1. Information system and Elements of Information System

Basic Concept

Management Information System is an accumulation of 3 different terms as explained below.

Management: We can define management in many ways like, “Manage Man Tactfully” or Management is an art of getting things done by others. However, for the purpose of Management Information System, management comprises the process and activity that a manager does in the operation of their organization, i.e., to plan, organize, direct and control operations.

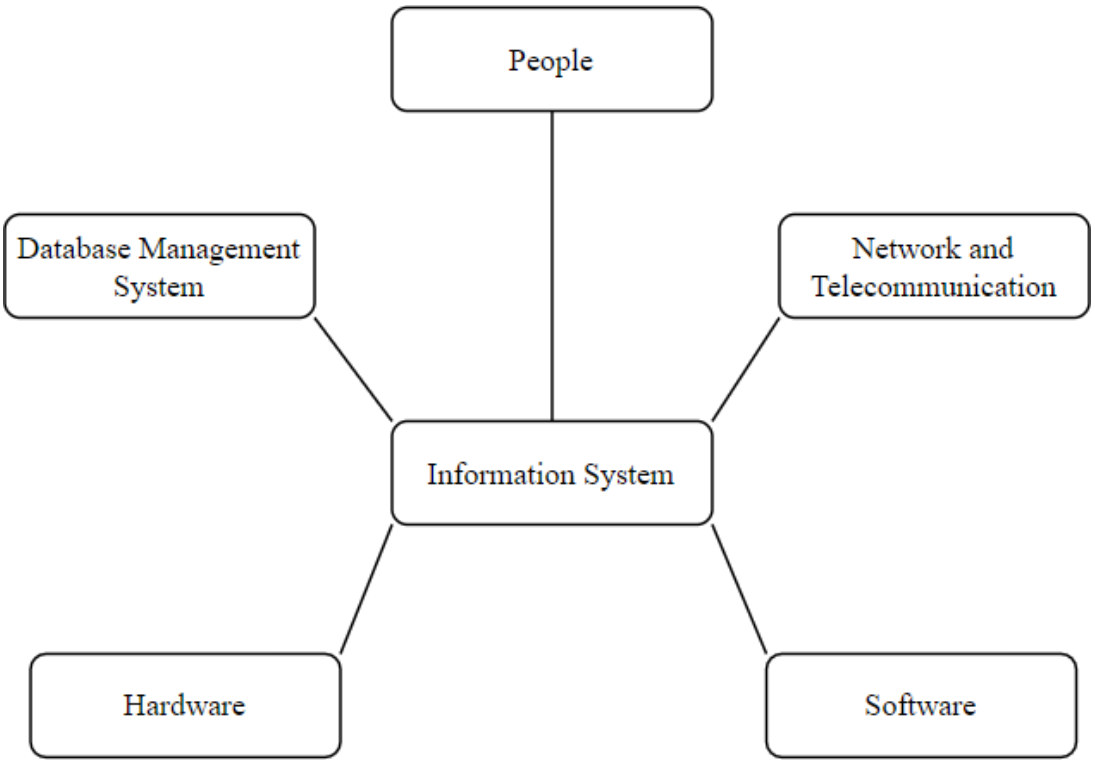
Information: Information simply means processed data or in the layman language, data which can be converted into meaningful and useful form for a specific user.

System: The system can be explained in a following way;

- System can be defined as a set of elements joined together for a common objective.
- A group of interrelated or interacting elements forming a unified whole e.g., business organization as systems.
- A group of interrelated components working together towards a common goal by accepting input and producing output in an organized transformation process.

- An **information system** is as a set of interrelated components that collects, stores, and disseminates information from an organization's environment and internal operations to support organizational functions and decision making, communication, coordination, control, analysis, and visualization. Information systems transform raw data into useful information through three basic activities: input, processing, and output
- Three basic activities - input, processing, and output - produce the information organizations need. Feedback is output returned to appropriate people or activities in the organization to evaluate andrefine the input. Environmental actors, such as customers, suppliers, competitors, stockholders, and regulatory agencies, interact with the organization and its information systems.

- **Elements of Information System**:



- **Computer hardware** consists of devices like the monitor, processor, printer, and keyboard, all of which work together to accept, process, show data, and information.
- **Computer software** consists of the detailed, pre-programmed instructions that control and coordinate the computer hardware components in an information system.
- **Data management technology** consists of the software governing the organization of data on physical storage media.
- **Networking and telecommunications technology**, consisting of both physical devices and software, links the various pieces of hardware and transfers data from one physical location to another. Computers and communications equipment can be connected in networks for sharing voice, data, images, sound, and video.
- **People** that are needed to run the system and the procedures they follow so that the knowledge in the huge databases and data warehouses can be turned into learning that can interpret what hashappened in the past and guide future action.

Advantages of Information Systems?

Communication:

- With help of information technologies instant messaging, emails, voice and video calls becomes quicker, cheaper and much efficient.

Globalization and cultural gap:

- By implementing information systems, we can bring down the linguistic, geographical and some cultural boundaries. Sharing the information, knowledge, communication and relationships between different countries, languages and cultures becomes much easier.

Availability:

- Information systems has made it possible for businesses to be open 24×7 all over the globe. This means that a business can be open anytime anywhere, making purchases from different countries easier and more convenient. It also means that you can have your goods delivered right to your doorstep with having to move a single muscle.

Creation of new types of jobs:

- One of the best advantages of information systems is the creation of new and interesting jobs. Computer programmers, Systems analysers, Hardware and Software developers and Web designers are just some of the many new employment opportunities created with the help of IT.

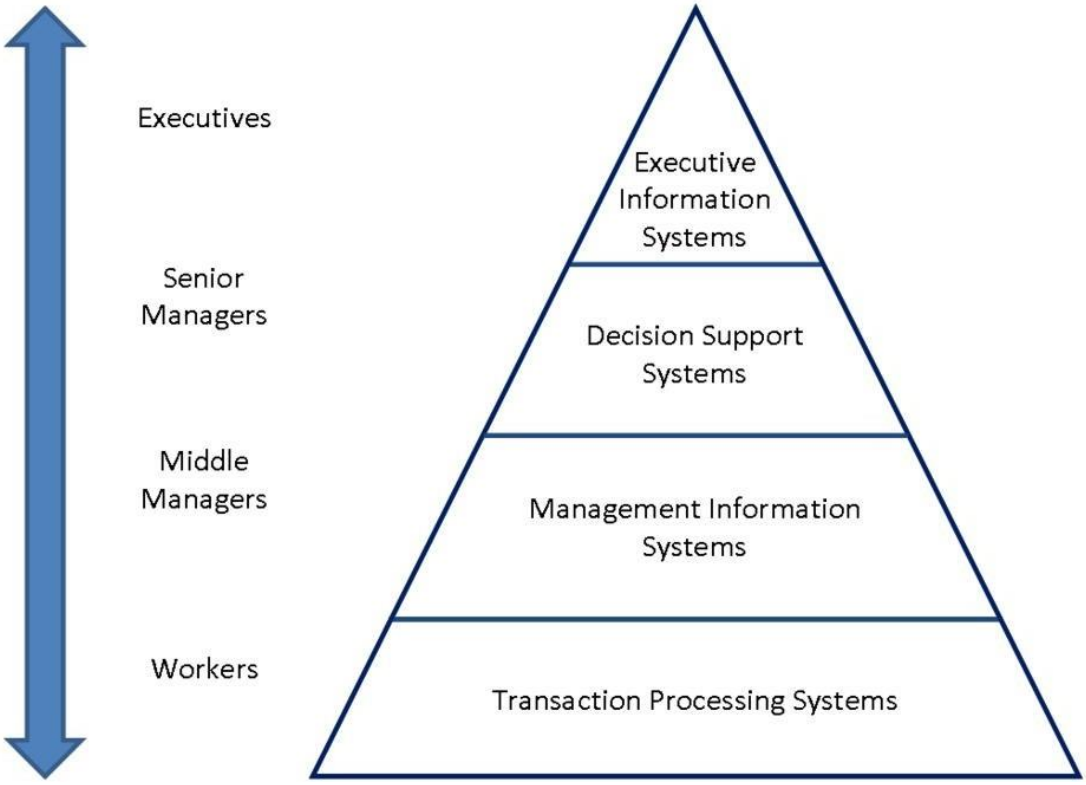
Cost effectiveness and productivity:

- The IS application promotes more efficient operation of the company and also improves the supply of information to decision-makers; applying such systems can also play an important role in helping companies to put greater emphasis on information technology in order to gain a competitive advantage.

2. Types of Information system

Information Systems are classified by organisational levels, mode of data, processing, system objectives and type of support provided.

Following are the types of information system:



1. Transaction Processing System (TPS):

- Transaction Processing System are information system that processes data resulting from the occurrences of business transactions
- Their objectives are to provide transaction in order to update records and generate reports i.e., to perform store keeping function
- The transaction is performed in two ways: Processing in a batch and Processing in real-time.
- Example: Bill system, payroll system, Stock control system.

2. Management Information System (MIS):

- A management information system (MIS) is an information system used for decision-making, and for the coordination, control, analysis, and visualization of information in an organization and marketing. The study of the management information systems involves people, processes and technology in an organizational context.
- In a corporate setting, the ultimate goal of the use of a management information system is to increase the value and profits of the business. This is done by providing managers with timely and appropriate information allowing them to make effective decisionswithin a shorter period of time.
- Example: Sales management systems, Human resource management system.

3. Decision Support System (DSS):

- A decision support system (DSS) is an information system that supports business or organizational decision-making activities. DSSs serve the management, operations and planning levels of an organization (usually mid and higher management) and help people make decisions about problems that may be rapidly changing and not easily specified in advance - i.e., unstructured and semi-structured decision problems.
- Decision support systems can be either fully computerized or human-powered, or a combination of both.
- Example: Financial planning systems, Bank loan management systems.

4. Executive information system (EIS):

- An Executive information system (EIS), also known as an Executive support system (ESS), is a type of management support system that facilitates and supports senior executive information and decision-making needs. It provides easy access to internal and external information relevant to organizational goals.
- EIS emphasizes graphical displays and easy-to-use user interfaces. They offer strong reporting and drill-down capabilities. In general, EIS are enterprise-wide DSS that help top-level executives analyse, compare, and highlight trends in important variables so that they can monitor performance and identify opportunities and problems.
- The term EIS lost popularity in favour of business intelligence.

- Although the pyramid model remains useful since it was first formulated, a number of new technologies have been developed and new categories of information systems have emerged, some of which no longer fit easily into the original pyramid model are:
- Process control system.
- Intelligent systems.
- Enterprise systems.
- Expert systems.

Characteristics of a good Information Systems

For information to be useful to the decision maker, it must have certain characteristics and meet certain criteria. Some of the characteristics of good information are discussed as follows:

1. Understandable:

- Since information is already in a summarized form, it must be understood by the receiver so that he will interpret it correctly. He must be able to decode any abbreviations, shorthand notations or any other acronyms contained in the information.

2.Relevant:

- Information is good only if it is relevant. This means that it should be pertinent and meaningful to the decision maker and should be in his area of responsibility.

3. Complete:

- It should contain all the facts that are necessary for the decision maker to satisfactorily solve the problem at hand using such information. Nothing important should be left out. Although information cannot always be complete, every reasonable effort should be made to obtain it.

4. Available:

- Information may be useless if it is not readily accessible in the desired form, when it is needed. Advances in technology have made information more accessible today than ever before.

5. Reliable:

- The information should be counted on to be trustworthy. It should be accurate, consistent with facts and verifiable. Inadequate or incorrect information generally leads to decisions of poor quality. For example, sales figures that have not been adjusted for returns and refunds are not reliable.

6. Concise:

- Too much information is a big burden on management and cannot be processed in time and accurately due to "bounded rationality". Bounded rationality determines the limits of the thinking process which cannot sort out and process large amounts of information. Accordingly, information should be to the point and just enough – no more, no less.

7. Timely:

- Information must be delivered at the right time and the right place to the right person. Premature information can become obsolete or be forgotten by the time it is actually needed.
- Similarly, some crucial decisions can be delayed because proper and necessary information is not available in time, resulting in missed opportunities. Accordingly, the time gap between collection of data and the presentation of the proper information to the decision maker must be reduced as much as possible.

8. Cost-effective:

- The information is not desirable if the solution is more costly than the problem. The cost of gathering data and processing it into information must be weighed against the benefits derived from using such information.