Data and Information

Data:
- Data can be defined as a raw material from which useful information is derived. The word Data is the plural of Datum.
- Any raw, un summarized and unanalysed facts are termed as Data.
- Example: A sale of vehicle at any show room would generate a lot of data describing those events and transactions.
- Data is measurements of attribute of any entities (characteristics of entities) including people, place, things and events. Data can be in any form including numeric, text, voice, images and so on.

Information:

- Information is defined as organized collection of data.
- The data which has been converted into a useful and meaningful form is known as information.
- Data are raw material that is processed into finished information products.
- In other words, Data are raw material whereas Information is finished product.
- Raw data is been converted into meaningful and useful for specific end users.

Difference between Data and information

- Data is used as input for the computer system. Information is the output of data.
- Data is the raw material. Information is the product.
- Data is unprocessed facts figures. Information is processed data.
- Data doesn't depend on Information. Information depends on data.
- Data is not specific. Information is specific.
- Data is a single unit. A group of data which carries meaning is called Information.
- Data doesn't carry a meaning. Information must carry a logical meaning.

Information Need

- Need of information depends upon the managers and decision makers and accordingly it should have certain characteristics. Which makes the information more valuable to the organization.
- Incorrect or incompatible information may be transformed in to poor decision.

- If information is not pertinent to the situation, it is not delivered to decision makers in timely fashion or too complex to understand, it may be little value to the organization.

Characteristics of Information

Information is processed data and serves current or perspective users. The main four important characteristics of information are:

1. Quality
2. Timeliness
3. Completeness
4. Relevance

Quality information is that which accurately represent reality. It is the quality or accuracy of information that makes the information system function properly. Quality of information is difficult to measure. Information can be evaluated in terms of its utilities:

1. Form utility: The closer the form matches the decision maker's requirement, greater is its value.
2. Place utility: If it can be had or accessed easily, information has greater value.
3. Time utility: If information is available when needed, its value is greater.
4. Possession utility: The possessor of information influences its value by controlling its flow to others in the organization.

Timeliness means that information is available when it is needed. Now a days in most organization works under dynamic environment that frequently changes, demands frequent update and current information. Computerized information systems have the ability to gather, sort, analyze, store, retrieve, and transmit large amount of information in a very short period of time.

Completeness of information is the extent to which it is all there. Information that is complete means, information that covers key issues and is sufficient to support decision making situation at hand without critical omissions.

The information should have following characteristics besides above mentioned. They are as follows:

Relevance – Information relevance refers to the extent to which information is appropriate for the decision making in the environment.

Accurate – Information which is error free is termed as accurate.

Economical – Creation, maintenance of information must not be expensive.

Flexible – The information which is accessed updated easily or can be used for a variety of purpose.

Reliable – Reliable information can be dependent on the reliability of data collection method.

Simple – The information should be simple not a complex one.

Secured – The information must be secured so that unauthorized persons (users) don't directly access it.

Accessible – The information should be easily accessible as and when required by authorized users within the organization.

Verifiable – The information should be verifiable this means that you can check it to make correct decision.

Need of Information
1. Utilization of large quantity of data and information.
2. Decision support
3. Data and Information
4. Information flexibility
5. Information Security
6. Information Sharing
7. Smooth running of operation

Process of Transforming data into information

DATA

Transformation Process

Applying knowledge by selecting,
Organizing and Manipulating data
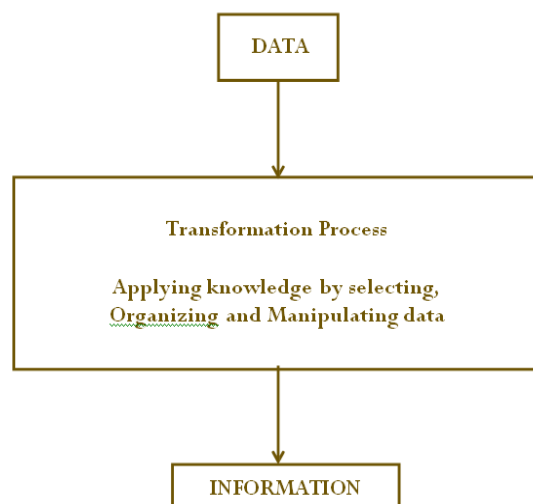
INFORMATION

Define Information System

Information system are set of people, procedures and resources that collects, transforms and disseminates information in an organization or a system that accepts data resources as input and process them into information products as output.

Information system is organized combination of people (users, specialists), data, information, hardware (machine and media) , software (programs and procedures) , communication, resources and techniques to perform input, processing, output, storage, and control activities that transform data resource into information products.

Information system is a set of interrelated elements or components that collect (input), manipulate (process), output, and store and retrieve the data and provide a feedback mechanism to generate an objective.

Building Blocks of Information System/Components of Information System

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              ┌──────────────┐
              │   FEEDBACK   │
              └──────────────┘
        │            │              │
        ▼            ▼              ▼
  ┌──────────┐  ┌──────────────┐  ┌──────────┐
  │  INPUT   │→ │  PROCESSING  │→ │  OUTPUT  │
  └──────────┘  └──────────────┘  └──────────┘
    Collect        Manipulate        Output
```
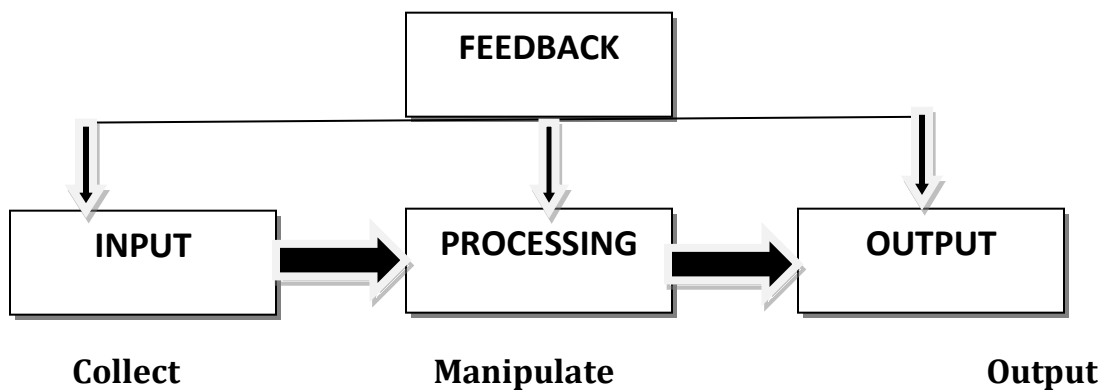
The activity of Information System is divided into four parts:

1. *Input:* In Information System, input is an activity of gathering, capturing of real data. Input may be internal and external from the organization. The input can be manual or automated in the organization. The input should be necessary to the information system, to achieve desire output or goal.

2. *Processing:* In Information System, processing is converting and transformation of data into useful output. Processing can involve making calculation, making comparison, taking alternative action and storage of data for the future used.

3. *Output:* In Information System, output involves producing useful information usually in the form of document or report. In some cases output from one system

may be input of another system. Output can be produce in a variety of way. For example in computerized system output may be displayed on monitor or may be in printed form

4. ***Feedback:*** Feedback is data about the performance of a system. In Information System, feedback is output that is used to make changes to the input and the processing activities if there is any deviation in output received. For example, any error or problems might make it necessary to make corrective changes in input as well as processing activities. Feedback is also important to make appropriate and desired output for the organization. Control is a major system function that monitors and evaluates feedback to determine whether the system is moving towards the achievement of its goal. It then makes necessary adjustments if any, to the input to ensure that proper output is produced.

Manual and Computer Based Information System (CBIS)

Manual system is the oldest system. Human being collects the information by hearing or by seeing hard format of information. It occupies more time to collect the information from the hand written document or from the written report.

CBIS (Computer Base Information System)

CBIS is an information system that uses computer hardware, software to perform information processing activities. CBIS is a single set of hardware, software, database, application program, telecommunication, people (user) and procedures that are configure (combine) to collect data, manipulate data, storage of data and make processes on data.

Components of CBIS

1. *Hardware:* The touchable devices are known as hardware. Hardware are classified in three categories (1) Input device (2) Output device and (3) Storage device. Input device consists of hardware like keyword, mouse and so on. Output device consist of hardware like monitor, printer and so on. Storage device consist of hardware like Floppy disk, hard drive, pen drive and so on.

2. *Software:* The instructions that are executed to perform specified functions and performance. The software consists of different types of program to perform processing on the computer on user data. The data structure that enable the program and manipulates the information. Software includes application and system software.

3. *Database:* The database is an organized collection of data or information.

4. *Telecommunication, Network, Internet:* Telecommunication is the electronic transmission of messages or data for communication process by the effective network. Networks are used to connect computer and computer equipment in a building, around campus or country for electronic communication. Internet is used to send and receive information.

5. *People (User):* Information System includes all people who manage, run, and program and maintains the system.
6. *Procedure:* Procedure includes the rules and regulations, policy and methods for the organization.