3.3 UNDERSTANDING MIS

To understand MIS in detail, you need to understand the following three words in detail:

3.3.1 Management

The term management is defined as the art of getting things done through people by dividing the people into organized groups and assigning each group a different activity. Later, the results or outcome of all the activities performed by each group are appended together to accomplish the final goal. A manager in an organisation is responsible for carrying out the functions in a systematic way. The manager plans about the project by settings goals and objectives and implement, procedures, rules, programmes, budgets, strategies and schedules to achieve the plan. The various functions performed by a manger are as follows:

- **Planning** is defined as the process of preparing for the future in advance. Planning of anything before hand helps bridge the gap between the current and the final position of the project. While planning for a project, you need to answer the following questions:
    - What to do?
    - When to do?
    - Who is to do?
    - How is it to be done?
    - Why is it to be done?
    - Where is it to be done?
- **Organising** is defined as a process of identifying the entire job that is needed to complete a particular project and then dividing the job into the following steps to carry out the job as planned:
    - Dividing the job into convenient subjects or tasks
    - Allocating subjobs to persons or groups
    - Allotting authority to each group or each person
- **Staffing** is defined as the process of assigning the right person for the right job. It means allocating a job to a person as per his/her skills or defining the requirements for the job according to the people that are appointed to accomplish the job.
- **Directing** is important to achieve the pre-determined goals and objectives. It means that people who are involved in the project need to be guided and motivated by the manager of the organisation. The directing process includes:
    - Communication
    - Motivation
    - Leadership

- **Controlling** ensures that the organisational activities are performed as planned. Controlling a process involves the following actions:
    - Setting standards for measuring work experience.
    - Measuring the actual performance of the employees.
    - Comparing the actual project with the standards and finding deviations, if any.
    - Taking corrective actions.

The work performance is controlled by the manager by setting the performance standards and avoiding deviations from the standards. The manager performs all these functions through decision-making that is a fundamental pre-requisite for each of the preceding processes.

3.3.2 Information

Information is a very valuable resource that is required by the management of an organization to run the business. Information is the processed data that is presented to the decision-makers to aid them in their project. Figure 3.1 shows the relation of data with the information.

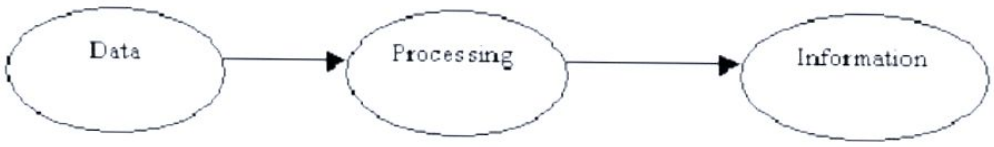

Figure 3.1: *Relation of Data with Information*

It should be noted here that the concept of data and information is a relative one. The information for one person may be data for another person and vice-versa. The type of information utilized by each level of management is according to the nature of job performed by the managers at their respective levels. The information is of four types:

- **Structured**: This information is well defined and thus the processing of the structured information is not difficult. For example, the proper monthly production schedule for a particular product.
- **Unstructured**: This information is not well defined and thus processing the information becomes difficult. For example, determining the share of the company's product into the market.
- **External**: This is the information whose source is outside the operations of the company. The top management of the organization requires the external information to carry out their future plans and policies.
- **Internal**: This is the information that is the resultant or the left over product of the normal operations of a business. The operation management of the organization required the internal information to carry out their plans.

3.3.3 System

The system in MIS is defined as a set of elements that are joined together to achieve a common objective. These elements are inter-related and interdependent. A system is made up of various sub-systems, which in turn are composed of other sub-systems. Figure 3.2 shows the various elements of a system.

Figure 3.2: *Elements of a System*

A system may consist of multiple inputs, which are processed through a transformation process to convert these inputs into outputs.

A cybernetic system is the one in which the feedback and control elements are attached to make it self-monitoring and self-regulating. For example, a thermostat controlled heating device that automatically controls and regulates itself to maintain the desired temperature.

Various types of systems are:

- **Open system:** Interacts with its environment and exchanges input and output with the external environment.
- **Closed system:** Does not interact and exchange input and output with its environment.

3.4 DEFINITION OF MIS

After studying the concept of management, information and system in detail, now you need to define and understand the term MIS as a whole. So, MIS is defined as a system that consists of people, machines, procedures, data models and databases as the elements of the system. The system performs the following actions:

1. Gathers data from the internal and external sources of an organisation
2. Processes the data
3. Supplies the processed data or management information to the managers to assist them in the procedure of decision-making.

3.4.1 Comparing IT and MIS

IT is referred to as that part of MIS that deals with the technology aspect of MIOS. MIS is supposed to include hardware, software, networks and other devices. In other words, we can say that MIS contains IT as its sub-system. But in broad sense, the term IT can be used interchangeably with MIS taking into consideration all or many information systems, users and management of the entire organisation.

3.5 NATURE AND SCOPE OF MIS

MIS is supposed to have borrowed the management concepts from various disciplines such as accounting, computing, organizations, management and operations. Because of this interdisciplinary nature of MIS, it is considered both as an art and a science. Figure 3.3 shows the interdisciplinary nature of MIS.

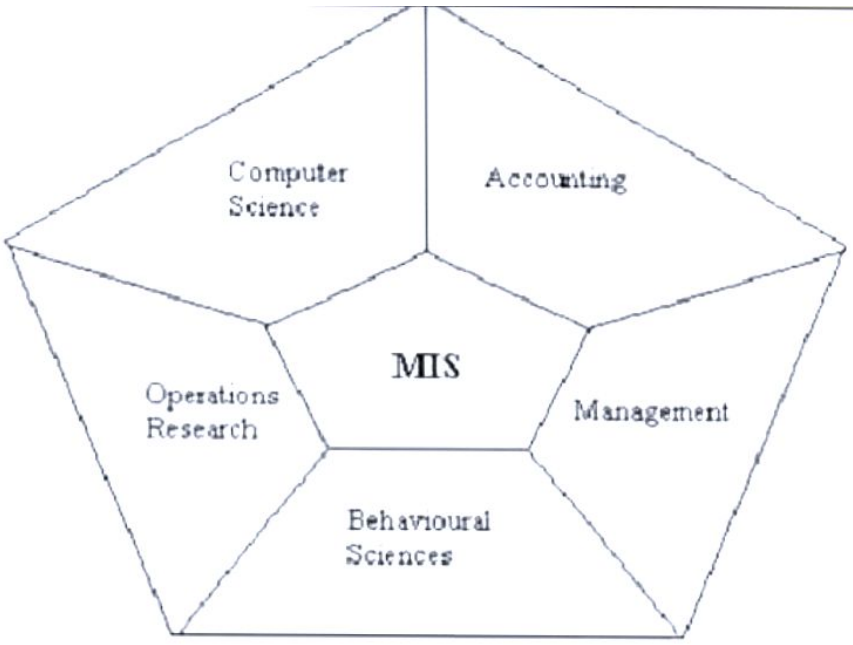

Figure 3.3: *Interdisciplinary Nature of MIS*

3.5.1 Characteristics of MIS

Following are the characteristics of MIS:

- **System approach**: MIS follows the system approach, which implies a step by step approach to the study of system and its performance in the light of the objective for which it has been constituted. It means taking a comprehensive view or a complete look at the interlocking sub-systems that operate within an organisation.
- **Management-oriented**: The management-oriented characteristic of MIS implies that top-down approach needs to be followed for designing MIS. The top-down approach suggests that the system development starts with determining management requirements and overall business objectives. In addition, the development plan of MIS should be derived from the overall business plan. This MIS characteristic also implies that the management actively directs the system development efforts towards the completion of the project.
- **Need-based**: The design and development of MIS should be as per the information required by the managers. The required design and development information is at different levels, viz., strategic planning, management control and operational control. It means MIS should cater to the specific needs of managers in the hierarchy of an organisation.
- **Exception-based**: The development of MIS needs to be on the exception-based reporting principle. This exception-based reporting principle means an abnormal situation such as the situation in which maximum, minimum or expected values vary beyond tolerance limits. In these abnormal situations, the system needs to have exception reporting to the decision-maker at the required level.
- **Future-oriented**: The design and development of MIS should also be future-oriented so that the system is not restricted to provide only the past information. It means that the system should provide such useful information on the basis of the projections based on which actions may be initiated.

- **Integrated**: MIS has ability to produce meaningful information because of the integration concept. It means taking a comprehensive view or looking at the complete picture of the interlocking sub-systems that operate within the company. For example, to develop an effective production scheduling system, it is necessary to balance the following factors:

    A. Set-up costs
    B. Work force
    C. Overtime rates
    D. Production capacity
    E. Inventory level
    F. Capital requirements
    G. Customer services

  You can start developing an MIS by using a specific sub-system, but serious shortcomings may result unless the identity of MIS is realized and properly reflected in the total system. Thus, an integrated system, which blends information from several operational areas, is a necessary characteristic of MIS.

- **Common data flows**: Duplication and redundancy in data collection, storage and dissemination could be avoided by using the integration concept of MIS. The common data flow concept supports numerous basic views of system analysis such as avoiding duplication, combining similar functions and simplifying operations. The development of these common data flow concepts is an economically sound and logical concept.
- **Long-term planning**: MIS cannot be developed in a short interval of time because it involves heavy planning that could be done in relatively long periods. While developing MIS, the designer has the future objectives and needs of the company in mind. The designer should avoid the possibility of the system going outdated before its time.
- **Sub-system planning**: The MIS development process is quite complex and thus the system needs to be broken down into digestible sub-systems. These digestible sub-systems of a single system are more meaningful at the planning stage.
- **Central database**: A central database is the vessel that holds various different functional systems together with each system requiring access to the master file of data. This database covers information related to inventory, personnel, vendors, customers, etc. If the data stored in the database is stored efficiently and with common usage in mind, one master file can provide the data needed by any of the functional systems. It is logical to gather data once, to properly validate it and to place it on a central storage medium, which can be accessed by any other sub-system.

3.5.2 Functions of MIS

The prime objective to set up MIS in an organisation is to use the management information by its managers for decision-making. Thus, MIS needs to perform the following functions to meet its objectives:

- **Capturing data**: MIS performs usage of data whether manual or through computer terminals by using various internal and external sources of an organisation. The data related to transactions that take place in the

organisation is stored in some physical medium such as a paper form or entering it directly into a computer system by the end users.

- **Processing data**: Processing data includes converting the captured data into the required management information. To process the data, you need to perform various activities such as calculating, comparing, sorting, classifying and summarising the data. These data processing activities organise, analyse and manipulate captured data by using various statistical, mathematical, operations research and other business models.
- **Information storage**: MIS saves the less frequently used information as an organisational record and thus stores the processed or unprocessed data for future use. While performing this storage activity, data and information are reserved and organised in the form of fields, records, files and databases for future use.
- **Information retrieval**: Information retrieval includes retrieving the stored information as per the requirements of the management users. In such cases, the retrieved information is used as such or is processed again to meet the exact Management Information (MI) demands.
- **Disseminating management information**: Disseminating Management Information, which is a finished product of MIS is divided and distributed to the users in an organisation. This information could be periodic, through reports or online through computer terminals. Figure 3.4 shows various functions performed by MIS.

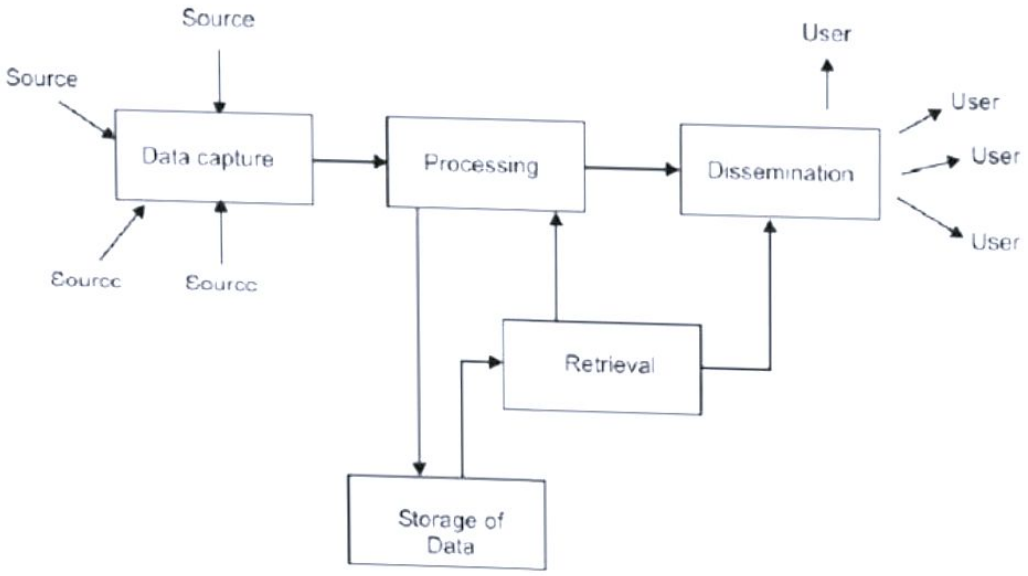

Figure 3.4: *Functions of MIS*

3.6 COMPONENTS OF MIS

MIS is a system that takes data as input, processes it to generate information that can help the management of an organisation in decision-making and strategic planning. Today, most organisations implement the MIS so as to achieve the organisational goals. The MIS has various components, which are as follows:

Hardware: The hardware components of MIS include various input and output devices that helps in feeding data as well as displaying the information when required. The input devices include the keyboard, scanners and mouse. The output devices may be the monitor, printer, network devices, and so on. The hardware