been incurred in other departments.

This method helps the management in developing strategies to perform activities more efficiently. For reducing costs incurred on activities that are performed, activities are classified as value adding and non-value adding. Value adding activities are those that customers perceive as adding to the usefulness of the product or service purchased by them. A non-value added activity provides scope for cost reduction, without reducing the product's value as perceived by the customer. Although it is difficult to clearly distinguish between value adding and non-value adding activities, organizations should try to ensure that customers do not pay for non-value adding activities. They should identify ways and means of reducing costs incurred on such activities either by totally eliminating them or by improving their performance efficiency.

Kaplan and Cooper have suggested that organizations classify their activities based on a five-point scale to overcome the limitations of the value adding and non-value adding classification. According to them, an activity can be highly efficient with very low (below 5%) scope for improvement; moderately efficient with little (5-15%) scope for improvement; efficient on an average scale with potential (15-25%) scope for improvement; inefficient with a significant (25-50%) scope for improvement; and highly inefficient with (50-100%) considerable scope for improvement.

13.3.5 Cost Management across the Value Chain

Value chain analysis involves evaluating the various activities in the value chain, improving their efficiency, and identifying the areas for cost reduction. The higher the efficiency of the value chain, the greater the competitive advantage an organization can achieve in the market. The value chain activities are interlinked and so, the performance of one activity influences that of another - each link should be perceived as a customer by its previous link. This perception leads to the stage where every link in the value chain puts in efforts to satisfy its immediate customer (the succeeding link in the value chain). This process ensures satisfaction to the final customer in the value chain, and also helps in obtaining valuable feedback about the product's quality at each stage of the succeeding stage. Comparing the organization's value chain with that of competitors or the industry provides ideas that can be used to further enhance the activities in the value chain. In such a comparison, the industry's value chain is identified, and then the activities that incur unnecessary costs in the value chain are identified. Finally, the organization works toward achieving lower costs than its competitors. Such an analysis helps the organization assess its strategic position in the industry in relation to its competitors. Long-term relations with suppliers and distributors helps an organization reduce costs and provide value to its customers by providing better quality products.

13.3.6 Environmental Cost Management

Environmental cost management is gaining importance since governments across the world are imposing stringent regulations for organizations to comply with in order to protect the environment. Considering the huge size of investments being made by organizations, especially those engaged in oil and gas sectors, managing environmental costs has become very important. Environmental costs are generally hidden and are allocated arbitrarily, and therefore cannot be traced back to the products they are related to. In some organizations, environmental costs are equally attributed to all the products even though only one product is actually responsible for them, which leads to incorrect costing of products.

To overcome this, organizations should prepare an environmental cost report that states the costs incurred by it on account of its environment development and sustainability initiatives. It presents an overall picture to the top management of the environmental costs incurred by the organization which can be used to identify areas that have scope for cost reduction. Four cost categories - environmental prevention costs (costs incurred in preventing waste production that may harm the environment), environmental appraisal costs (costs incurred to ensure that the organization's activities confirm to the environmental regulatory laws imposed by the government), environmental internal failure costs (costs incurred on waste elimination which has not been released into the environment), and environmental external failure costs (costs incurred on waste elimination that has been discharged into the external environment) - are reported.

13.4 Enhancing Organizational Performance

Due to the dynamic and complex business environment, organizations, irrespective of the markets being served, should consider business practices of both local and global competitors. Consumers are becoming more aware of product offerings, quality, and price-value associations, and are setting clear price-performance parameters in their minds. To survive and grow in such an environment, an organization requires distinct techniques - value engineering, business process re-engineering, Kaizen, total quality management, bench-marking, bench-trending, just-in-time, lean manufacturing, and Six Sigma - that guide and control organizational performance. The following paragraphs discuss these aspects which enhance organizational performance.

13.4.1 Value Engineering

Value engineering is the process of analyzing the factors that influence the product cost so that the necessary quality standards and functionalities can be obtained to arrive at the target cost. It is used as a target costing tool and aims at obtaining the pre-set target cost by examining improved product designs that can reduce the costs without compromising on the product's functionality. Value engineering helps in eliminating from the product design all those functions that are not valued by customers and also those that tend to increase the manufacturing cost. Through functional analysis, product features are analyzed individually, based on the amount the customer is ready to pay for each of them. After collecting this information through surveys, it is analyzed to arrive at the product's selling price by estimating the total of all the values of each product function. The target cost of production is arrived at after deleting the target profit from the estimated selling price. The cost incurred on each product function is compared with the customers' perceptions of the value from such function. This technique helps organizations to remove those functions from a product where the costs exceed the value as perceived by customers.

Example: VAVE Optimization in the Automotive Industry

VAVE (Value Analysis/Value Engineering) techniques were popularly used in automotive industry to improve technology, optimize processes and reduce the costs. VAVE projects were the order of the day as they focused on the efficiency and quality Ashok Leyland had used VAVE (Value Analysis/Value Engineering) technique in replacing conventional materials and components to deliver a final product with significant benefits. For example, by studying Leaf spring manufacturing process, it identified three areas - Hardening Furnace, Hardness Testing, Jig Drum and Tempering Furnace for cost reduction and possibility of reduction in “Manpower requirement and Processing time” through Value Engineering.

Source: Engineers toolbox, SEPTEMBER 29, 2021 SEBASTIAN BLOECHL https://toolbox.igus.com/plastic-bearings/vave-optimisation-in-the-automotive-industry-identifying-competitive-advantages-during-product-development-and-series-production Accessed on 30/06/2022

13.4.2 Business Process Reengineering

A business process is a set of logically related tasks carried out to accomplish a defined business outcome. Business process reengineering (BPR) is a management technique used to improve operational effectiveness, efficiency, and profitability through a fundamental and radical redesign of business processes. Michael Hammer and James Champy defined reengineering as the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance such as cost, quality, service, and speed. BPR involves significantly altering the existing systems and simplifying the processes to improve productivity, reduce costs, and adopt better business practices. It may also result in redesigning the corporate structure around the business processes. Transformation is done by rethinking the organization's activities in a holistic and process-oriented manner rather than by merely automating existing processes. Progressive and proactive organizations create new industry benchmarks by reengineering their business processes and so, gain a competitive edge through superior performance.

13.4.3 Kaizen

Kaizen is a term used for making improvements in processes through small increments rather than through large-scale innovations. Japanese organizations follow Kaizen to improve productivity, and to reduce/control costs. Kaizen costing is applied during the production stage, and aims at reducing costs by focusing on improving the manufacturing process. Employees are given the power to improve processes, and are encouraged to identify ways to reduce costs, as they are closely associated with the production process and the customers.

13.4.4 Total Quality Management

Total quality management (TQM) helps improve the effectiveness and flexibility of the business as a whole by organizing and involving every department, activity, and person across all hierarchical levels. It is an integrated effort to gain competitive advantage by continuously improving every aspect of the organization. The underlying principle of TQM is continuous improvement which is possible through incremental steps or a breakthrough improvement. TQM includes external customers and suppliers in the work processes. It emphasizes doing things right for the first time and every time, and attempts to make every organizational aspect customer-oriented. It is a management philosophy to guide a process of change and starts at the top. The top management establishes a quality management system by determining and communicating the quality policies to all employees. It also has to demonstrate its commitment to quality by establishing it as the organization's topmost priority.

The differences between TQM and traditional management are given in Table 13.1.

Table 13.1: TQM vs. Traditional Management

TQM	Traditional Management
Customers are viewed as important resources that drive the processes of the organization.	Customer is considered separate from the organization.
Assumes that profits follow quality.	Assumes that quality follows profits.
Views quality as a composition of multi-dimensional attributes.	Does not hold this view.
Economy of time and scope are considered for achieving higher efficiency.	Only economy of scale is considered for increasing efficiency.
Emphasis is on quality, flexibility, and service.	Emphasis is on cost, technical efficiency, and productivity.
It is the responsibility of both managers and workers, to achieve the goals of the organization.	Workers should work and managers should manage.
Emphasis on a multi-skilled workforce that can be used for different kinds of jobs	Belief in division of labor and separation of manual work from mental work.
Process-oriented approach.	Result-oriented approach.
Advocates a flat organization with networking among the functions.	Proposes a hierarchical and vertical organization structure.

Source: ICFAI Research Center

13.4.5 Benchmarking

Benchmarking involves comparing the organization's practices with the best international practices. It helps to find the best way to perform operations that would lead to superior organizational performance. By comparing its own operations with that of industry leaders, the organization can control the limitations and eliminate weaknesses in its operations.

Benchmarking can be classified as - competitive and generic. Competitive benchmarking focuses on the products and manufacturing processes of the organization's competitors. This is done to exercise control over product performance with regard to competitor's products, and to enhance manufacturing capability and eliminate wasteful processes. Generic benchmarking evaluates the organization's processes with those of other organizations, which are considered to be the best in those processes, irrespective of the nature of the industry.

Industries which share some characteristics can also be identified and selected best practices can be adopted from those industries.

Steps involved in benchmarking

The steps involved in benchmarking are:

- Determining the functions to be benchmarked. The functions that need to be benchmarked are those which have a significant impact on business performance.
- Identifying the critical success factors of the functions to be benchmarked. Typical critical success factors are quality and delivery.
- Identifying the best-in-class organizations.
- Measuring their performance and comparing them with the organization's performance that is to implement benchmarking.
- Taking suitable actions to meet or exceed the performance of the best-in-class organization.

13.4.6 Bench trending

Bench trending helps in controlling and directing an organization's response to the volatility of market forces and the industry dynamics in which it operates. It involves reviewing the existing situation and anticipating changes in the market, and consumer preference variables and evaluating their impact, to control the degree of performance gap that might emerge due to better responsiveness of competitors to the market forces. Bench trending can be broadly classified into strategic bench trending and process bench trending.

Strategic bench trending controls the growth direction of the business unit and sets long-term goals and objectives. It involves defining the market by size, customer preference, competition, etc., and assessing future industry trends and technological shifts. Current and potential competitors are identified and then the organization's current and projected performance is compared with that of competitors. Necessary actions are then taken to bridge the performance gap with the best-in-class organizations. Process bench trending is used to control the performance of a specific function or process of the organization. It involves understanding the requirements of the process to be bench trended and the process flow. Processes adopted by present and potential competitors have to be studied and compared, and necessary action taken to eliminate the process gap.

13.4.7 Just-in-time (JIT)

Material cost has two cost components -- the procurement cost (also called ordering cost) and the holding cost in stores. Both these costs are inversely related to each other. Both these costs can be controlled using the JIT technique. To reduce procurement costs, JIT uses stable relationships and electronic links between the organization and its vendor(s). Whenever the material nears reorder levels, the vendor automatically ships the material so that it reaches the organization exactly when it is required. Thereby, the average inventory level is maintained at very low levels, reducing the inventory holding costs. Just-in-Time (JIT) is a technique which helps in controlling the inventory costs on both fronts.

13.4.8 Lean Manufacturing

Lean manufacturing, a business strategy introduced by Toyota, focuses on the elimination of process waste. It is estimated that only 5 per cent of manufacturing activities actually add value to the product - implying that the remaining 95 per cent are a waste as the organization does not get paid for them. Lean manufacturing identifies 7 kinds of wastes - overproduction, waiting time, transportation, excessive inventory, over processing, unnecessary motion, and quality problems - and concentrates on reducing these wastes. According to the Lean philosophy, elimination of wastes leads to enhanced productivity and quality, thereby leading to cost reduction. The financial performance improvements begin to surface in a short period, typically within 12-36 months from the time Lean manufacturing is implemented. Improvements include gross margin, cash flow, inventory turns, floor space reduction, sales/employee improvement, and customer satisfaction. These improvements motivate employees to improve process flow and eliminate items that do not add value. There is also focus on improving formal and informal communication, which helps solve problems more effectively.

From Lean Enterprise came the idea of "Lean Thinking", Lean Thinking has 5 principles. The five critical elements necessary for successful implementation of Lean thinking are:

- Specifying value by specific products.
- Identifying the value stream for each product.
- Making value flow without interruptions.
- Letting the customer pull value from the producer.
- Pursuing perfection.

The five principles of Lean Thinking have become the foundation to Lean and can be used in relation to all notions of Lean, Leanness and Lean principles.

For achieving this, the organizations need to have leadership, vision and planning, execution, present-day focus, and follow-up, of which leadership is the most important factor. The success factors required within the leadership component for the successful implementation of Lean thinking are:

i. Identification of and taking apt steps against employees not supportive of the management decisions and who disrupt the process and harm the management team's credibility.

ii. Investment in employee training. Every employee should be allocated 40-50 hours of training per year.

iii. Interaction of managers with employees to motivate them and to get a better understanding of the processes, and to look for ways to make the employees' jobs easier.

iv. Establishment of accountability and discipline so that employees know what is expected of them, and the consequence of not doing what is expected.

v. Taking care of and personally thanking employees for their efforts and contribution. This will strengthen the bonding between employees and the organization.

vi. Proper communication with employees about business performance, changes in the business, and the direction the organization is taking to ensure smoother transition to the Lean mode.

vii. Provision of an environment in which employees are allowed to express their ideas and then work to implement them.

viii. Creation of a set of goals (with respect to the organization's financial performance and customer satisfaction), which should be easy to understand and achievable and to which everyone can relate.

ix. Hiring of a leader with experience, as transition to Lean is fundamentally different and complex compared to the traditional management processes.

13.4.9 Six Sigma

Six Sigma is a technique used to meticulously manage process variations that cause defects and to work systematically to manage those variations and eliminate the defects. It is a powerful tool specially designed to solve complex quality problems. Six Sigma was first introduced in early 1980s by Motorola, and was later popularized by organizations like GE. It controls defect occurrence, thereby, resulting in world- class performance, reliability, and value for customers. Refer to Table 13.2 for a description of DMAIC which is an important methodology for Six Sigma implementation, especially for enhancing the quality of the existing processes of an organization.

Table 13.2: The DMAIC Methodology

Stage	Description
D= Define	Customers are identified and their service or product requirements are understood. Critical to Quality (CTQ) issues are defined from their perspective. The overall scope of the improvement project is defined. The process flow is mapped and the processes that need improvement are specified.

Contd….

M= Measure	Process-related metrics and defect data are collected in a planned manner from appropriate sources such as process measurements and customer surveys.
A= Analyze	The root causes of defects and process variations are determined. The areas that need improvement are identified and prioritized based on the organization's needs.
I= Improve	To address the prioritized areas of improvement, solutions are developed from two perspectives: corrective action for existing problems and preventive action for new problems that may occur. On testing and implementing the solutions, the actual improvement is measured.
C= Control	Control mechanisms such as periodic monitoring, training programs, and changes in reward systems are put in place in order to institutionalize the improvements, and to prevent the recurrence of defects and process variations that had occurred earlier.

Check Your Progress - 1

1. Managers determine whether it is more economical to produce an item in-house or purchase it from external vendors through a 'make-or-buy' analysis. A typical make-or-buy decision is based on a which of the following?
   a. Cost-benefit analysis
   b. Trial and error method
   c. Transfer pricing method
   d. Break-even analysis
   e. Activity-based costing
2. Target costing is a method that concentrates on managing costs during which stage of a product?
   a. Production
   b. Planning and design
   c. Service
   d. Abandonment
   e. Finished
3. Which of the following is a method of allocating costs to each and every activity of the organization and determining the cost driver for every major activity?
   a. Kaizen costing

b. Lean manufacturing
c. Activity-based costing
d. Bench trending
e. Target costing

4. Which of the following is a management technique used to improve operational effectiveness, efficiency, and profitability through a fundamental and radical redesign of business processes?
   a. Strategic bench trending
   b. Process bench trending
   c. Business process reengineering
   d. Benchmarking
   e. Break-even analysis
5. Unlike traditional management, TQM assumes that
   a. Quality follows profit
   b. The customer is separate from the organization
   c. Quality is composed of multidimensional attributes
   d. A hierarchical and vertical organization structure should be adopted in seeking solutions to problems
   e. The cost of production is uniform

13.5 Operational Audit

Operational auditing is a technique for appraising the effectiveness of a unit or function on a regular and systematic basis against corporate and industry standards. It is done to identify areas for improvement and to assure the management that its aims are being carried out. Operational audit plays a vital role in appraising the management about an operation's efficiency, effectiveness, and profitability. Let us discuss some of aspects on operational audit.

Operational audit is performed on a continuous basis by internal auditors or consultants specializing in various areas such as engineering, survey, designing, and accounting. The audit report has to disclose the effect and status of the existing operation vis-a-vis the overall objectives. Operational audit is a future-oriented, systematic, and independent evaluation of the organization's activities. The primary sources of evidence for this audit are the operational policies and achievements related to organizational activities, though financial data may be used. The differences between management audit and operational audit are given in Table 13.3, and those between financial audit and operational audit in Table 13.4.

Table 13.3: Differences between Management Audit and Operational Audit

Management Audit	Operational Audit
Management audit is an audit of the management.	Operational audit is an audit for the management.
Management audit is concerned with the quality of management. It critically analyzes and evaluates management performance.	Operational audit is concerned with the quality of operations.
Management audit tests the effectiveness of the top management, its formulation of objectives, plans, and policies, and its decision-making.	Operational audit verifies the operations of control and procedures, and fulfillment of plans in conformity with the prescribed policies.

Source: ICFAI Research Center

Table 13.4: Differences between Financial Audit and Operational Audit

Financial Audit	Operational Audit
Financial audits concentrate on assessment of the financial statements based on generally accepted accounting principles.	There are no generally accepted standards for operational audit.
Financial audit results are often reported to external entities or stakeholders such as shareholders, regulatory agencies, and the general public.	Operational audits are for internal use.
The scope of financial audits is restricted to the financial aspects of the organization.	Operational audits may be directed toward many non-financial areas such as personnel and engineering.
Financial audits are conducted by both internal and external auditors.	Operational audits are conducted by internal auditors or consultants.
Financial audits are conducted at the end of every fiscal year by a certified external auditor. Apart from that, half-yearly or interim audits can be conducted by internal auditors.	The timing of operational audit depends on the discretion of the management.

Source: ICFAI Research Center

13.5.1 Usefulness of Operational Audits

As an important tool for management control, operational audits ensure proper performance in each functional or organizational area for achieving the organizational objectives. An operational audit is an effective tool for performance appraisal and is concerned with the availability of acceptable standards, and with accumulating evidence to measure the effectiveness and efficiency with which the operations are being carried out. It is also useful in the appraisal of objectives, plans, and organization structure.

Example: Operational Audits help Business Performance

Dominos wanted their customers to get a uniform quality and consistent dining experience in any of their outlets. To achieve these objectives, Dominos used operational audit on aspects such as food, safety and hygiene, cleanliness of service areas, consistency of customer services brand standardization and marketing promotions. Moreover, review of procedures and methods used in the operations of the company and assessment of their contribution towards efficiency and effectiveness of the operations thru Operational audits have helped Dominos to decrease the turnaround time for many processes, and thus directly improving service delivery and customer satisfaction. As recommended by Operational Audit, Dominos was able to integrate digital data sources and CRM data with the Use of Google Analytics Premium, Google Tag Manager, and BigQuery, to make cross-channel marketing performance analysis easy and efficient.

Source: Nimbly Technologies, 2022, https://hellonimbly.com/5-proven-ways-to-enhance-operational-audit-performance/ Accessed on 01/07/2022

Activity 13.2

Chroma Chemicals Ltd., is a leading manufacturer of dyes and other chemicals used in the textile industry. Of late, it has been receiving complaints against the quality of some of its products. The management decided to conduct an operational audit in the organization. Will an operational audit help the management understand the problems that it is facing with regard to its products? Explain.

Answer:

13.5.2 Steps in Operational Audit

The various steps in operational audit are - purpose definition, knowledge gathering, preliminary survey, development of program, field work, reporting, and follow-up. These steps are described in Table 13.5.

Table 13.5: Steps in Operational Audit

Steps	Description
Purpose definition	The scope of the audit including the particular aspects of the organization, function, or group of activities to be audited is identified.
Knowledge gathering	A comprehensive knowledge of the objectives, organization structure, and operating characteristics of the unit to be audited are obtained.
Preliminary survey	A preliminary survey of the function or unit is done to get an idea about the critical aspects of operation and potential problem areas.
Development of program	A customized program is developed for the audit of a particular function.
Field work	The program developed is actually executed.
Reporting	A report is developed based on the findings of the fieldwork; it includes suggested improvements in the operational policies and procedures of the unit or function, and instances of non-compliance with existing policies and procedures.
Follow-up	It includes determination of whether the recommendations of the operational audit report are being effectively implemented.

Source: ICFAI Research Center

13.5.3 Classification of Operational Audit

Operational audit can be broadly classified into three categories - functional, organizational, and special assignment. A functional audit addresses a particular set of activities, like marketing or purchasing. An organizational audit deals with organizational units like departments or manufacturing plants and not with individual activities or processes. It studies the organizational unit's effectiveness and efficiency. A special assignment operational audit deals with process, quality, safety, risk, environment control techniques, etc. While these audits are generally initiated at the request of the management for varied purposes, they can also be undertaken on a regular basis.

13.6 Safety Audit

To manage risks effectively, safety should be treated as any other functional area and due importance is to be given . Authority and resources should be given to people who will manage risks and be liable if anything untoward happens. Safety performances should be evaluated against set targets to find out the scope for improvements in future.

Example: Safety Audit Guidelines for Chemical Industries

As per Government norms, chemical industries have to conduct safety audits as well as inspection of every single area of the operations to prevent hazards and identify associated risk factors with the help of competent authorities. Emergency Response & Disaster Management Plan (ERDMP) certification system of ministry of petroleum and natural gas, has formulated several guidelines on safety audits such as- i) the recommendations and suggestions made in the previous safety audits should be first implemented before conducting the next audit. ii) Implement online audit assessment and tracking systems. iii) Complete incident information along with the locational details should be made available which could be harnessed to make proper evaluations. iv) Information repository should be shared to all stakeholders for a prompt action and to minimize the damage caused by the accident.

Source, NIDM, 13th September 2021, https://nidm.gov.in/pdf/trgReports/2021/September/Report_13September2021akg.pdf Accessed on 01/07/2022

Safety audit is the study of an organization's operations and assets. It discovers existing and potential hazards, and the actions needed to render these hazards harmless. Organizations should do periodic safety audits to improve their safety programs. The areas to be assessed in a safety program are-

- Accident, disease, illness, or injuries of employees arising due to occupation Safety issues of organization-owned automobiles
- Safety issues related to the physical plant of the organization -- includes fire prevention and machinery condition, and condition of the plant building
- Safety issues related to business functions occurring away from the organization premises
- Safety issues related to the product, if the organization is a manufacturer.

The focus of safety audits varies widely from organization to organization, depending on - the nature of their operations, nature of the products, management focus, etc. There is no standard safety audit procedure; it needs to be customized for various organization types. Certain points to be kept in mind when conducting safety audits are:

- Whether safety is among the top priorities for the top management. Whether the line managers and supervisors make safety a priority Whether managers have the authority to make safety a priority

- Whether the organization measures the safety performances and publicizes the results
- Whether the work-site and work practices are reviewed
- Whether the investigation process, as to finding answers to questions like who is charged with fact-finding after accidents and whether the organization takes lessons from the investigations to avoid future mishaps, is effective.

Check Your Progress - 2

6. Which of the following activities focuses on the products and manufacturing processes of an organization's rivals?
   a. Generic benchmarking
   b. Competitive benchmarking
   c. Target costing
   d. Process costing
   e. Business process reengineering
7. For Six Sigma implementation, DMAIC is an important methodology, especially for enhancing the quality of the existing processes of an organization. In the acronym DMAIC, 'M' stands for the stage which involves
   a. Defining the overall scope of the improvement project, mapping the process flow, and specifying the processes that need improvement
   b. Determining the root causes of defects and process variations and, identifying the areas that need improvement based on the organization's needs
   c. Collecting process-related metrics and defect data in a planned manner from appropriate sources such as process measurements and customer surveys
   d. Addressing the prioritized areas of improvement and development of solutions from two perspectives: corrective action for existing problems and preventive action for new problems that may occur
   e. Conducting statutory audits at the end of every fiscal year
8. With respect to the differences between operational audits and financial audit, which of the given statements is false?
   a. Financial audit results are often reported to external entities or stakeholders such as shareholders, regulatory agencies, and the general public while operational audits are for internal use.
   b. Operational audits are conducted at the end of every fiscal year by a certified external auditor while the timing of the financial audit depends on the discretion of the management.

c. The scope of financial audits is restricted to the financial aspects of the organization while operational audits may be directed toward many non-financial areas such as personnel and engineering.

d. There are no generally accepted standards for operational audit while financial audits concentrate on assessment of the financial statements based on generally accepted accounting principles.

e. Operational audit is not a statutory requirement while a financial audit is.

9. Which of the following is not among the five types into which operational audit may be broadly classified?

   a. Functional

   b. Organizational

   c. Special assignment

   d. Activity-based

   e. Safety assignment

10. Which of the following audits is the study of an organization's operations and assets, identifying existing and potential hazards, and the actions needed to render these hazards harmless?

    a. Quality Audit

    b. Process Audit

    c. Safety Audit

    d. Environment Audit

    e. Financial Audit

13.7 Summary

- Strategic cost management ensures cost reduction in addition to enhancement of the various processes of the organization.
- Make-or-buy analysis, life cycle costing, target costing, activity-based costing, cost management across the value chain, and environmental cost management are some techniques used to manage and/or reduce costs of production and operations.
- The make-or-buy analysis helps managers to determine whether it is more economical to produce the item in-house or purchase it from external vendors. Life cycle costing analyzes the costs incurred on a product throughout its life cycle. Target costing concentrates on managing costs during the planning and design stage of a product.
- Activity-based costing is a method of allocating costs to each and every activity of the organization and determining the cost driver for every major

activity. Value chain analysis involves evaluating the various activities in the value chain, improving their efficiency, and identifying the scope for cost reduction.

- An environmental cost report generated under the environment cost management states that the environmental costs are the costs incurred by the organization with regard to its environmental development and sustainability initiatives.
- Value Engineering, Business Process Reengineering, Kaizen, Total Quality Management, Benchmarking, Bench trending, Just-in-Time, Lean Manufacturing, and Six Sigma are some techniques that can be used to enhance organizational performance.
- Value engineering is the process of analyzing the factors that influence the cost of the product so that the necessary quality standards and functionalities can be obtained in order to arrive at the target cost.
- Business process re-engineering (BPR) is a management technique through which an organization can improve its operational effectiveness, efficiency, and profitability through a fundamental and radical redesign of business processes.
- Kaizen is an approach to productivity improvement that is applied during the production stage. It aims at cost reduction by keeping its focus on improving the manufacturing process. TQM is an integrated effort to gain a competitive advantage by continuously improving every aspect of the organization.
- Benchmarking involves comparing the practices of the organization with best management practices from across the globe. Benchmarking can be broadly classified into two types - competitive and generic. Bench trending helps in controlling and directing the organization's response to the volatility of the market forces and the dynamics of the industry in which it operates. Bench trending can be broadly classified into strategic and process bench trending.
- Just-in-Time or JIT is a technique which helps in controlling the inventory costs on both the fronts of procurement costs as well as holding costs.
- Lean manufacturing is a business strategy focused on the elimination of process waste.
- Six Sigma is a rigorous technique used to manage process variations that cause defects and to work systematically to manage those variations in order to eliminate the defects.
- Operational auditing is a technique for appraising the effectiveness of a unit or function on a regular and systematic basis against corporate and industry standards. Operational audits can be broadly classified into three categories - functional audits, organizational audits, and special assignment audits.

- A safety audit is the study of an organization's operations and assets that aims at identifying existing and potential hazards, and the actions needed to render these hazards harmless. It is important for organizations to periodically assess the soundness of their safety systems.

13.8 Glossary

Activity-based costing: Activity-based costing is a method of allocating costs to each and every activity of the organization and determining the cost driver for every major activity.

Bench trending: Bench trending helps in controlling and directing the organization's response to the volatility of the market forces and the industry in which it operates. It includes a projection of the critical market conditions and the consumer preference variables, and involves evaluating their impact.

Benchmarking: Benchmarking involves comparing the activities of the organization with international best management practices. It helps organizations in identifying the best way to perform their operational activities so that it leads to superior organizational performance.

Business Process Reengineering (BPR): BPR is an approach through which an organization controls its operations through a fundamental and radical redesign of business processes. It involves modifying the existing systems and processes in an organization in order to improve productivity, reduce costs, and improve business practices.

Environmental cost management: Environmental cost management involves managing the environmental costs incurred by the companies. These costs are generally hidden and are allocated arbitrarily, and therefore cannot be traced back to the products they are related to.

Just-in-Time (JIT): JIT is a technique which helps in controlling the inventory costs on both the fronts of procurement costs as well as holding costs. To reduce procurement costs, JIT makes use of stable relationships and electronic links between the organization and its vendor(s). JIT reduces holding costs by enabling organizations to maintain very low inventory levels. Whenever the material approaches the reorder levels, the vendor automatically ships the material so that it reaches at the organization exactly when it is required.

Kaizen: Kaizen is widely used by Japanese organizations to reduce and control costs, and is an approach to productivity improvement. It is the term used for making improvements in the processes through small increments rather than through large-scale innovations.

Lean manufacturing: Lean manufacturing, introduced by the Toyota Motor Corporation, is a philosophy designed to bring about overall process improvement. It aims at controlling wasteful processes by eliminating them or by improving on them.

Life cycle costing: Life cycle costing analyzes the costs incurred on a product throughout its life cycle. It helps the management in evaluating the cost consequences of developing and making a product so that the areas where cost reduction techniques are to be implemented can be easily identified. It also helps an organization to correctly determine the profitability of the product.

Make-or-buy analysis: Make-or-buy analysis helps managers to determine whether it is more economical to produce the item in-house or purchase it from the external vendors. A typical make-or-buy decision is based on a break-even analysis.

Operational audit/auditing: Operational audits are an extension of internal audits. These are used to audit the different functions, projects, safety, quality, etc., and could mean an audit of the entire organization. Operational auditing is a technique for appraising the effectiveness of a unit or function on a regular and systematic basis against corporate and industry standards.

Safety audit: A safety audit is the study of an organization's operations and assets. It is aimed at identifying existing and potential hazards, and the actions needed to render these hazards harmless.

Six sigma: Six Sigma, introduced by Motorola in early 1980s, is a series of methods used to manage process variations that cause defects and to work systematically to manage those variations in order to eliminate the defects. The main objective of Six Sigma is to control defect occurrence.

Target costing: Target costing concentrates on managing costs during the planning and design stage of a product. In this kind of costing, market research is done to anticipate customers' perception of the product's value based on its features and attributes vis-a-vis competing products. The planned return on investment determines the target profit margin from the product. The target cost is arrived at by deducting the target profit from the target price of the product.

Total Quality Management (TQM): TQM is an approach that has gained prominence since the 1980s. TQM helps to improve the effectiveness and flexibility of a business as a whole by organizing and involving every department, every activity, and each and every person across all hierarchical levels. It is an integrated effort to gain competitive advantage by continuously improving every aspect of the organization.

Value engineering: Value engineering is the process of analyzing the factors that influence the cost of the product so that the necessary quality standards and functionalities can be obtained in order to arrive at the target cost.

13.9 Self-Assessment Exercises

1. Unlike conventional cost control systems which focus on controlling costs rather than on working toward reducing them, strategic cost management ensures cost reduction in addition to enhancement of the various organizational processes. Describe the various strategic cost management techniques.
2. To survive and grow in a dynamic and complex business environment, organizations need various techniques that would guide and control organizational performance. Elucidate these techniques that help an organization enhance its performance.
3. Operational auditing is done to assure the management that its aims are being carried out and to identify areas for improvement. What is an operational audit? Explain its significance in an organization. What are the various steps involved in the operational audit process? What are the various types of operational audit?
4. Organizations should periodically assess the soundness of their safety systems. What are safety audits? What are the areas to be assessed in a safety program? What are the points that should be kept in mind when conducting safety audits?
5. 'TQM is an integrated effort to gain competitive advantage by continuously improving each and every aspect of the organizations to transform their business or reengineer the operations'- Elucidate.
6. Make versus Buy decisions is a determinant that extends beyond manufacturing and encompasses normally across all fundamental business functions. Narrate the measures used for evaluation, to help companies to make the right decisions.

13.10 Suggested Readings / Reference Material

1. Stephen P Robbins, David A. De Cenzo and Mary Coulter (2022). *Fundamentals of Management: Essential Concepts and Applications*, Fifteenth Edition| Pearson Paperback, 30 June 2022.
2. Subhash Chandra Das (2019). Management Control Systems – Principles and Practices, PHI Learning Pvt. Limited, Paperback – 15 July 2019.
3. Pravin Durai (2019). Principles of Management: Text and Cases, First edition, Pearson India Education Services Pvt. Ltd.; Second edition (31 August 2019).
4. Merchant, Kenneth A (2017). "Management Control System: Text and Cases", Pearson Education Asia.
5. Saravanavel, P (2022). Management Control Systems – Principles and Practices. First edition, Himalaya Publishing House.

13.11 Answers to Check Your Progress Questions

1. **(d) Break-even analysis**

   A typical make-or-buy decision is based on a break-even analysis. At the break- even point, the total cost of buying is equal to the total cost of making the items in-house.

2. **(b) Planning and design**

   The process of life cycle costing and the costs incurred during the different stages of the product life cycle have given rise to target costing. Target costing is a method that concentrates on managing costs during the planning and design stage of a product.

3. **(c) Activity-based costing**

   Activity-based management assumes that business is a set of interrelated activities that finally adds value to the customer. It also assumes that the activities performed in the organization incur costs. The logic behind activity-based costing is that if the activities can be managed, then the costs associated with them can also be managed.

4. **(c) Business process reengineering**

   According to Michael Hammer and James Champy, 'Business Process Reengineering' is the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance such as cost, quality, service, and speed.

5. **(c) Quality is composed of multi-dimensional attributes**

   According to TQM, quality is composed of multi-dimensional attributes. However, traditional management does not hold this view. TQM assumes that profits follow quality, whereas in traditional management, it is the other way round.

6. **(b) Competitive**

   Competitive benchmarking focuses on the products and manufacturing processes of an organization's competitors.

7. **(c) Collecting process-related metrics and defect data in a planned manner from appropriate sources such as process measurements and customer surveys**

   DMAIC is an acronym that stands for five stages - Define, Measure, Analyze, Improve, and Control - all of which are interconnected. In the 'Measure' stage, process-related metrics and defect data are collected in a planned manner from appropriate sources such as process measurements and customer surveys.

8. (b) **Operational audits are conducted at the end of every fiscal year by a certified external auditor while the timing of the financial audit depends on the discretion of the management**

Financial audits are conducted at the end of every fiscal year by a certified external auditor. Apart from that, half-yearly or interim audits can be conducted by internal auditors. The timing of operational audits depends on the discretion of the management. Operational audits are conducted by internal auditors or consultants, such audits are for internal use.

9. (d) **Activity-based**

Operational audit can be broadly classified into three categories - functional, organizational, and special assignment audit. A special assignment audit deals with process, quality, safety, risk, environment control techniques, etc.

10. (c) **Safety**

A safety audit is the study of an organization's operations and assets. It is aimed at identifying existing and potential hazards, and the actions needed to render these hazards harmless. It is important for organizations to periodically assess the soundness of their safety systems and periodic safety audits help them in improving their safety programs.

Management Control Systems

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