

CHAPTER ONE INTRODUCTION TO MIS

1.1 Definition and Importance of MIS

Management: Management is the art of getting things done through and with the people in formally organized groups. The basic functions performed by a manager in an organization are: Planning, Organizing, Staffing, Directing, and Controlling.

Information: Information is considered as valuable component of an organization. Information is data that is processed and is presented in a form which assists decision maker.

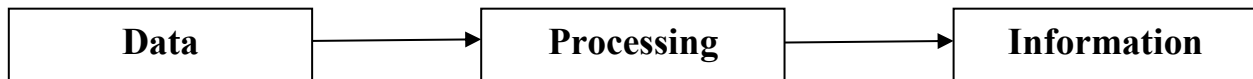


Figure 1.1 Information Generation

System: A system is defined as a set of elements which are joined together to achieve a common objective. The elements are interrelated and interdependent. Thus, every system is said to be composed of subsystems. A system has one or multiple inputs, these inputs are processed through a transformation process to convert these input(s) to output.

What is Management Information System?

A Management Information System (MIS) provides information that is needed to manage organizations efficiently and effectively. Management information systems are not only computer systems - these systems encompass three primary components: technology, people (individuals, groups, or organizations), and data/information for decision making. However, we can say that, *Management Information System is a sub-system of organization that gives the people in-charge of organization by providing right information that they need to take decisions at right time.*

In other words, MIS can be defined as is a planned system of collecting, storing and disseminating data in the form of information needed to carry out the functions of management.

MIS is an organized method of providing past, present and projection information relating to internal operations and externals intelligence. It supports the planning, control and operational functions of an organization by furnishing uniform information in proper time frame to help the process of decision-making.

Management Information System is generally defined as an integrated user-machine system for providing information to support operations, management and decision-making functions in an organization. The system utilizes computer hardware and software, manual procedure, models for analysis. Information is viewed as a resource much like land, labor and capital. It must be obtained, processed, stored, manipulated and analyzed, distributed etc. An organization with a well-defined information system will generally have a competitive advantage over organization with poor MIS and no MIS.

Importance of MIS

Although there are very many reasons and importance for MIS to be practiced in organizations, some of the major importance for MIS are mentioned below:

- ✓ It Minimizes Information Overload: MIS change the larger amount of data into summarized form and thereby avoids the confusion which may arise when information officer are flooded with detailed facts.
- ✓ MIS Encourages Decentralization: Decentralization of authority is possible when there is a system for monitoring operations at lower levels. MIS is successfully used for measuring performance and making necessary change in the organization plans and procedures.
- ✓ It Brings Co-ordination: MIS facilities integration of specialized activities by keeping an organization aware of the problem and requirements of various kind of work. It connects all decision centers in the organization.
- ✓ It Makes Control Easier: MIS serves as a link between planning and control by a system manager in an organization. It improves the ability of management system of an organization to evaluate and improve performance. The used computers has increased the data processing and storage capabilities and reduced the cost.
- ✓ It Helps in Decision-Making: MIS is a decision support tool which stores, processes, and provides valid information for the decision-makers at right time. It also helps managers to evaluate the success of their decision.

1.2 Components and Activities of MIS (Sub-Systems of MIS)

MIS is considered as a sub-system of an organization which has its own subsystems and activities. The major subsystems of MIS are:

Input: For input in a system there is a need to collect the data. For collection of data there is a need of raw material, energy and data.

Processing: The process includes manufacturing process, human ability process and mathematical calculations but the data should be processed as follow:

- Entering the data.
- Modify and organize the data.
- Transforming the data.
- To make all data usable in form of information.
- Store the all data in secured form.
- Control the data and in a system there is no repetition of data and use of unnecessary data.

Output: The third component of a system is output. The output of a data is to be very important to work or to give information. The output of a data should be accurate and on time.

Retrieval of Information: MIS retrieves information from its stores as and when required by various users.

Dissemination of Information: Information, which is a finished product of MIS, is disseminated to the users in the organization. It is periodic or online through computer terminal.

1.3 Resources of Management Information System

To work on a management information system there is a need of some resources. In MIS we include all Kind of machine resources and human resources also but we listed the MIS resources as follows:

A. People Resources: People are the essential ingredient for the successful operation of all information systems. There is a need of people resources to operate and organize all Management Information System. These people resources have two categories:

- i. **End Users:** (also called users or clients) are people who use an information system or the information it produces. They can be customers, salesperson, engineers, clerks, accountants, or managers. Most of us are information system end users. And most end users in business are **knowledge workers**, that is, people who spend most of their time communicating and collaborating in teams and workgroups and creating, using, and distributing information.

- ii. **Information System Specialists:** It is second category of people resource. Specialists are those people who develop and operate a system; we can include systems analysts, system operators and software developers in this category.

B. Hardware Resources: Hardware resources are the one of the major resource in Management Information System. In hardware resources we can include all kind of physical device and material which used to process the information. Specifically, it includes not only **machines**, such as computers and other equipment, but also all data **media**, that is, tangible objects on which data are recorded, from sheets of paper to magnetic or optical disks. For example: C.P.U., Key-Board, Mouse, Desktop, Printer, Floppy, CD-ROM etc. Examples of hardware in computer-based information systems are:

- i. **Computer Systems:** Which consist of central processing units containing microprocessors, and a variety of interconnected peripheral devices. Example are handheld, laptop, or desktop microcomputer systems, midrange computer systems, and large mainframe computer systems.
- ii. **Computer Peripherals:** Which are devices such as a keyboard or electronic mouse for input of data and commands, a video screen or printer for output of information, and magnetic or optical disks for storage of data resources.

C. Software Resources: The concept of **software resources** includes all sets of information processing instructions. This generic concept of software includes not only the sets of operating instructions called **programs**, which direct and control computer hardware, but also the sets of information processing instructions called **procedures** that people need. The following are examples of software resources:

- i. **System Software:** Such as operating system program, which controls and supports the operations of a computer system.
- ii. **Application Software:** are programs that direct processing for a particular use of computers by end users. Examples are a sales analysis program, a payroll program, and a word processing program.
- iii. **Procedures:** are operating instructions for the people who will use an information system. Examples are instructions for filling out a paper form or using a software package.

D. Data Resources: Data is unorganized and raw material in an information system. Data has been taken in any form like numerical, alphabetical or in any other form, but the collection of data should be proper and meaningful. All the data organized and stored as well as accessed properly by the users. Data are the lifeblood of today's organizations and the effective and efficient management of data is considered an integral part of organizational strategy.

Data versus Information: the word **data** is the plural form of *datum*, though data commonly represents both singular and plural forms. Data are raw facts or observations, typically about physical phenomena or business transactions. More specifically, data are objective measurements of the *attributes* (the characteristics) of *entities* (such as people, places, things, and events).

People often use the terms *data* and *information* interchangeably. However, it is better to view data as raw material resources that are processed into finished information products. Then, we can define **information** as data have been converted into meaningful and useful context for specific end users. Thus, data are usually subjected to a value-added process (*data processing* or *information processing*) where (1) its form is aggregated, manipulated, and organized; (2) its content is analyzed and evaluated; and (3) it is placed in a proper context for a human user.

E. Networking Resources: Telecommunications technologies and networks like the Internet, intranets and extranets are essential to the successful electronic business and commerce operations of all types of organizations and their computer-based information systems. Telecommunications networks consist of computers, communications processors, and other devices interconnected by communications media and controlled by communications software. The concept of **network resources** emphasizes that communications technologies and networks are a fundamental resource component of all information systems. Network resources include:

- i. **Communications Media:** Examples include twisted-pair wire, coaxial and fiber-optic cables; and microwave, cellular, and satellite wireless technologies.
- ii. **Network Infrastructure:** This generic category emphasizes that many hardware, software, and data technologies are needed to support the operation and use of a communications network. Examples, include communications processors

such as modems and internetwork processors, and communications control software such as network operating systems and Internet browser packages.

1.4 Contemporary Approaches to MIS

When an information system is being developed, much importance should be given to the structure of the organization, culture of the organization, etc. But along with these, especial attention should also be given to the technical side of MIS. The various contemporary approaches to MIS development can be summarized as:

A. The Technical Approach

The technical approach to information systems emphasizes mathematically based models to study information systems, as well as the physical technology and formal capabilities of these systems. The disciplines that contribute to the technical approach are computer science, management science, and operations research.

Computer science is concerned with establishing theories of computability, methods of computation, and methods of efficient data storage and access. Management science emphasizes the development of models for decision-making and management practices. Operations research focuses on mathematical techniques for optimizing selected parameters of organizations, such as transportation, inventory control, and transaction costs.

B. The Behavioural Approach

An important part of the information systems field is concerned with behavioral issues that arise in the development and long-term maintenance of information systems. Issues such as strategic business integration, design, implementation, utilization, and management cannot be explored usefully with the models used in the technical approach. Other behavioral disciplines contribute important concepts and methods. For instance, sociologists study information systems with an eye toward how groups and organizations shape the development of systems and also how systems affect individuals, groups, and organizations. Psychologists study information systems with an interest in how human decision makers perceive and use formal information. Economists study information systems with an interest in what impact systems have on control and cost structures within the firm and within markets.

C. The Socio Technical Approach

It combined the Technical and Behavioural Approaches to make the base. In the beginning, this approach was finding it hard to survive – but now it is being accepted worldwide and is also being implemented at a very large scale. It stands for improving the performance of the information system as a whole.

1.5 The Evolution and Characteristics of the Information Age

In the beginning human society consisted of individuals, families and small groups. There was a high degree of self-sufficiency. Everyone had their own particular talents. Some were better at hunting, some at cultivating the land, others at making equipment. In time larger groups formed to benefit from specialization. Members could focus on what they did best, trading their output with others. Net result was more and better output for all. Later groups started to work as organized teams - villages, tribes, nations, and organizations.

With organizations and their developments came the effective management and its benefits. Team-works and participative management received more popularity. Information started to earn importance as competition and cooperation increased.

Late 20th Century saw rapid growth in information and communication technology. Computers went from being locked away mainframes to personal desktop machines available to all. Computers (and their users) went from isolation to being able to communicate with one another. If knowledge is power, now we are all empowered. Significance and dignity of the individual are restored.

Characteristics of Information Age are many, but the most dominant are:

- Many smaller businesses offering self-employment. On the other side, increased globalization calls for big infrastructure for efficiency.
- Control of the organization system got efficient, improved hierarchy, and better participation.
- Large corporations regained effectiveness through proper management of Information.
- Moved from centralization to decentralization but keeping all strengths of centralization.
- Effective communication, effective delegation of work, effective management of projects.
- Global markets and dynamic nature of business at fast changing information age.

1.6 What Is Information Technology?

Information Technology (IT) is the branch of engineering that deals with the use of computers and telecommunications to retrieve, store and transmit information. In a business context, the Information Technology Association of America has defined information technology (IT) as "the

study, design, development, application, implementation, support or management of computer-based information systems".

Information technology is one of many tools managers use to cope with change. Computer hardware is the physical equipment used for input, processing, and output activities in an information system. It consists of the following: the computer processing unit; various input, output, and storage devices; and physical media to link these devices together.

The Career Side of Information Technology

Information technology is such a broad term that it is difficult to define it concisely – it includes developing and supporting all computer software and even hardware. Information technology is, therefore everywhere and since it has so completely transformed how we live, jobs are numerous in this field.

Some of the careers in Information Technology include:

- Software engineers
- Software developers
- Programmers
- Systems engineers
- Information Technology consultants
- Information Technology managers

The field of information technology is a technical field and almost all jobs require at least a bachelor's degree in a relevant subject. However, professional growth is more favorable for people with postgraduate degrees in computer science and related fields. A further business administration degree can lead to jobs in more decision-making capacities.