UNIT 1 MANAGEMENT CONTROL SYSTEMS: AN INTRODUCTION

Objectives

The objectives of this unit are to:

- familiarize you with the management-control systems in general
- explain the various concepts of control
- contrast management control with strategic thinking and planning, and other control concepts
- provide an overview of new management techniques for management control and implications of new dimensions such as ethics dimension for management control.

Structure

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1.0 INTRODUCTION

In this unit, we will acquaint you with various conceptual foundations and framework of Management Control Systems (MCS). The main focus of this unit is on the nature and purpose of management control systems, elements of management control systems, interlinkages between strategic planning, management control and operational controls. During the recent years, a number of new management techniques have emerged. These include Total Quality Management (TQM), Activity Based Costing (ABC), Enterprise Resource Planning (ERP), Total Knowledge Management (TKM), etc. In this unit we provide a brief outline on linkages of these management techniques with Management Control Systems. We close this unit by highlighting the implications of ethical dimension in signing and operating the Management Control Systems.

1.2 BASIC CONCEPTS

The concept of control can be explained by some of the well-known metaphors. These metaphors are as follows:

- Thermostat
- 98.6 Human Body Temperature
- Driving System of Automobile
- Traffic Control
- Black Box

These five metaphors of control provide us interesting insights into control process. In thermostat a pre-decided level of temperature is set and the device is designed in a way to get turn on or turn off when actual temperature deviates from the set standard. Thus, it is an automatic control system.

While thermostat is a man made control system, nature has designed an elaborate control system for human beings viz. homeostatic. The body temperature is maintained at 98.6 F through a self-regulating mechanism. In a healthy body, this control process is automatic because system corrects the deviations through self-regulation. Only when the deviations are very high e.g. high fever, an external intervention in the form of medicine is required to bring the temperature back to normal. In terms of complexity of control mechanism, the control system of the body temperature is more complex as compared to the thermostat.

The driving system of the automobile provides us the ABC of man-machine control mechanism wherein ABC implies, Accelerator, Brake and the Clutch. It is the control over these three components that gives the driver control over the vehicle. Changing gears according to the road conditions is the essence of this control system. This metaphor of control has interesting lessons for management control in organizations because organizations are man-machine systems.

The traffic control systems is another interesting metaphor of control. It is a go, no-go system. Red, Yellow and Green represent the three colours of control. Red representing no-go, Yellow representing the permission to go and Green representing the go situation. In organizational contexts also, rules and procedures are designed around the concept of go and no-go.

Black-box is another metaphor of control. A black box is a device with input terminal and output terminal and electrical circuitry within the box wherein the nature of the circuit by looking from outside is not known. This idea has been extended to all those operations and systems whose "exact nature cannot be observed.
A summary of the above five metaphors of control is given in Table 1.1.

<table>
<thead>
<tr>
<th>Metaphor of Control</th>
<th>Key Idea</th>
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<tbody>
<tr>
<td>Thermostat</td>
<td>Engineering Model of Control</td>
</tr>
<tr>
<td>Body Temperature</td>
<td>Nature's Model of Control, Homeostasis</td>
</tr>
<tr>
<td>Driving System</td>
<td>Man Machine Control Model</td>
</tr>
<tr>
<td>Traffic</td>
<td>Yes-No Control Model</td>
</tr>
<tr>
<td>Black Box</td>
<td>Input-Output Model</td>
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</table>

All the five metaphors of control have lessons for not only understanding the control process in organizations but also in designing the control systems.

In addition to the above metaphors we also need to understand the idea of open loop control systems and the closed loop closed systems. In "Control System Engineering", control system is defined as a "group of components functioning together in coordination to perform a function. This function may be control of a physical variable such as speed, voltage, temperature, pressure, position etc."

In the open loop system, also known as non-feedback system, there is no provision within the system for the supervision of the output and no mechanism is provided to correct the system behaviour for any lack of proper performance of system components. Such systems are represented by the following diagram:

Input variable ➔ Transfer function ➔ Output variable

Illustrations of open loop system include automatic city traffic system, alarm clock, washing machine etc. In all these situations there is no feedback mechanism. Automatic traffic system does not take into consideration the intensity of traffic on the road etc.

In sharp contrast to the open loop system, closed loop systems are the feedback systems. Such systems are driven by two signals viz. the input signal and the feedback signal. Feedback signal is derived from the output of the system. The advantage of the feedback signal lies in giving the system the capability to act as self-correcting mechanism.

Given the above understanding about controls and control systems, we can now provide a conceptual framework for controls in organizations.

In the context of an organization of men and machines, control has four elements:

- One, a **measuring device** which detects the actual state of the variable under control, sometimes called detector.

- Two, an **assessing device** which, usually by comparing, show the difference or gap between the actual state and the desired state of variable under control, sometimes called selector.

- Three, an **altering or correcting device** which carries out the necessary alteration or correction in the actual state of the variable to achieve the desired state, sometimes called effector.

- Besides these three elements namely, detector, selector and effector, the control system also includes the **means for communicating information** such as directives, guidelines, feedback, etc., among these elements. These elements of control system are shown by a diagram in Figure 1.1.
1.3 NATURE AND PURPOSE OF MANAGEMENT CONTROL

At one point in time the concept of management was captured by the catch phrase "POSDCORB" indicating the role of manager in terms of "Planning, Organizing, Staffing, Directing, Controlling, Reporting and Budgeting". While this fundamental definition also sums up the essence of the nature and purpose of management control, the concept of management control has evolved from this generic approach to a more specific definition.

Anthony and Dearden (1981) provided the following definition:

"Management control is the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of organization's goals".

Subsequently this definition was been modified and refined by Anthony and Govindrajan (1994). The modified and refined definition is as follows:

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

They further state:

"Management control involves a variety of activities. These include:

• **planning** what organization should do,
• **coordinating** the activities of several parts of organization
• **communicating** information
• **evaluating** information
• **deciding** what, if any, action should be taken
• **influencing** people to change behaviour"

The echoes of the POSDCORB mantra can be heard in this amplification of the nature and purpose of management control as articulated by Anthony and Govindrajan.

These definitions are summarized in Table 1.2.
Table 1.2: Elements of Management Control Process

<table>
<thead>
<tr>
<th>What the organization should do</th>
<th>Visioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicating information, Evaluating information,</td>
<td>Decision-making</td>
</tr>
<tr>
<td>Deciding what action should be taken</td>
<td></td>
</tr>
<tr>
<td>Influencing people to change their behaviour</td>
<td>Leading</td>
</tr>
</tbody>
</table>

Merchant (1998) argues that there are many definitions of management, "all of which relate to process of organizing resources and directing activities for the purpose of achieving organization's objectives". He uses the framework of Functions, Resources and Processes as elements of management. His framework is presented in Table 1.3.

Table 1.3: Elements of Broad Areas of Management

<table>
<thead>
<tr>
<th>Functions</th>
<th>Resources</th>
<th>Processes</th>
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</thead>
<tbody>
<tr>
<td>Product (or service) development</td>
<td>People</td>
<td>Objective setting</td>
</tr>
<tr>
<td>Operations</td>
<td>Money</td>
<td>Strategy formulation</td>
</tr>
<tr>
<td>Marketing / Sales</td>
<td>Machines</td>
<td>Control</td>
</tr>
<tr>
<td>Finance</td>
<td>Information</td>
<td></td>
</tr>
</tbody>
</table>


It may be observed that in this classification, the focus is on 1) Functions of basic management such as product (or service) development, operations, marketing, finance etc; 2) Resources viz. people, money, machines and information; and 3) Processes viz, objective setting, strategy formulation and control. Merchant further states that in this framework, "the term control separates the management functions along a process continuum involving objective setting, strategy formulation and control".

Merchant further develops his Management Control Systems framework in terms of three types of controls viz. Action Controls, Results Controls and Personnel and Cultural Controls. Figure 1.2 provides this framework.

![Figure 1.2: Three Types of Controls](image)

Action controls "involve ensuring that employees perform (or do not perform) certain actions known to be beneficial (or harmful) to the organization".

Results controls focus on results and involve "rewarding individuals (and sometimes groups of individuals) for generating good results or punishing for poor results".

Personnel and Cultural controls on taking steps that ensure "that employees control their own behaviour or control each others' behaviours". Such controls aim at helping employees do a good job and are based on employees' natural tendencies to control
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These controls imply self-monitoring that could include self-control, intrinsic motivation, ethics, trust, transparency etc.

It may be indicated that Management Control Systems can also be viewed from functional perspective. In functional approach to Management Control Systems, the managerial functions of Marketing, Finance, Human Resource Development (HRD), Manufacturing, Research & Development, etc., constitute the primary basis for design of the management controls within each function. Figure 1.3 presents the conceptual framework of functional approach to control systems.

Activity 1

a) List at least three metaphors of control, with their key ideas and explain them briefly.

b) Explain the meaning of POSDCORB and relate it to management control.

c) Explain Functional approach to Management Control Systems.

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**Figure 1.3: Functional Approach to Control Systems**
1.4 COMPONENTS ELEMENTS OF CONTROL SYSTEMS

1.4.1 Planning, Measurement and Reporting Systems

The Planning, Measurement and Reporting (PMR) cycle is at the heart of designing a management control system. Planning includes the projects, ideas, programmes and activities that organization intends to take up over its planning horizon. It articulates the "strategic intent" (Prahalad and Hamel) in an environment of "strategic uncertainties" created by the changes in the technology, consumer preferences, competitors' strategies etc. Strategic inputs from the top management are incorporated in the budgeting exercise in planning the activities for the year.

Measurement process involves measurement of the actual performance against the targets.

Reporting involves "achievement reporting" by comparing the actual achievement with the desired achievement as reflected by the targets and the budgets.

The above PMR cycle is repeated every year. The cycle can also be repeated over shorter periods of time, say six monthly and quarterly to ensure corrective action on the part of the managers and also to ensure that the "drivers are reaching at the destination point in correct time",

Figure 1.4 presents the PMR cycle,

![Planning, Measurement and Reporting (PMR) Cycle](image)

1.4.2 Hierarchy of Control (Strategy, Management Control and Operational / Task Control)

Anthony and Dearden provided a conceptual framework of control systems in terms of three leave, processes viz. Strategic Planning, Management Control and Operational Control. This terminology has now been sharpened through the idea of an "interactive hierarchy" of control represented by strategy, management control and the task control. In Table 1.4 below we provide the "old" and the "new" frameworks:
Table 1.4: The Old and New Framework of Management Control Systems

<table>
<thead>
<tr>
<th>Old Framework (Anthony &amp; Dearden)</th>
<th>New Framework (Anthony &amp; Govindrajan)</th>
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</thead>
<tbody>
<tr>
<td>Strategic Planning</td>
<td>Strategy Formulation</td>
</tr>
<tr>
<td>Management Control</td>
<td>Management Control</td>
</tr>
<tr>
<td>Operation Control</td>
<td>Task Control</td>
</tr>
</tbody>
</table>

In the discussion below we interchangeably use the old and new frameworks as the underlying foundations of these frameworks are the same.

Management Control and Strategic Planning and Control

A quick comparison between strategic planning and control, and management control throws up the following points of distinction:

- Strategic planning focuses on a single aspect of the corporate life at a time whereas management control focuses on all the operations of different subdivisions or units of an organization. The acquisition and deposition of major facilities, creation of division or subsidiaries, research and development of new products, and sources of new permanent capital belong to the domain of strategic planning. The focus of management control extends to the total operations of divisions, plants, etc.

- The domain of strategic planning comprises unstructured or unprogrammed decisions whereas management control is predominantly rhythmic and regular.

- The nature of information required for strategic planning tends to be tailor-made for the problem, largely external, futuristic and less accurate whereas management control requires integrated, largely internal, historical and accurate information.

- Strategic planning often uses techniques like SWOT analysis (Strength, Weaknesses, Opportunities and Threats analysis) whereas management control relies on budgeting.

- Strategic planning is a creative and analytical activity whereas management control is largely administrative and persuasive in nature.

- The time frame of strategic plans tends to be long, say beyond one year, whereas the management control operates by an year, quarter or even smaller time frames.

- The appraisal of strategic plans is extremely difficult compared to management control which is relatively easy to evaluate.

Management Control and Operational Control

Operational control is yet another category of control, which operates in organizations. In simple words, it ensures that the specific operations or tasks are carried out efficiently and effectively. Some of the ways in which management control differs from operational control are highlighted here under:

- Management control focuses on all the operations of a sub-division or unit of an organization whereas the focus of operational control is limited to a single task or transaction. Examples of activities for which management control is applicable are the total operations of most manufacturing plants, marketing function and the work of staff units of all types. Examples of tasks susceptible to operational control are the direct production operations of most manufacturing plants, production scheduling, inventory control, the order taking type of selling activity, and order processing, premium billing, pay-roll accounting and cheque handling.
• The domain of operational control involves little judgment and greater reliance on rules whereas in management control there is greater degree of judgment and subjective decision making.

• The information needed for operational control is often tailor-made to the operation, non-financial, precise and in real time whereas management control often uses integrated, financial, futuristic and historical information, even approximations sometimes.

• The time horizon of operational planning and control tends to be day-to-day whereas management control works with weekly, monthly or yearly time frames.

• The techniques of Operations Research (OR) find wide applications in the area of operational control as the activities are programmable but management control has to work with diverse information generated through Management Information System (MIS), Decision Support System (DSS) and Knowledge Based System (KBS).

1.4.3 Organization Structure and Control Process

Organization structure is essentially the arrangement of various sub-units, departments and responsibility centers with defined authority and responsibilities. For a proper understanding of the control process, it is important to understand the nature of organization structure. The following are the broad forms of organization structure: -

• Functional Structure
• Divisional Structure
• Matrix Structure
• Network Structure

In functional structure, an organization is structured on the basis of critical functions such as production, marketing, finance, HRD etc., with each manager having responsibility for the respective function. Integration across functions is ensured by the top management through formal and informal meetings and controls.

In divisional structure, an organization is structured on the basis of a product line or group of product lines that constitutes the division; the divisional manager is responsible for all functions related to the division. Integration across divisions is ensured by the top management by initiating divisional performance control systems.

In matrix organizations, organization is structured along two dimensions viz, according to functions and according to projects / products. Such structures are quite common in case of project management organizations / R & D institution's wherein a person is simultaneously responsible to two bosses e.g. the project manager and the functional manager. In such organizations, integration is achieved through task forces and project teams.

In network structures, organization is structured on the basis of network requirements. Organization is like a fishnet wherein various parts are interwoven and are highly interdependent. Such structures are "horizontal" in nature, in contrast to bureaucratic structures, which are "vertical" in nature. With the advent of Information Technology, the network structures have emerged as a new form of organization structure. Most Information Technology firms are organized around network
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Closely related to the concept of organization structure, is the concept of responsibility centre. In fact, organization structure and control systems are linked through the idea of responsibility centre. Broadly speaking, "a responsibility centre is simply an organizational unit headed by a responsible manager". In control systems, a responsibility centre is usually built around financial responsibility say, for cost, revenue, profit and investment but also uses non-financial measures based on key or critical variables. The principal types of financial responsibility centres are as follows:

- Cost Centres
- Revenue Centres
- Profit Centres
- Investment Centres

Standard Cost Centres can be exemplified by foremen in a factory whose responsibility is specified in standard quantities of direct labour and material required for each unit of output. He is also usually responsible for a flexible overhead expense budget, and his objective is to minimize the variance between the standard / budgeted cost and actual cost.

Discretionary Cost Centres include most administrative departments viz. accounting department, legal department, labour relations department, factory office, and corporate office. There is no practical way to establish input-output relationship in an engineering sense for these departments. The management, therefore, makes use of their best judgment (discretion), to set up cost budget for these departments.

Revenue Centres can be best illustrated by the sales departments whose managers do not have authority to lower price but are judged by the sales revenue.

Profit Centres are units such as a product division, where the manager is responsible for maximizing the profit i.e. revenue minus cost.

Investment Centres are units where the manager is responsible for maximizing the profitability i.e. profits in relation to the magnitude of investment employed.

1.4.4 Corporate Culture

"Corporate culture consists of shared values, common perception and common decision premises applied by organization particularly to the activities and problem of organization" (Macariello & Kerby, 1997, p. 13). In essence, corporate culture is an integrating mechanism for integrating vision, mission and action aspects of managerial process. Vision and mission are based on shared values and common perceptions. Actions are based on common decision premises applied to the activities and problems of the organization.

Because corporate culture is rooted in shared values, it facilitates control through "self-control". The members of the organization exercise self-control because they have imbibed the shared values. Macariello & Kerby (1997, p.13) consider corporate culture as a coordination and control mechanism. According to them,

"Common beliefs and values about the activities and problem of a business greatly facilitate control by:

- Internalizing in individuals key decision premises and directions
An important aspect of corporate culture is trust and transparency. It ensures that values are shared by every one and there is fairness in performance evaluation, rewards and punishments. This reinforces the trust and transparency, leading to strengthening of the corporate culture.

1.4.5 **Rewards/Compensation**

Efficacy of control systems depends upon the nature of the reward and the incentive systems. Rewards could be monetary and non-monetary in nature. Monetary rewards include salary increase and ESOPs (Employee Stock Options Plans). Non-monetary rewards include recognition, enhanced status, increased autonomy, appreciation etc.

There are several theories of motivation. These theories provide us insights as to what motivates individuals. At the root of most of these theories is the idea of rewards and positive reinforcements. There has been a shift from the punishment oriented approaches to control to reward-oriented approaches as a basis to motivate people. It is now widely recognized that though money is an important motivator, there are several non-monetary incentives that motivate individuals to perform at peak levels. The ambience and salience of the corporate culture provides basis for such non-monetary incentives. Work-culture in itself could be a motivating factor.

It may be indicated that rewards could be based on both individual and group performance. Team building and team approaches are essential for success of any organization. Hence, the rewards should also be team based, while at the same time recognizing the individual's contribution to the success of the organization.

1.4.6 **Communication and Integration**

Communication is at the root of the efficacy of the control systems. Communication helps in proper coordination of activities across functions, divisions and the networks. It ensures that organization members move in the direction of shared values and goals of the organization. It ensures "goal convergence" between the individual's goals and organization goals.

There are several "management communication vehicles" such as formal Conferences, Workshops, Official Newsletter, Monthly Reports, Inter Office Memos, Office Notes, E-mails, Intranet, Internet etc. In addition, informal communication is also very much prevalent. In fact, informal communication is at times more effective than formal communication. Because of importance of communication, "corporate communications" has emerged as a function in itself.

Integration of various activities and processes is not only achieved through "communication circles" but also through other formal mechanism such as committees. To address issues at different levels, committees are constituted to achieve integration across the organization. Strategy and operating management committee aims at achieving a synergy between strategy and its implementation. The idea of 'quality circles' has also emerged as an important idea to achieve integration between the strategy and operations.

1.4.7 **Informal Management Control**

Besides the formal management control system, which has been the focus of our discussion so far, much of the management control involves informal communication and interactions. Informal management control occurs through meetings, conversation, site visits, etc. Structure meetings with unstructured agenda which
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means that the time and venue of the meeting is fixed, say every Monday at 11.00 am, in the chief's office, but not the agenda - the matters to be considered and decided, has been a common mode

of control in professional groups, research teams, university schools and banks. Staff retreat and informal dinner also serve in a limited way the purposes of management control. Indeed, the role of informal management control has been considered so critical that managements like to keep 'loyal employees' who are essentially 'informers', in key -positions. In a Marwari organization, the finance man is often from the family/caste/ village. Informal control is not visible in the form of responsibility centres, programmes, budgets and reports yet it exerts strong, pressure. Informal management control is not amenable to systematic description but it does operate in every organization whether it has a formal management control system or not.

Activity 2
a) List four points of distinction between management control and strategic planning.

b) List four points of distinction between management control and operational control.

c) Identify broad forms of organizational structure.

d) Define “responsibility centre” and identify various types of responsibility centres built around financial responsibility.

e) What do you understand by Corporate Culture? How does it influence the management control system?

1.5 NEW MANAGEMENT TECHNIQUES FOR MANAGEMENT CONTROL
During the recent years a number of new management techniques have been conceptualized and tested in the organizational context. They have now become part of the standard management literature. Further, these techniques have now been integrated with the literature on management control systems. In the discussion below, we provide a brief on these techniques and their integration with the management control systems. In particular we will discuss Total Quality Management (TQM), Just In Time (JIT), Benchmarking, Activity Based Costing (ABC) and SQC (Speed, Quality, Cost) model for service industry.

1.5.1 Integrating TQM and MCS

Fundamental idea in TQM is the PDCA cycle. PDCA stands for Plan, DO, Check and Act. This idea has been extensively applied to the field of quality improvement. The focus of this idea was on Total Quality and to gain competitive advantage through the Total Quality approach. PDCA cycle provided foundation for the Total Quality Control (TQC). Subsequently, TQC was given a new name viz. Total Quality Management (TQM). Within the broad umbrella of TQM, a number of tools and techniques have been developed. They largely relate to improvement in Operational controls/Task control. The customer focus has been brought in sharply and the concept of quality has been redefined from the viewpoint of customer. TQM approach has helped in strengthening the feedback mechanism between the customer and the producer. It has also strengthened the coordination between the marketing and the manufacturing divisions with the organizations.

Quality circles evolved as important instruments at the shop floor level to improve the task performance. The concept of Kaizen i.e. continuous improvement provided the foundation for search for ways to improve performance in relation to various tasks being performed by the work force. Thus, task control is facilitated through various techniques of TQM such as kaizen and quality circles.

It may be indicated that the PDCA cycle for all practical purposes is a modification of the control system concepts. It has been earlier indicated that idea of control systems has been articulated in terms of, Planning-Coordinating-Communicating information - Evaluation of information - Deciding the action - Influencing people to change behaviour. It can be seen that the PDCA cycle and the concept of control system have close equivalences and similarities.

In the literature on TQM, three "managerial" functions have been clearly identified viz. innovation, kaizen (continuous improvement) and maintenance. Top management should focus on the innovation, middle management on kaizen and supervisors and workers on maintenance. Interestingly these three functions correspond to the "hierarchy of control" framework discussed earlier viz. strategy formulation, management control and the task control. An equivalence between TQM and MCS ideas is presented in Table 1.5. Also presented is an integral view emerging from the two approaches.

<table>
<thead>
<tr>
<th>Level of Management</th>
<th>TQM</th>
<th>MCS</th>
<th>Integral View</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top management</td>
<td>Innovation</td>
<td>Strategy Formulation</td>
<td>Visioning</td>
</tr>
<tr>
<td>Middle management</td>
<td>Kaizen</td>
<td>Management Control</td>
<td>Decision-Action</td>
</tr>
<tr>
<td>Supervisors and Workers</td>
<td>Maintenance</td>
<td>Task Control</td>
<td>Task Performance</td>
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Thus, in the integral view of management control systems, TQM is a supporting tool for the management control systems.

It may be indicated that though the concept of TQM is presented as a philosophy of quality and a tool for gaining competitive advantage through the route of quality,
most of its tools and techniques are focussed at the operational/task control. Statistical control charts, fishbone technique for root cause analysis, error prevention, zero defect, waste elimination etc are aimed at task performance and operations management. Thus, TQM is essentially an operations management technique and largely belongs to the third level of control hierarchy viz. the task control.

1.5.2 JIT and MCS

Just-In-Time entered the lexicon of management both as a philosophy as well as a technique. More commonly known as JIT, just in time philosophy aims at "eliminating waste by reducing the time products spend in the productive process and eliminating the time products spend on activities that don't add value".

Since holding inventory is a non-value-added activity, in the JIT production systems, aim is to have zero inventory. The essence of JIT philosophy and JIT production system is to eliminate waste and improve quality. In JIT system, an organization "purchases materials and parts and produces components just when they are, needed in the production process". In JIT oriented organizations the customer's orders move the production process. Hence there is no need to unnecessarily carry the inventories.

There are two approaches to business:

1) Produce, hold inventories and wait for customer orders.

2) Get the customer orders, then produce.

For example, in case of book publishing the first approach may still be valid and a publisher may have to necessarily carry inventory, particularly in those cases where a market is to be created for the book. In several other manufacturing situations, production process can be triggered on the basis of orders on hand. For example, a transformer manufacturing unit can design its production system on the basis of JIT approach, when it is in a comfortable order book position. Manufacturing of perishable commodities can't wait for the customer orders. However, they have to ensure Just-In-time delivery. For this they must carry inventories to fulfill the customers demands.

In JIT system, the following are considered important:

- **Reduction in production cycle time**: Since, JIT focuses on waste elimination, it aims at reduction in production cycle time, by reducing the "wasted time" in the manufacturing process. Reduction in production cycle time not only helps in a better response to customer orders but also in reduction of monitoring levels.

- **Production flow smoothening**: JIT also helps in smoothening the production flow. If there are fluctuations in production rates, the deliveries to customer are affected. Further organizations have to carry the excess inventory. Hence in JIT, factories are so organized as to ensure reduction in work-in-progress as well as reduction in idle time of machinery. In addition, a flexibility is required in production operations. Flexibility in production operation is facilitated through flexibility in facilities and employee. The facilities should be usable for producing a variety of components and products and employees should be multiskilled to take up a variety of jobs.

- **Quality Focus**: JIT focuses on quality improvement through employee involvement. Once employees are involved in achieving zero defect, there is a reduction in non-value added activities. There is an emphasis on Total Quality Control and continuous improvement in quality.
An important aspect of JIT is "the practice of establishing relationship with customers for automatic ordering". When there is an advance booking of an order, the JIT could work very well. For advance booking, the relationship between the organization and its customers should be one of trust and confidence. For all practical purposes, customers become insiders and part of the administrative process. This in a way is an essential condition for JIT system to be effective.

JIT can be considered an important operational control mechanism, with a focus on cycle time reduction thereby leading to better efficiency and productivity. The goal of the JIT is to have zero inventory wherein the optimum lot size is one - i.e. goods are produced or ordered only when they are needed. In reality this happens rarely. Anthony and Govindrajan (1994) observe that "the term is a catchy way of stating the direction in which lot size should be headed". It indeed is a catchy phrase even though it doesn't capture the reality. Perhaps a better phrase would be "Minimum Inventory Driven System" (MIDS), but catch phrases have their own appeal.

### 1.5.3 Benchmarking and MCS

The idea of benchmarking was initially developed by Xerox to achieve "Leadership Through Quality". The word benchmarking is derived from the word benchmark used by surveyors to indicate "a mark in the stone or metal, or other durable material firmly fixed in the ground, from which differences of level are measured as in surveys or tidal observations". Thus, the "level difference" is the hallmark of benchmarking. The level of difference can be identified by comparing the performance with others. This can provide us strategic information of significant importance. In fact, because of such benefits of benchmarking, it has become a "significant strategic tool".

Benchmarking is "the process of continuously comparing and measuring an organization against business leaders anywhere in the world to gain information which will help the organization take action to improve its performance". In essence benchmarking is a "learning model" wherein we learn from others and use the learning to improve competitive edge. Accordingly, benchmarking has also been defined as "the identification and implementation of best practices to achieve customer results and business performance". The mission of benchmarking is to be "best-in-class". The idea of benchmarking is to provide a road map for being Numero uno (number 1 or the best-in-class).

It has been observed that "Benchmarking itself is a process. You do not use it to prove you are best at something, but to learn how to become the best. Benchmarking, by itself, does not improve performance; it provides information you can use to improve. It is a discovery process aimed at exceeding customer expectation" (George and Weirmerskirch, 1999, p.207).

Benchmarking is broadly classified in following three categories:

1) Competitive benchmarking

2) Process benchmarking

3) Strategic benchmarking

**Competitive benchmarking**, "attempts to determine what competition is doing with respect to product design". It is an effort to determine product characteristics that would provide a competitive edge. Competitive benchmarking also focuses on benchmarking product costs, so that costs can be compared with others. Through this secrets of cost controls can be learnt. However, there are difficulties in product cost...
benchmarking, because others may not easily share their costing data. Further, different companies use different types of classifications and terminologies while preparing product cost-sheets. In spite of such limitations benchmarking the product cost could provide some useful hints.

In **process benchmarking**, the focus is on improving process. The fundamental questions that we have to ask in process benchmarking are as follows:

- What is the scope of the process we are going to benchmark?
- How does that process work? How do we measure it?
- What do we want to learn about that process from benchmarking partners?

In strategic benchmarking the idea is to create and implement a new strategy. "The key is to create a shift in strategy or the adoption of a new business practice, which management expects to result in a competitive advantage".

Given the above brief discussion on benchmarking, we can relate it to the conceptual framework of MCS. It may be observed that three types of benchmarking are interconnected with hierarchy of control viz. strategy formulation, management control and task control.

### 1.5.4 Activity Based Costing (ABC) and Management Control

Activity Based Costing (ABC) is yet another idea that has influenced the field of management control. While some consider Activity Based Costing as an old wine in new bottle, others consider it a necessity to arrive at the correct view of the product costs. It is essentially a system for allocation of overheads on the basis of "activity" caused by the product. In this new system, "the word activity is often used instead of cost centre, and cost driver instead of basis of allocation; and the cost system is called an activity based-cost system (ABC)".

It has been pointed out that the need for using activity as a basis for allocation of cost has arisen because direct labour hours are no more considered as reliable basis for arriving at the correct picture of product costs. Since, labour cost as percentage of total cost has been declining, labour hours as a basis for overhead allocation are likely to provide a distorted picture. Similarly, in case of service industries, machine hours as a basis for overhead allocation could lead to distortions. Activity based costing corrects such distortions by using activity as a basis for overhead allocation.

ABC has important implications for management control. It yields better picture of the product costs facilitating decision-making in relation to pricing, product mix, make or buy decisions etc. It has been pointed out that because of a large number of cost drivers and "activity cost pools", companies do not find it worthwhile to generate ABC information on routine basis. Instead of relying on a large number of cost drivers, it is preferable to focus on "critical drivers". Since ABC generates a more accurate picture of the product cost, it can provide critical insights to the cost basket of products that a company is producing. This information is useful for strategic purposes to realign the product basket. Hence, ABC is essentially a tool for strategic planning and strategic think. Herein lies its linkage with the control system hierarchy.

The above discussion indicates that both TQM and ABC have relevance for management control. While ABC is more useful for strategic planning of the product portfolio of the organization, TQM has its usefulness for the operational controls. Though of different origin, the two together can be integrated with the management control systems. Figure 1.5 provides this integrated framework.
1.5.5 Speed, Quality and Cost (SQC): Management Controls in Service Industry

The competitive advantage depends upon three factors, viz. Speed (S), Quality (Q) and Cost (C). Managing these "SQC" factors is critical to the success of business. Speed refers to speed with which product is delivered to the client. It also implies the "speed of business". With Information Technology and other advances in manufacturing technology, the speed of doing business has been increasing. "Business at the Speed of Thought" has emerged as a new metaphor to emphasize the importance of speed and speed management. Thus, it is not just the Quality Management and Cost Management that are critical, but Speed Management is equally important and sometimes more critical. It may be indicated that speed management should be differentiated from Time Management. Speed management implies managing both space and timing factors in such a way as to ensure proper delivery of the product to the customer. Thus, it implies honouring the commitments and sticking to delivery schedules.

Management Control Systems should be so designed as to facilitate better management of the Speed, Quality and Cost. It may be indicated that the SQC concept discussed here is particularly important for the service industry where, speed of delivery is critical to business success in addition to quality and cost. In service industry, delivery of products or services should be Perfectly - In - Time (PIT) like the astronaut landing on moon. Hence, the critical importance of Speed Management and the need for on-line monitoring and control systems.

1.6 IT, ERP, TOTAL KNOWLEDGE MANAGEMENT (TKM) AND MANAGEMENT CONTROL SYSTEMS

The revolution in Information Technology has influenced the corporate world in many ways. With the availability of on-line information, the task of managers in performance monitoring has become both easy and difficult. While MIS (Management Information Systems) focussed on key variables and relevant information, the IT has thrown open the gates for information revolution through democratization of information. Every variety of information is now easily-accessible to managers and employees. This facilitates coordination across various departments, task and responsibility centres.

IT revolution has also lead to emergence of E-commerce which has opened new opportunities for expanding business. Internet and Intranet are now widely being used by the managers. They have facilitated what can be known as "virtual control" on operations. Most organizations are now using "Virtual Control Systems" for on-line monitoring of its activities.
Earlier, information integration in organizations was achieved through MIS; now the same is achieved through ERP (Enterprise Resource Planning) systems. ERP systems are essentially software developed for achieving information integration through the latest technology. "ERP software is designed to model and automate many of the basic processes of a company, from finance to the shop floor with the goal of integrating information across the company and eliminating complex, expensive links between computer systems that were never meant to talk to each other" (Leon, Alexis, Enterprise Resource Planning, Tata McGraw Hill, 1999 p.5).

It may be indicated that "Computers and IT are integral parts of an ERP system; but ERP is primarily an enterprise-wide system, which encompasses corporate mission objectives, attitudes, beliefs, values, style and people who make the organization" (Leon, 1999 p.4). Thus, it can be observed that ERP philosophy is close to the framework of Management Control Systems, In fact the essence of ERP can be viewed as a combination of IT and MCS (Management Control Systems).

The evolution of the idea of ERP is linked with the sophistication in the use of information and the developments in IT. This sophistication is indicated by the evolutionary journey from the idea of MIS to the idea of KBS (Knowledge Based Systems) in use of information by managers. "The MIS system addressed to the operational information needs through effectiveness measures like exception reporting, insights into processes etc. 'DSS (Decision Support Systems) used extensive modeling tools such, as optimization simulation and statistical analysis to reveal patterns in the information generated by MIS systems to genuinely support tactical and even strategic decisions. KBS systems went beyond data, information and models to capture the knowledge of the decision maker and to use the captured knowledge to propose far superior solutions" (Sadagopan S, ERP: A Managerial Perspective, Tata McGraw Hill, 1999 p.5).

During recent years, there has been a shift from data to information to knowledge. Hence, knowledge based systems are emerging as new tools to strengthen the information links between three levels of control hierarchy. Knowledge has been defined in many ways. In the enterprise context, it is the "full utilization of data, information and ideas" originating from various sections, departments and individuals as well as from customers, suppliers and other stakeholders. Knowledge Management implies leveraging the organizational knowledge for achieving competitive edge. This is achieved through Knowledge Function Deployment (KFD) which implies the following:

- Building and managing customer relationship through knowledge.
- Educating customer by providing additional information and knowledge about products, process and people in the organization.
- Building Knowledge sharing culture within the organization and with the stakeholders.
- Networking and developing knowledge alliances for enhancing the net worth. Making organization a learning organization.

Using the Knowledge Function Deployment techniques such as knowledge mapping, mind scape mapping, participatory design", knowledge tree and knowledge software tools, etc., the Total Knowledge Management (TKM) is a new approach to create strategic advantage for organizations by managing its Total Knowledge that is available to it in explicit and tacit forms. Figure 1.6 provides an (integrated) framework of MCS integrating ABC, TQM and Total Knowledge Management.
Activity 3

a) List the new management techniques that are influencing the design of management control systems in organizations.

b) Explain how PDCA cycle of TQM and PMR (Planning, Measurement Reporting) cycle of Management Control System can be integrated together.

c) Explain how JIT influences Management Controls.

d) "Activity Based Costing (ABC) is essentially a strategic think tool". Explain.

e) Highlight the importance of SQC (Speed, Quality and Cost) factors for management control.

f) What is the impact of Information Technology (IT) on design of Management Control System.

g) "Total Knowledge Management (TKM) can facilitate management control by strengthening links between three levels of control hierarchy". Explain.
1.7 ETHICS AND MANAGEMENT CONTROL SYSTEMS

During the recent time, the ethical dimension of corporate behaviour and conduct has received wide attention in the field of management. Several organizations have drawn up ethical codes of conduct. However, we need to answer the following questions:

Why individuals in organizations indulge in unethical conduct and unethical practices? The answer to this could be sought in the following two explanations:

The overall environment in the nation is one of corruption and moral decay, leading to legitimization of unethical behaviour on the part of citizens. This is a macro-level problem that should be tackled by the enlightened citizens of the nation through a collective voice and collective choice.

At the organizational level, the ethical failures occur because norms are not properly designed. Ethical failure are essentially control failures. While internal auditing can check frauds and misappropriates the ethical misconduct can be checked only through properly designed norms and standards.

Maciariello and Kirby (1997, pp. 648-654) provide a cybernetic model of instituting ethics program in organizations. This model in its simplified version is as follows:

- **Decide the desired state:** Set the ethical goals in terms of compliance with all laws. Translate the ethical goals in terms of code of conduct and ethics policies.

- **Measure the current state:** Find the current state of compliance of laws, find the deviations from code of conduct. In essence, conduct an 'ethical audit'.

- **Initiate remedial action:** Investigate the alleged violations and initiate a remedial action to ensure that the loose ends are tightened and to prevent reoccurrence of unethical practices, issue proper warning signals to prevent unethical behaviour, "It is better to foster ethical behaviour than to police, catch, and punish unethical behaviour". Those indulging in unethical behaviour may need 'ethics counseling' for moral and ethical correction.

![Figure 1.7: A Cybernetic Model of Ethics in Organizations](image-url)
Macariello and Kirby (1997) provide us the following six step framework for controlling ethical behaviour and preventing "ethical violations".

Step 1: Goal setting: Achieve compliance with all law, ethical codes and policies of the organization.

Step 2: Sensitizing: Sensitize all managers and employees as to what kind of behaviour constitutes unethical behaviour.

Step 3: Ethical audit: Audit the behaviour of employees with respect to norms, standards and code of conduct.


Step 6: Remedial Action: Implement decisions to correct improper behaviour.

In respect of ethics, there are two types of organizations viz., reactive and proactive. Reactive organizations tend to take the policing, witch-hunting and scape-goat approach. Proactive organizations ensure that managers and employees are properly sensitized to reduce the chances of ethical misconduct. They also do this by putting the expectations, norm and standards in writing in the form of a "rule book". This achieves two purposes. First, the alleged violations can be compared with the norms and standards and unnecessary witch-hunting is avoided. Second, ethical sensivity and ethical consciousness can be raised through a periodic reminder of the rule-book, as well as through ethical counselling.

Many a time, the question of ethics in organizations relates to the proper design of control system, particularly the operational controls. By following the cybernetic ethics control model, many ethical failures can be avoided and ethical violations can be prevented.

Activity 4

a) Provide an outline of cybernetic model of ethics in organizations.

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b) How proactive organizations check the unethical conduct of their employees.

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1.8 GENERAL CONSIDERATIONS IN DESIGNING MANAGEMENT CONTROL SYSTEM

An effective management control is needed by every organization. But how to create it? In other words, what are the prerequisites of an effective management control system? These are questions of considerable interest and significance and have been subject of ceaseless debates. It is not that we intend to provide you cut and dried answers to these either. Here, we attempt to highlight some broad considerations which should be borne
in mind while designing and implementing a management control system in any organization.

**Top Management Responsibility:** The responsibility for the design and implementation of a management control system rests inescapably with the top management or say the coordinating unit. The reason is simple. It is the top management that decides the goals, objectives, strategy and structure of an organization which indeed serve as the boundary constraints for management control system. Financial controller often provides critical assistance in designing management control system in an organization.

**Organization Specific:** It must be remembered that management control system tends to be highly situational and organization specific. The designer of management control system must therefore clearly understand the relevant external and internal environment of an organization. He must fully understand the nature of business i.e. whether it is manufacturing, service, profit-oriented, non-profit, private or social project, and its size, scale, technology and diversity of operations, etc. Indeed, each organization would have its peculiar environments and management control systems must seek specific fit to these.

**Goal Congruence:** Efficient and effective accomplishment of the goals of the organization is the aim of all management processes. Management control system is no exception. Each responsibility centre in the organization must then strive to put up best performance but not at the cost of overall performance. The overriding consideration in designing and implementing a management control system should be individual good consistent with sum total good.

**Management Motivation:** A prerequisite for goal congruence in an organization lies in the acceptance of the goals and sub-goals of the organization by its unit managers and adequate effort and motivation on their part to achieve them. Thus, motivation of managers deserve special consideration in designing and implementing a management control system.

**Fairness or Objectivity:** It is sometimes said that managerial effort and motivation, among other things, depend largely on the degree of fairness or objectivity build into the performance measurement and evaluation. Experience shows that people resent evaluation, which they consider unfair or subjective or vague rather than evaluation per se. Thus, reasonably objective measures of performance should merit special attention of the management control system designers.

### 1.9 SUMMARY

This unit discussed the concept and nature of management control rooted in various metaphors of control systems. The unit discussed the nature of "interactive hierarchy" of management control, in terms of strategy, management control and task control. It also stated that, in general, management control system comprises a structure of financial responsibility centres viz. standard cost centre, discretionary cost centre, revenue centre, profit centre, investment centre, and a process of Planning, Measurement and Reporting. The unit provided an overview of inter-linkages between various new management techniques such as TQM, JIT, ABC, ERP, TKM, etc., with management control systems. It also provided a discussion on ethical dimension in management control systems to prevent ethical failures in organizations. Broad considerations, such as goal congruence, managerial motivation, objective performance measure, among others, should be borne in mind by the designers of management control system in any organization.
1.10 KEY WORDS

**Detector:** The device that detects, observes and measures the activities or phenomenon being controlled.

**Goal Congruence:** Harmony between or matching of goals of the individual and the goals of the organization, or goals of a part of an organization and goals of the total organization.

**Effector:** A device that modifies or effects changes in the performance to achieve the desired state.

**Management Control:** A process of control by which a management attempts to carry out its strategies by motivating people to perform their activities and making necessary corrections.

**Operational Control:** A type of control which ensures that specific operations or tasks are carried out efficiently. It requires certain techniques and methods for various tasks.

**Responsibility Accounting:** A system of accounting which recognizes various responsibility centres within the organization. Depending upon the goals, a responsibility centre may be a cost centre, a revenue centre, a profit centre or an investment centre.

**Selector:** A device that assesses or evaluates the performance of an activity in relation to a pre-determined standard and identifies deviations.

**Strategic Planning:** The process of developing strategies and policies for the organization so that the organization and its parts function as a unified whole.

1.11 SELF-ASSESSMENT QUESTIONS

1) Define the purpose of management control, distinguishing it from Strategic Planning, Strategic Formulation and Operational Controls.

2) Identify various critical components of management control and indicate how they influence the behaviour in organizations.

3) "The ultimate purpose of management control is to achieve goal congruence" Comment?

4) New Management techniques such as Total Quality Management (TQM), JIT (Just-In-Time) are in tune with the conceptual foundations of Management Control Systems. Explain.

5) Ethical control systems, when designed on the basis of cybernetic framework, can prevent many ethical failures in the organizations. Explain.

1.12 FURTHER READINGS


