# Management Information System, BSCS 7th

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## Introduction (Lecture No. 1)

Management information systems are be coming more important, and MIS personnel are more visible than in the 1960s and 1970s, when they were hidden away from the rest of the company and performed tasks behind closed doors. So remote were some MIS personnel from the operations of the business that they did not even know what products their companies made. This has changed because the need for an effective management

information system is of primary concern to the business organization. Managers use MIS operations for all phases of management, including planning, organizing, directing, and controlling.

### 1.1. WHY MIS?

Can't we do without MIS? Today's Manager is confronted with TWO main challenges. He/she has to:

- Take quick decisions
- Process a large voluminous information

#### 1.1.1. WHAT IS MIS?

MIS- An Acronym of

- M
- I
- S

**I.MANAGEMENT**

Management is to get the work done through and with the help of people, by performing basic functions of management. Management can be seen as a function, a process, a profession or a class of people. And along with material, capital and labour, management is considered as a resource. It refers to the kind of tasks and activities that are performed by managers. In fact, management is a process of achieving an organization's goals and objectives by making the fullest use of available resources like men, materials, machines, money, methods etc.

**II.INFORMATION**

Information is a vital resource in development activities of any business. All the economic and social progress depends very significantly in the transfer of commercial, scientific and technical information. Managers in different situations require information on a subject in different forms and with different emphasis.

**III.SYSTEM:**

The term system is derived from Greek word systema, which means an organized relationship among functioning units or components. According to Goyal. D.PP. "The word "System' is the most loosely held word in Management Literature". A system i interrelated elements that collectively work together to achieve some common goal or objective. All systems function within some kind of environment. A system exist because it is designed to achieve one more objectives. We transportation system, the telephone system, the accounting system, the manufacturing system, and, for over decades, the computer system. Similarly, we talk of the business system and of the organization system consisting of interrelated departments (subsystems) such as production, sales, personnel, and an information system. None of these subsystems is of much use as a single, independent unit. When they are properly coordinated, however, the firm can function effectively and efficiently.

## 1.2. MANAGEMENT

"Management is the art of getting things done through and with the people in formally organized" groups-Koontz, 1972

### 1.2.1. Key Aspects of Management:

➤ Management is a process

➤ Managers achieve goals using resources

➤Managers play many roles and engage in organizing, making decisions, leading, and controlling.

A Management Information System can assist in the above managerial processes.

**The basic functions of management (POSDC) are:**

Planning The process of deciding in advance, the course of action to be followed, when and also, how to undertake those actions. We can say the planning as the decision making for the path for "From where to where we have to reach". The planning function should answer some basic questions, such as:

What to do?

When to do?

Who is it to do?

How is it to be done?

Where is it to be done?

Why is it to be done?

➤ Organizing The grouping of people and activities in order to facilitate the achievement of the organizational objective. The managers organize tasks by dividing activities, assigning duties and delegating authority for effective operation and achievement of goals.

➤Staffing-The process of putting right people, at right job, at the right time. The activities like defining the requirements, selecting suitable executives are done in this function.

Note: Staffing and Organizing are most often confused. Organizing involves foussing on structure formation and process of allocation whereas, staffing relates to the selection of people for that particular job and is executive oriented.

➤ Directing - The process of activating the plans, structure and group efforts in the desired direction. It is needed for implementation of plans by providing the desired leadership, motivation and proper communication.

➤Controlling The mode of checking the progress of plans and also, correcting any deviations that may occur along the way.

### 1.2.2. Management as a Control System:

Planning, organizing, staffing, directing and controlling are the various steps in the management process. All steps prior to a control are necessary but are not necessarily self assuring the results unless it is followed by a strong control mechanism. Management experts have viewed these steps as management control system. Control, is the process through which managers assure that actual activities conform to the planned activities, leading to the achievement of the stated common goals. The control process measures a progress towards those goals, and enables the manager to detect, the deviations from the original plan in time to take corrective actions before it is too late. Figure 1.1 shows a typical control process.

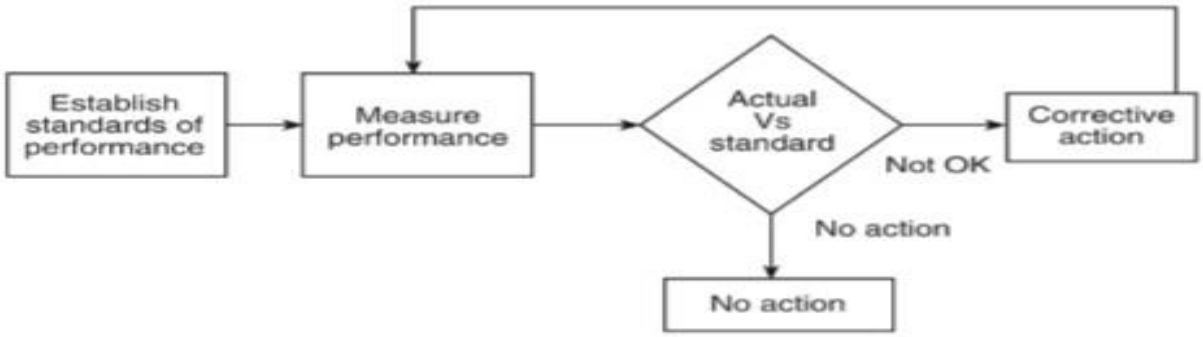



**Figure 1.1 :** A Typical Control Process

The management is a systematic effort to set the performance standards in line with the performance objectives, to design the information feedback systems, to compare the actual performance with these predetermined standards, to identify the deviations from

the standards, to measure its significance and to take corrective actions in case of significant deviations. This systematic effort is undertaken through the management control system.

**A reliable and effective control system has the following features:**

➤ Early warning mechanism: This is a mechanism of predicting the possibility of achieving the goals and standards before it is too late and allowing the manager to take corrective actions.

➤Performance standard: The performance standard must be measurable and acceptable

➤ to all the organizations. The system should have meaningful standards relating to the work areas, responsibility, managerial functions and so on.

➤ Strategic controls: In every business, there are strategic areas of control known as the critical success factors. The system should recognize them and have controls instituted on them.

➤ Feedback: The control system would be effective, if it continuously monitors the performance and sends the information to the control center for action. It should not only highlight the progress but also the deviations.

➤Accurate and timely: The feedback should be accurate in terms of results and should be communicated in time for corrective action.

➤Realistic: The system should be realistic so that the cost of control is far less than the benefits. The standards are realistic and are believed as achievable. Sufficient incentive and rewards are to be provided to motivate the people.

➤Information flow: The system should have the information flow aligned with the organization structure and the decision makers should ensure that the right people get the right information for action and decision making.

➤ Exception principle: The system should selectively approve some significant deviations from the performance standards on the principle of management by exception.

## 1.2.3. LEVELS OF MANAGEMENT:

Each organization is made up of several levels. These could be classified broadly into three categories: top, middle and junior management levels. The top management performs strategic planning and the other two levels provides support in the form of processed information. Figure 1.2 shows fue levels of management.

➤ Top (or strategic) management establishes the policies, plans and objectives of the organization as well as a budget framework under which various departments will operate.

➤ Middle (or tactical) management has the responsibility of implementing the policy and overall plans of the top management. This level performs tactical planning and control and needs information to discharge its managerial functions.

Junior (or operational) management has the responsibility of implementing day-to-day operations and decisions of the middle management to produce goods and services to meet the revenue, profit and other goals, which in turn will enable the organization to achieve its overall plans and objectives.


**Figure 1.2 :** Levels of Management

**Top Level -** Strategic Planning: This level develops the strategy for deciding the objectives of the organization, planning resources to be used in order to attain those objectives, formulating policies to govern, use and disposition of the resources.

**Middle Level -** Management Control: It is required by managers of various departments to measure performance, decide on control actions, formulate new decision rules and also allocate resources.

**Lower/ Shop floor Level Operational Control:** It is the process of ensuring that operational activities are carried out to achieve optimum use of resources. It makes use of pre-established procedures and decision rules. The interaction between three levels of management, as summarized by Jerome Kanter (1996) are given in the Figure 1.3.

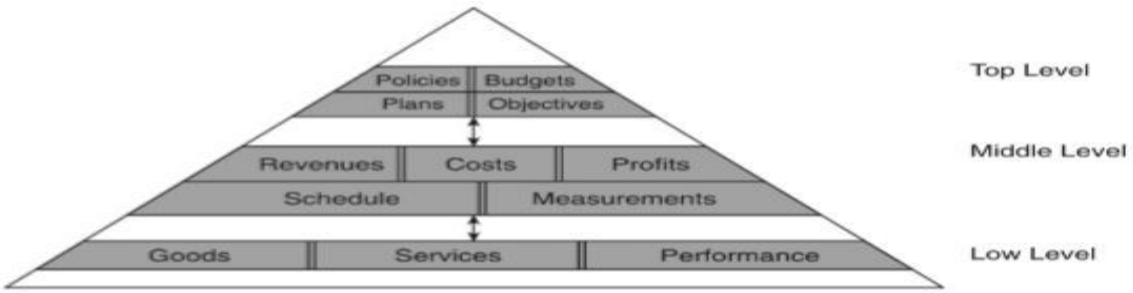



**Figure 1.3 :** Interaction Between Levels of Management

Essence of Management Whatever a manager does, he/she does it through Decision Making.

## 1.3. INFORMATION (Lecture No.2)

Information is a vital resource in development activities of any business. All the economic and social progress depends very significantly in the transfer of commercial, scientific and technical information. Managers in different situations require information on a subject in different forms and with different emphasis.

### 1.3.1. Information - An Input in Decision Making

For Decision Making, Information is the essential and critical input. In order to understand about information, let's first have a look at the Data. Data is a stream of raw facts and figures related to people, places, events or things, which can be represented using number, letters or symbols. Like, Name, address, age are facts related to people. These facts are represented using alphabets, numbers or a mix of both with symbols.

Examples:

➤Accounts of an organization.

➤Record of all the players in Twenty Twenty cricket matches.

➤Export data of India as obtained from various export houses and federations.

**The information is a processed data, which is useful to the recipient.**

This can be seen in the Figure 1.4.

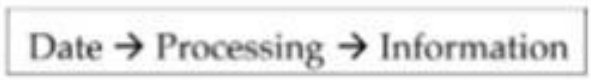



**Figure 1.4** : Data and Information

### 1.3.2. Requirements for Information:

➤ Observations - Sensory data or Representative of patterns / regularities.

➤ Symbolic encoding/decoding language - Set of symbols that may be manipulated. The correspondence between symbols and observations. The rules for encoding and decoding are known.

➤ Observer Perceives symbols and patterns. Knows the rules that govern encoding/decoding of symbols. Can act based on symbols received.

➤ Goal Seeking Behavior - Decision-maker has one or more goals. Decision-maker has one or more courses of actions. Information serves to help choosing from among alternatives.

### 1.3.4. Properties and Scope of Information:

Information has following general properties:

➤Information is not consumed in use. This is an extremely important property of information.

➤ Information can be shared by many and can be used simultaneously without any loss of any one.

The scope of information may vary. It can be in detail or in summary form. It can either be a complete set of data or only specific exceptions. The information scope depends on the managerial level.

The concreteness, is another quality of information. Information could be hard objective, relying heavily on facts. It could be soft or subjective, relying more on intuition, judgement or even hunch. Both hard and soft information have a rightful place in information systems.

## 1.3.5. TYPES OF INFORMATION:

Information contains an element of surprise, reduces uncertainty and triggers off action. The information can be classified into three types:

**(1) Environmental Information:** Environmental information requirement can be further classified and described as follows:

**(i) Government policies -** Information about Government policies or financial and tax affairs, political stability, etc. is required and may have a significant effect on future planning decisions.

**(ii) Technological environment -** The information on technological changes or

advancements is necessary for forecasting such changes in the firm and their probable effects on the same. It is also desirable to assess the effect of technical changes on new products and processes.

**(iii) Economic trends It includes information about**

(a) Economic indicators like employment, productivity, capital investment;

(b) Prices and wage levels which affect all, regardless of product or services;

(c) GNP level, trend and consumer disposable income.

**(iv) Factors of production These include information -** about the source, cost, location, availability, accessibility and productivity of the major factors of production such as labour, materials and spare parts as well as capital.

**(2) Competitive Information:** Competitive information requirement can be classified and described as follows:

(a) Industry demand This refers to the demand forecast of the industry for the product manufactured or about the area in which the firm is operating.

(b) Firm demand - This implies assessment of the firm's capabilities, activities and potentialities to meet demand relative to the capabilities and actions of the competing firms.

(c) Competition This includes information about competing firms for forecasting own product demand and making decisions and plans to achieve the forecast.

**(3)Internal Information:** It is the by-product of the normal operations of a business. Generally, it is historical or static in nature. Internal information is aimed at identification of the firm's strengths and weaknesses. It includes the following:

(a) Policies Long-term basic policies on product range, marketing, finance and about personnel do not permit flexibility in developing alternative courses of action in the short run.

(b) Financial plan Information on financial or budget plan is important because it represents a quantitative and time bound commitment about the allocation of total resources like employees, plant, materials, overheads, administrative expenses of the firm. It provides information about a number of sub-plans of the organization and it acts as an important link between all activities of the firm.

(c) Sales forecast - Since all other internal plans of the firm are guided by the sales plan, it is considered as the dominant planning premise internal to the firm.

(d) Supply factors Information concerning availability and limitations of certain supply factors such as labour, capital, plant and equipment is important as these factors play a vital role in developing the financial and subsidiary plans for achieving, organization's objectives.

### 1.3.6. Information Classification:

The information obtained and used in the organizations can be classified as follows:

**Action information:** Information (or data) when processed and used in some context is called action information.

**Non action information:** The information (or data) lying unnoticed is known as non action information.

**Documentary information:** Information which is available in some document form, i.e. either in some written form or on microfilms, magnetic tapes, floppy disks etc. is called documentary information.

**Non documentary information:** All information which are not documented are categorized as non documentary (or oral) information.

**Recurring information:** Information which is generated at regular intervals of time is called recurring (or repetitive) information.

**Non recurring information:** A particular type of information which is arrived at

through some special kind of study and which helps in management decisions is called a non-recurring (or non-repetitive) information.

**Internal information**: Information which is obtained from various sources within the organization is termed as internal information.

**External information**: Information which is obtained from various sources outside the organization from various sources is termed as external information.

**1.3.7. Information Characteristics:**

The primary characteristics, which an information must possess are:

(1) Relevance

(2) Availability

(3) Timeliness.

Certain desirable and necessary variable attributes of information are objectivity, sensitivity, comparability, consciousness and completeness. This information must be of quality. Since information is a critical organizational resource, low quality information has an adverse effect on organizational performance. The quality of information is determined by how it can motivate human action and contribute to effective decision making.

**The measures of quality of an information are:**

**(a) Accuracy**: The degree of accuracy of an information depends upon the truthfulness with which data is collected either from primary or secondary sources. The information must be a true reflection of the situation; otherwise decisions are bound to be incorrect and may lead to disastrous consequences.

**(b)Form:** The information value increases if the form in which it is to be supplied matches the requirements of the decision-maker. For example, if a decision maker requires information on sales pattern in a graph form, then he appreciates receiving such information (or data) in a graphical form rather than in a tabular form.

**(c) Timeliness:** The information should be available when required. Delayed information has less value as a resource.

**(d) Relevance:** The available information needs to be updated all the time so that it could match its current utility. For example, in a service organization, new data regarding improvement in the service keeps coming in most of the time. Therefore, processing continues to take place so that updated information is available all the time.

**(e) ABC nature of information:** Sometimes internally generated information can be categorized as follows based on its availability, cost and dependence.

**The four basic principles of information management are:**

***Data + Relevance + Purpose Information***

***Information + Insight = Understanding***

***Understanding + Communication - Intelligence***

***Intelligence + Action = Effectiveness***

## 1.4. SYSTEM:

The term system is derived from Greek word systema, which means an organized relationship among functioning units or components. According to Goyal, D.P. "The word 'System' is the most loosely held word in Management Literature". A system is a set of interrelated elements that collectively work together to achieve some common goal or objective. All systems function within some kind of environment.

**The study of systems has some hoste implications:**

A system must be designed to achieve a predetermined objective

Interrelationships and interdependence mast exist among the components.

The objectives of the organization as a whole have a higher priority than the objectives of its subsystems.

### 1.4.1. Characteristics of a System:

The characteristics that are present in all systems are organization , interaction, interdependence, integration and a central objective.

**Organization:** Organization implies structure and order. It is the arrangement of components that helps to achieve objectives. In the design of a business system, for example, a computer system is designed around an input device, a central processing unit, an output device, and one or more storage units. When linked together they work as a whole system for producing information.

**Interaction:** Interaction refers to the manner in which each component functions with other components of the system. In an organization, for example, purchasing must interact with production, advertising with sales, and payroll with personnel la a computer

system, the central processing unit must interact with the input device to solve a problem. In turn, the main memory holds programs and data that the arithmetic unit uses for computation.

**Interdependence**: Interdependence means that parts of the organization or computer. system depend on one another. They coordinated and linked together according to a plan. One subsystem depends on the input of another subsystem for proper functioning: that is, the output of one subsystem is the required input for another subsystem.

**Integration:** Integration refers to the holism of systems. Synthesis follows analysis to achieve the central objective of the organization. Integration is concerned with how a system is tied together. It is more than sharing a physical part or a location. It means that parts of the system work together within the system even though each part performs a unique function. Successful integration will typically produce a synergistic effect and greater total impact than if each component works separately.

**Central Objective:** The last characteristic of a system is its central objective. Objectives may be real stated. Although a stated objective may be the real objective, it is not uncommon for an organization to state one objective and operate to achieve another. The important point is that users must know the central objective of a computer application early in the analysis for a successful design and conversion. Later in the book, we will show that political as well as organizational considerations often cloud the real objective. This means that, analyst must work around such obstacles to identify the real objective of the proposed amendment.

**ASSESSMENT NO. 1**

1. Describe the requirements, properties and scope of information in brief.
2. Discuss the applications and benefits of MIS in brief.
3. " there are benefits, there are some limitations too". Discuss the statement in terms of MIS.
4. Discuss about the success and failure of MIS.

## 1.4.2. Elements of a System: (Lecture No. 3)

Many a times, the executives operate in a dynamic environment where change is a way of life. The environment may be a business firm, a business application, or a computer system. To reconstruct a system, the following key elements must be considered:

1. Outputs and inputs

2. Processor(s).

3. Control.

4. Feedback

5 Environment.

6. Boundaries and interface.

**Outputs and Inputs:** The major objective of a system is to produce an output that has value to its user. Whatever the nature of the output (goods, services, or information), it must be in line with the expectations of the intended user. Inputs are the elements(material, human resources, information) that enter the system for processing the inputs, the outcome of processing. Output is the result of processing. A system feeds on input to produce output in the much same way that a business brings in human, financial, and material resources to produce goods and services.

**Processor:** The processor is the element. system that involves the actual transformation of input into output. It is the operational component of a system. Processors may modify the input totally or partially, depending on the specifications of the output. This means that as the output specifications change, so does the processing. In some cases, input is also modified to enable the processor to handle the transformation.

**Control:** The control element guides the system, It is the decision-making subsystem that controls the pattern of activities governing input, processing, and output. In organizational context, management as a decision-making body controls the inflove, handling, and outflow of activities that affect the welfare of the business. In a computer system, the operating system and accompanying software influence the behavior of the system. Output specifications determine what and how much input is needed to keep the system in balance, In systems analysis, knowing the attitudes of the individual who controls the area for which a computer is being considered can make a difference

between the success and failure of the installation Management support is required for securing control and supporting the objective of the proposed charge.

**Feedback:** Control in a dynamic systern is achieved by feedback. Feedback measures output against a standard some form of cybernetic procedure that includes communication and control. The output information is fed back to the input and/or to

management (controller) for deliberation. After the output is compared against performance standards, changes can result in the input or processing and, consequently, the output. Feedback may be positive or negative, routine or informational. Positive feedback reinforces tile performance of the system. It is routine in nature.

## 1.5. INFORMATION SYSTEM

An Information System (IS) can be seen as the organized combination of people, hardware, software, communication networks, data resources, policies and procedures, that stores, retrieves, transforms and disseminates information in an organization. Various types of physical devices (hardware), information processing instructions in the form of flow charts and structed languages (software), communication channels (networks) and stored data or information are used by people or machines to communication and gather information, knowledge and wisdom in this digital age.

Information systems have been used since many years, when even the computers didn't existed. Today, also some practices with no use of computers exists in the field of Information systems. Like, for example:

**A paper-based accounting ledger** as used before the advent of computer-based accounting systems is an iconic example of an information system. Businesses used this type of system for centuries to record the daily transactions and to keep a record of the balances in their various business and customer accounts.

**Card catalogs in a library** are designed to store data about the books in an organized manner that allows readers to locate a particular book by its title, author name, subject, or a variety of other approaches.

**Smoke signals for communication** were used as early as recorded history and can account for the human discovery of fire. The pattern of smoke transmitted valuable information to others who were too far to see or hear the sender.

**The cash register at your favorite fast-food restaurant** is part of a iarge information system that tracks the products sold, the time of a sale, inventory levels, and the amount of money in the cash drawer; it also contributes to the analysis of product sales in ally combination of locations anywhere in the world.

**Your book bag, day planner, notebooks, and file folders** are all part of an information system designed to help you organize the inputs provided to you via handouts, lectures, presentations, and discussions. They also help you process these inputs into useful outputs: homework and good exam grades.

**1.6. MANAGEMENT INFORMATION SYSTEM:** The individual acronyms of MIS are discussed. Now, its time to understand the Management

Information System as a whole. In order to define a management Information System, the following characteristics should be kept in mind:

Management information systems are primarily meant for providing information from the data after processing them. The information systems do not generate data. The data are generated, collected, recorded, stored, processed and retrieved after it has been generated by business operations in an organization. Information systems are designed for the job positions rather than for individuals. Regardless of who is the individual holding the job position, the information systems are designed keeping in mind the job responsibilities that the individual is supposed to perform and depends upon the information needs of the individual in the organizational hierarchy. The information systems are designed for different levels of management - they are supposed to cater to the information needs of decision makers at top, middle and junior levels of management.

**MIS can be defined as a system that:**

**1.6.1. Definition:**

**(a)** provides information to support managerial functions like planning, organizing, staffing, directing and controlling.

**(b)** collects information in a systematic and a routine manner which is in accordance with a well defined set of rules.

**(c)** includes files, hardware, software and operations research models of processing, storing, retrieving and transmitting information to the users.

According to business dictionary, MIS is an organized approach to the study of information needs of a management at every level in making operational, tactical, and strategic decisions. Its objective is to design and implement man-machine procedures, processes, and routines that provide suitably detailed reports in an accurate, consistent, and timely manner. Modern, computerized systems continuously gather relevant data, both from inside and outside the organization. This data is then processed, integrated, and stored in a centralized database (or data warehouse) where it is constantly updated and made available to all who have the authority to access it, in a form that suits their purpose. We can also say that, Management Information System is a set of interrelated components which:

**→ Collect, retrieve, process, store and distribute information → To support decision making Of managers → In an organization.**

In this digital age, a Management Information System utilizes Computer H/w and S/w, Databases, Model bases, Operating procedures and People. The MIS environment can be seen in Figure 1.10.

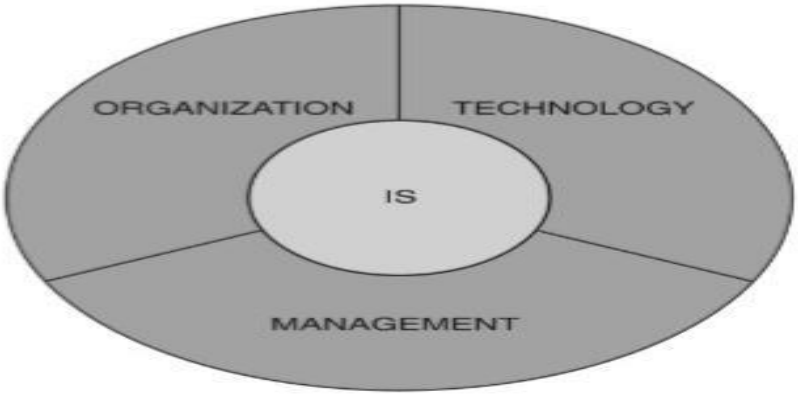



**Figure 1.10 :** The Management Information System Environment

## 1.6.2. Objectives of Management Information System : (Lecture No. 4)

An effective MIS has the following objectives:

➤Facilitate the decisions-making process by furnishing information in the proper time frame. This helps the decision-maker to select the best course of action.

➤Support decision-making in both structured and unstructured problem environments.

➤Provide requisite information at each level of management to carry out their functions.

➤Provide a system of people, computers, procedures, interactive query facilities, documents for collecting, storing, retrieving and transmitting information to the users.

➤Help in highlighting the critical factors to be closely monitored for successful functioning of the organization.

## 1.6.3. Characteristics of Management Information System: (Lecture No. 4)

➤**Management oriented:** The system is designed from the top to work downwards. It does not mean that the system is designed to provide information directly to the top management. Other levels of management are also provided with relevant information. For example, in the marketing information system, the activities such as sales order processing, shipment of goods to customers and billing for the goods are basically operational control activities. This information can also be tracked by a salesman, to know the sales territory, size of order, geography and product line, provided the system has been designed accordingly. However, if the system is designed keeping in mind the top management, then data on external competition, market and pricing can be created

to know the market share of the company's product and to serve as a basis of a new product or market place introduction.

➤**Management directed:** Because of management orientation of MIS, it is necessary that

management should actively direct the system development efforts. In order to ensure the effectiveness of system designed, management should continuously make reviews. For example, in the marketing information system, the management must determine what sales information is necessary to improve its control over marketing operations.

➤**Integrated:** The word 'integration' means that the system has to cover all the functional

areas of an organization so as to produce more meaningful management information, with a view to achieve the objectives of the organization. It has to consider various sub-systems, their objectives, information needs, and recognize the interdependence, that these subsystems have amongst themselves, so that common areas of information are identified and processed without repetition and overlapping. For example, in the development of an effective production scheduling system, a proper balance amongst the following factors is desired:

- set up costs
- manpower
- overtime
- production capacity
- inventory level
- money available
- customer service

➤**Common data flows**: Because of the integration concept of MIS, common data flow

concept avoids repetition and overlapping in data collection and storage, combining similar functions, and simplifying operations wherever possible. For example, in the marketing operations, orders received for goods become the basis of billing of goods ordered, setting up of the accounts receivable, initiating production activity, sales analysis and forecasting etc.

➤**Flexibility and ease of use:** While building an MIS system all types of possible means

which may occur in future are added to make it flexible. A feature that often goes with flexibility is the ease of use. The MIS should be able to incorporate all those features that make it readily accessible to a wide range of users with easy usability.

➤**Heavy planning element:** A management information system cannot be established

overnight. It takes almost 2 to 4 years to establish it successfully in an organization. Hence, long-term planning is required for MIS development in order to fulfill the future needs and objectives of the organization. The designer of an information system should therefore ensure that it will not become obsolete before it actually gets into operation. An example of such a feature of MIS may be seen in a transportation system where a highway is designed not to handle today's traffic requirements but to handle the traffic requirements five to ten years hence.

### 1.6.4. Approaches of Management Information System Development:

There are seven approaches, which are used for developing MIS:

**1) Top down approach**: This approach develops a corporate plan as a guide for designing the information system. Here top management takes the lead in formulating objectives, policies and plans, and communicates them down the line to middle and supervisory management for translating them into reality.

**2) Bottom up approach:** It consists of following five steps:

**(a)** Individual functional applications are planned separately consisting of transaction processing, updating of files and simple reports.

**(b)** Files of various functional applications are integrated by means of indexing and chaining into a database.

**(c)** Various functions are added to operate on the database at management control level.

**(d)** Integration of models into a model base having a wide variety of analysis, decision and planning models.

**(e)** Strategic planning data and planning models are added to the information system.

**3) Integrative approach**: This approach permits managers at all levels to influence the design of the information system. Here evaluation, modification and approval of top management continues, till a final design is acceptable to all levels.

**4) Traditional approach:** Here activities are performed in sequence. Each activity is undertaken only when the previous activity is completed. Managers and users, consider and review the work performed by MIS professionals during each stage of processing, in order to ensure accuracy and completeness.

**5) Prototyping approach:** In order to avoid any possible delay, prototyping approach is used. The goal is to develop a small or pilot version, called a prototype, which is built quickly and at lesser cost with the intention of modifying it when need arises.

**6) End user development approach:** With the increasing availability of low cost technology, end user development is popular in many organizations. Here the end user is responsible for system development.

**7) Systematic approach for development in small organizations**: Since fewer MIS professionals shall be working, having with variety of responsibilities that they have little time to develop new systems for users. In a very small organization, no MIS professional will exist. This does not mean that they cannot develop management information systems. They develop systems using the following steps:

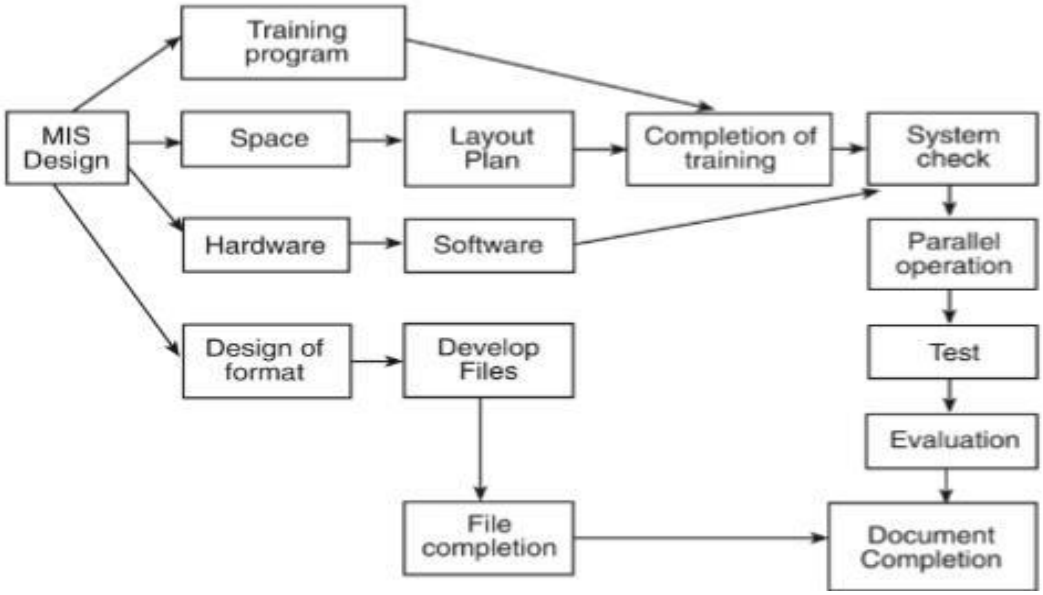
**(a)** Identify requirements.

**(b)** Locate, evaluate and secure software development.

**(c)** Locate, evaluate and secure hardware.

**(d)** Implement the systems.

**1.6.5. Implementation of Management Information System:** Before installing a new MIS in any organization, it is desirable to know whether there is already an old MIS in operation. If so, then the old system is allowed to operate in parallel, till the new system is fully operational.




The implementation plan involves the following steps:

(1) Preparing organizational plans

(2) Planning of work flow

(3) Training of personnel

(4) Development of software

(5) Acquiring computer hardware

(6) Designing the format for data collection

(7) Construction of data files

(8) Operation of old and new systems in parallel

(9) Phasing out the old and inducting the new system

(10) Evaluation, maintenance and control of the new system

## ASSESSMENT NO. 2

1. What is Strategic Management Information System ? Describe us characteristics,
2. Describe the barriers of successful development of strategic management information system.
3. What are the factors that contribute to the success of MIS?