

1. Data and Information

Data	Information
<ul style="list-style-type: none">• The word data is the plural of datum.• Raw facts and figures or observation, objective measurements of characteristics of entities such as people, places things and events.• They are not organized to be directly usable for decision making.	<ul style="list-style-type: none">• Derived from data• Data presented in a form that is useful in a decision making activity.• Data that has been converted to meaningful and useful context for specific end user.• Information is a collection of facts organized (or processed) in such a way that they have additional value (i.e., a list of the class grades based on the exam score)• Turning data into information is a process performed to achieve a defined outcome and requires knowledge

2. Characteristics of valuable Information

Valuable information must be ---

1. Relevant
2. Complete
3. Accurate
4. Timely
5. Secure
6. Economical (cost vs. value)

1. Relevant : Relevant information is important to decision making. Information must be relevant to the task in hand. The information must also be presented in a way that helps a person understand it in a specific context.
2. Complete : Complete information is contained all of the important facts. Partial information is often worse than no information.
3. Accurate : Accurate information is error free.
4. Timely : Timely information is available needed. Decisions are often based upon the latest information available, but what was a fact yesterday may no longer be one day.
5. Secure : Secure information is safe from unauthorized user.
6. Cost effective in business : In a business setting, the cost of obtaining information must be considered as one cost element involved in any decision.

3. Definition of System and Its Parts

Definition of System

- An inter-related set of components, with an identifiable boundary, working together for some purpose.
- A system is a set of components that work together to achieve a common goal.
- A system exists within an environment.
- A boundary separates system from its environments.

A system has nine characteristics.

1. Component
2. Inter-related components
3. A boundary
4. A purpose
5. An environment
6. Interfaces
7. Input
8. Output
9. Constraints

1. Components: An irreducible part or aggregation of parts that make up a system, also called a subsystem.
2. Inter-related: Dependence of one subsystem on one or more subsystems.
3. Boundary: The line that marks the inside and outside of a system and which sets of the system from its environment.
4. Purpose: The overall goal or function of a system.
5. Environment: Everything external to a system that interacts with the system.
6. Interface: Point of contact where a system meets its environment or where subsystems meet each other.
7. Input: Whatever a system takes from its environment in order to fulfill its purpose.
8. Output: Whatever a system returns to its environment in order to fulfill its purpose.
9. Constraint: A limit to what a system can accomplish.

4.

Information systems are essential to a business and people need information systems because an information system (IS) is an arrangement of people, data, processes, communication, and information technology that interact to support and improve day-to-day operations in a business, as well as support the management and users.

Basic Information System Components

An Information System is a collection of components that:

- Collect input (data)
 - Manipulate and store (process)
 - Produce output (information)
 - Provide a feedback mechanism
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- Input- The capture or collection of raw data from within the organization or from its external environment for processing in an information system. eg. raw materials, energy, data
 - Processing- The conversion, manipulation, and analysis of raw input into a form that is more meaningful to humans. eg., manufacturing processes, mathematical calculations
 - Output- The distribution of processed information to the people who will use it or to the activities for which it will be used. eg., finished products to their human users
 - Feedback- Output that is returned to the appropriate members of the organization to help them evaluate or correct input.

5.

A Computer Based Information System (CBIS) provides essential services to organizations, including processing transactions and keeping exact records. It collects mission-critical data, processes this data, stores the data and the results of processing, and disseminates information throughout the organization. A CBIS is composed of hardware, software, databases, telecommunications, people and procedures that collect, manipulate, store and process data into information.

CBIS Components

- **Hardware** A computer and its peripheral equipment: input, output, and storage devices; hardware also includes data communication equipment
- **Software** Sets of instructions(program) that tell the computer how to take data in, how to process it, how to display information, and how to store data and information
- **Databases** are an organized collection of facts and information
- **Telecommunications** Hardware and software that facilitate fast transmission and reception of text, picture, sound, and animation in the form of electronic data
- **People** Information system professionals and users who analyze organizational information needs, design and construct information system, write computer programs, operate the hardware and maintain software
- **Procedures** include strategies, policies, methods and rules to operate the CBIS. People resource is the most important resource in all resources because

6.

Basic Resources of Information System

People, hardware, software, data and networks are the five basic resources of information systems. People resources include end users, IS specialists, hardware resources consist of machine media, software resources include both programs and procedures, data resources include data and knowledge bases, and networks include communications media and networks.

- People Resources
 - End Users – the people who use an information system or the information it produces. Eg: Accountants, salespeople, customers
 - IS Specialists – the people who develop and operate information systems based on the requirements of end users. Eg: programmers, analysts, system operators
- Hardware Resources
 - Machines, such as computers and other devices, and media, such as paper, disks
 - Computer Systems such as the personal computer (desktop), mainframe, or laptop
 - Computer peripherals such as keyboard, mouse, monitor, scanner, printer, disks
- Software Resources
 - Programs – sets of operating instructions that direct and control computer hardware
 - Procedures – sets of information processing instructions that people need
 - System Software – such as operating system that supports the operations of a computer system. Ex. Windows 98
 - Application Software – programs that direct processing for a particular use of computers by end users. Ex. Excel
 - Procedures – operating instructions for people who will use an IS. Ex. Instructions for filling out a form.
- Data Resources
 - Types of data
 - Text data
 - Image data
 - Audio data
 - Data Storage
 - Databases – hold processed and organized data
 - Knowledge bases – hold knowledge in a variety of forms such as facts, rules, and case examples of successful business practices
- Network Resources
 - Communication media – Twisted pair wire, coaxial cable, fiber-optic cable and microwave, cellular, and satellite technologies
 - Network support – people and all of the hardware, software, and data technologies that directly support the operation and use of a communication network.