

Need of Information

Modern civilization has become so complicated and sophisticated that to survive one has to be competitive. This compels the people to keep himself informed of all types of happenings in the society. With the advent of educational reforms in society, mankind is surrounded with a vast amount of data available. Modern business management system has also rendered itself to bulk collection of data from various sources that need to be rearranged in a fashion so that it can be utilized with minimum possible time. This needs a high amount of filing either at data stage or at information stage. No office can be without files. If you go to any tax collection department or municipal office you will find a high amount of files stacked here and there.

Modern rules, regulation and law requires every transaction to happen in a written form, may be an agreement, application, voucher, bill, letter, memo, order etc. Paper files require a high amount of storage space and paper storage creates several other problems

like fire risk, spoilage and deterioration by way of aging microorganism and humidity etc. In modern days information is needed to run man's own livelihood to run a system or process or to command a business.

The amount of information is growing very rapidly. The current age of information demands computer literacy to be accompanied by information literacy as employers' dependence is now focused on professionals with up to date information and all kinds of information processing skills so as to take the challenge of ever changing scenario of information in this world information literacy helps to gather the appropriate information, evaluate the information and generate an informed decision. The impact of information revolution has been extended to each individual in the society and it is much faster than industrial revolution.

The migration from industrial age to an information age has ended the repetitive effort of workers by replacing them with computer software, robots with artificial intelligence have replaced the humans, and multiprocessing computers have replaced office workers with typewriters.

Information is needed to:

- To gain knowledge about the surroundings, and whatever is happening in the society and universe.
- To keep the system up to date.
- To know about the rules and regulations and bye laws of society, local government, provincial and central government, associations, clients etc. as ignorance is no bliss.
- Based on above three, to arrive at a particular decision for planning current and prospective actions in process of forming, running and protecting a process or system

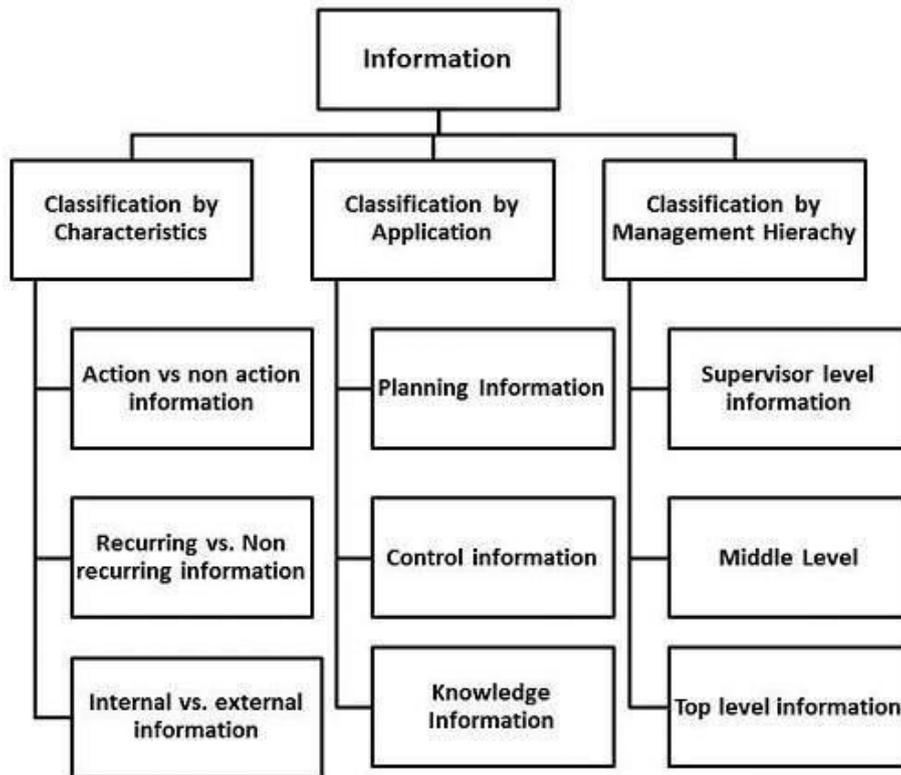
Classification Of Information

Information can be classified in a number of ways and here; you will learn two of the most important ways to classify information.

Classification by Characteristic

Based on Anthony's classification of Management, information used in business for decision-making is generally categorized into three types:

- **Strategic Information:** Strategic information is concerned with long term policy decisions that defines the objectives of a business and checks how well these objectives are met. For example, acquiring a new plant, a new product, diversification of business etc., comes under strategic information.
- **Tactical Information:** Tactical information is concerned with the information needed for exercising control over business resources, like budgeting, quality control, service level, inventory level, productivity level etc.
- **Operational Information:** Operational information is concerned with plant/business level information and is used to ensure proper conduction of specific operational tasks as planned/intended. Various operator specific, machine specific and shift specific jobs for quality control checks comes under this category.



Classification by Application

In terms of applications, information can be categorized as:

- **Planning Information:** These are the information needed for establishing standard norms and specifications in an organization. This information is used in strategic, tactical, and operation planning of any activity. Examples of such information are time standards, design standards.
- **Control Information:** This information is needed for establishing control over all business activities through feedback mechanism. This information is used for controlling attainment, nature and utilization of important processes in a system. When such information reflects a deviation from the established standards, the system should induce a decision or an action leading to control.
- **Knowledge Information:** Knowledge is defined as "information about information". Knowledge information is acquired through experience and learning, and collected from archival data and research studies.
- **Organizational Information:** Organizational information deals with an organization's environment, culture in the light of its objectives. Karl Weick's Organizational Information Theory emphasizes that an organization reduces its equivocality or uncertainty by collecting, managing and using these information prudently. This information is used by everybody in the organization; examples of such information are employee and payroll information.
- **Functional/Operational Information:** This is operation specific information. For example, daily schedules in a manufacturing plant that refers to the detailed assignment of jobs to machines or machines to operators. In a service oriented business, it would be the duty roster of various personnel. This information is mostly internal to the organization.

- **Database Information:** Database information construes large quantities of information that has multiple usage and application. Such information is stored, retrieved and managed to create databases. For example, material specification or supplier information is stored for multiple users.

SYSTEM CONCEPTS

System concepts underlie the field of information systems. Understanding system concepts will help you understand many other concepts in the technology, applications, development, and management of information systems. System concepts help you understand:

Technology. That computer networks are systems of information processing components that uses a variety of hardware, software, data and telecommunication technologies.

Applications. That electronic business and commerce involves interconnected business information systems.

Development. That developing ways to use information technology in business includes designing the basic components of information systems.

Management. That managing information technology emphasizes the quality, strategic business value, and security of an organization's information systems.

What is a System?

Question: What is a system as it applies to the concept of an information system?

Answer: A *system* is a group of interrelated components working together toward a common goal by accepting inputs and producing outputs in an organized transformation process.

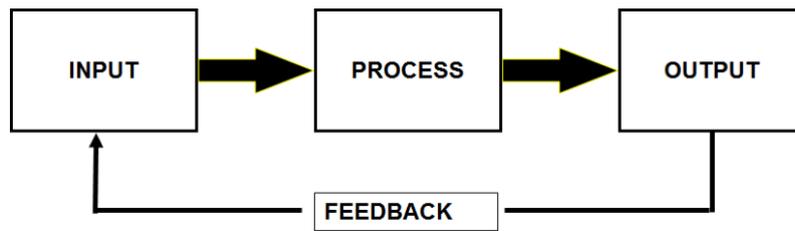
A system (sometimes called a *dynamic* system) has three basic interacting components or functions. These include:

- **Input** involves capturing and assembling elements that enter the system to be processed.
- **Processing** involves transformation processes that convert input into output.
- **Output** involves transferring elements that have been produced by a transformation process to their ultimate destination.

Feedback and Control:

Two additional components of the system concept include feedback and control. A system with feedback and control components is sometimes called a *cybernetic* system, that is, a self-monitoring, self-regulating system.

- **Feedback** is data about the performance of a system.
- **Control** involves monitoring and evaluating feedback to determine whether a system is moving toward the achievement of its goals. The control function then makes necessary adjustments to a system's input and processing components to ensure that it produces proper output.



Other System Characteristics:

- A system does not exist in a vacuum; rather, it exists and functions in an *environment* containing other systems.
- *Subsystem*: A system that is a component of a larger system, where the larger system is its environment.
- *System Boundary*: A system is separated from its environment and other systems by its system boundary.
- *Interface*: Several systems may share the same environment. Some of these systems may be connected to one another by means of a shared boundary, or interface.
- *Open System*: A system that interacts with other systems in its environment is called an open system (connected to its environment by exchanges of inputs and outputs).
- *Adaptive System*: A system that has the ability to change itself or its environment in order to survive is called an adaptive system.

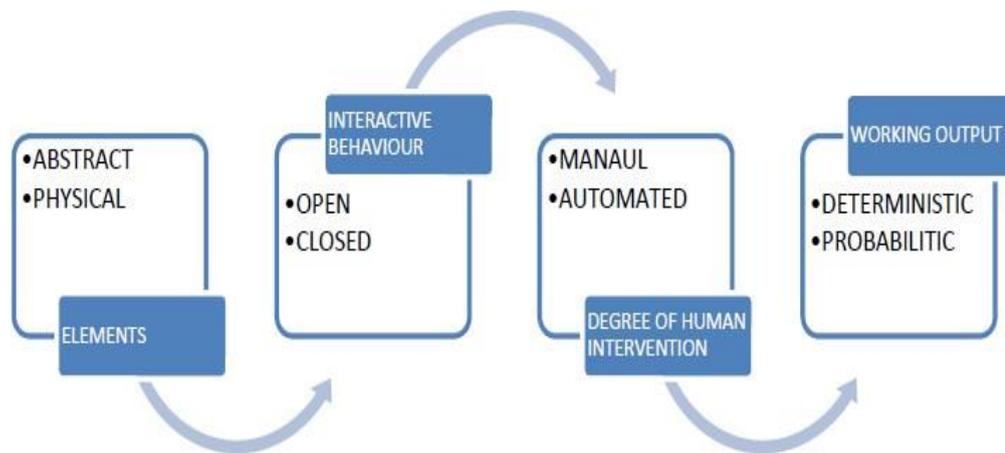
Another definition of System

A system is a group of inter connected components working towards the accomplishment of a common goal by accepting inputs and producing outputs in an ordered transformation process. A system generally consists of input, processing, storage and output. Input is the data entering the system. Processing is the manipulation of the input data. Output is the data/instruction given by the system after processing and storage refers to the storage of data for current or future use.

Classification of System

System can be classified on the basis of various parameters like elements, interactive behavior, degree of human intervention and working output as shown in Fig below

- 1) **Elements: Abstract System** also known as **Conceptual System or Model** can be defined as an orderly arrangement of interdependent ideas or constructs. **Physical system** is a set of tangible elements, which operated together to accomplish an objective e.g. Computer system.



2) **Interactive behavior: Open system** interacts with other systems in its environment **Closed system** does not interact with the environment and does not change with the changes in environment. Information system is an open system & a ‘throw-away’ type sealed digital watch composed of a number of components this watch is a closed system as it is completely isolated from its environment for its operation.

3) **Degree of human intervention: manual system** the data collection, maintenance and final Reporting is done by human whereas it is carried out by computer system or say machine itself in the case of **automated system**.

4) **Working/output: deterministic system** operates in a predictable manner whereas **probabilistic system** can be defined in terms of probable behavior. For example; software & inventory system.

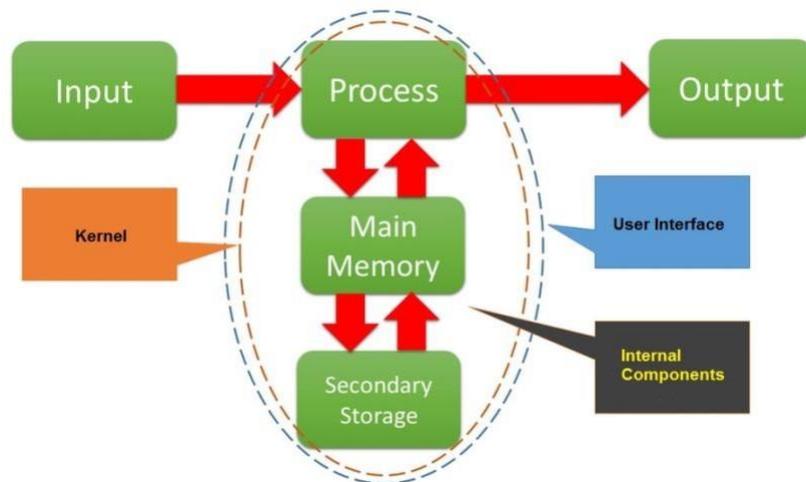
Hardware

Why Learn About Hardware?

Organizations invest in computer hardware to improve worker productivity, increase revenue, reduce costs, provide better customer service, speed up time-to-market, and enable collaboration among employees. Organizations that don’t make wise hardware investments will be stuck with outdated equipment that is unreliable and cannot take advantage of the latest software advances. Such obsolete hardware can place an organization at a competitive disadvantage. Managers, no matter what their career field and educational background, are expected to help define the business needs that the hardware must support. In addition, managers must be able to ask good questions and evaluate options when considering hardware investments for their area of the business. Managers in marketing, sales, and human resources often help IS specialists assess opportunities to apply computer hardware and evaluate the options and features specified for the hardware. Managers in finance and accounting especially must keep an eye on the bottom line, guarding against overspending, yet be willing to invest in computer hardware when and where business conditions warrant it.

Hardware

Hardware describes the physical components of a computer system which can be categorized as input devices, a central processing unit, internal and external memory and output devices. Input devices are used to capture or enter data into the computer. The central processing unit (CPU) performs processing by carrying out instructions given in the form of computer programs. Internal memory is used as a temporary means of storage data and instructions while external memory provides a means of storing data and programs outside of the computer. Output devices translate the results of processing into a human-readable form. These hardware components will now be described in more detail.



Input devices

Input devices are used to enter data or instructions from outside the computer into the computer. A mouse and keyboard are examples of input devices. The choice of an input device will often depend upon the quantity of data to be entered. Entering data on a small scale is normally carried out by human operators, using a number of familiar input devices, such as the mouse or keyboard. A computer-based information system will seldom make use of only a single input device. Even a typical personal computer will often feature several different methods for data entry, such as keyboard, mouse, joystick and sound card.

Central Processing Unit (CPU)

The central processing unit (CPU) or processor accepts instructions and data and executes them storing the results in memory. The increased speed of computers is primarily a result of increasing CPU speeds. The speed of a processor will depend upon a number of different factors, such as the clock speed and bus width. The clock speed determines how many instructions per second the processor can execute. The bus width describes how many pieces of data can be transmitted at one time. In both cases the higher the value, the more powerful the processor. Clock speed and bandwidth values can be helpful when attempting to compare processors in order to select the most appropriate.

Internal and External Memory

Computer memory is categorized as internal memory (also called main memory or primary memory) which is data held on the computer and external memory (also called external storage) which is data stored on a separate device where the information will be

retained even if the machine is switched off. Computer memory is used to store data awaiting processing, instructions loaded from software which are used to process data or control the computer system and data or information that has been processed. Floppy and hard disks are examples of external memory.

Output devices

Output devices display the results of computer processing. A computer-based information system will make use of a number of output devices as a monitor, printer and sound card.