

Type of System

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Types of Systems

The systems can be divided into the following types –

Open system

A system that interacts freely with its environment, taking input and returning output *For example-* The education system or any business process system will quickly change when the environment changes. To do this, an open system will interact with element that exist and influence from outside the boundary of the system.

Closed system-A system that is cut off from its environment and does not interact with it . *For example-* Consider a ‘throw-away’ type sealed digital watch, which is a system, composed of a number of components that work in a cooperative fashion designed to perform some specific task. This watch is a closed system as it is completely isolated from its environment for its operation. Such closed system will finally run down or become disorganized. This movement to disorder is termed on increase in entropy.

Physical or Abstract Systems

- Physical systems are tangible entities. We can touch and feel them.
- Physical System may be static or dynamic in nature. For example, desks and chairs are the physical parts of computer center which are static. A programmed computer is a dynamic system in which programs, data, and applications can change according to the user's needs.
- Abstract systems are non-physical entities or conceptual that may be formulas, representation or model of a real system.

Adaptive and Non-Adaptive System

- Adaptive System responds to the change in the environment in a way to improve their performance and to survive. For example, human beings, animals.
- Non-Adaptive System is the system which does not respond to the environment. For example, machines.

Natural and Manufactured System

- Natural systems are created by the nature. For example, Solar system, seasonal system.
- Manufactured System is the man-made system. For example, Rockets, dams, trains.

Social, Human-Machine, Machine System

- Social System is made up of people. For example, social clubs, societies.

- In Human-Machine System, both human and machines are involved to perform a particular task. For example, Computer programming.
- Machine System is where human interference is neglected. All the tasks are performed by the machine. For example, an autonomous robot.

Permanent or Temporary System

- Permanent System persists for long time. For example, business policies.
- Temporary System is made for specified time and after that they are demolished. For example, A DJ system is set up for a program and it is dissembled after the program.

Man Made Information System-

- Information for a particular use. These information systems will be made up of hardware, software, technology and people.
- A common misconception revolved around information systems is that they are made up entirely of computers and technology. However - people or staff are equally as important to the system if it wants to operate correctly and efficiently.
- A good example of this would be something that is known as a Management Information System or MIS for short. An MIS is a collection of people, processes and resources that are used together in order to help managers and senior members of staff to make effective decisions.
- To give you an example in context, you could consider a school. The MIS system of this school will operate to give the head teacher and members of the school council the information they need to make effective decisions.

Formal Information System:

A formal information system is based on the organisation represented by the organization chart. The chart is a map of position and their authority relationship, indicated by boxes and connected by straight lines. it is concerned with the pattern of authority, communication and work flow.

Informal Information System:

The informal information system is employee based system design to meet personnel and vocational needs and to help in the solution of work-related problems. it also funnels information upward through indirect channels. In this way, it is considered to be a useful system because it works within the framework of the business and its stated policies.

Computer Based Information System (CBIS): This category of information system depends mainly on the computer for handling business applications. System analyst develops different types of information systems to meet variety of business needs. There is a class of system collectively known as computer based information system. They can be classified as

- Transaction Processing System (TPS)
- Management information System(MIS)
- Decision Support System (DSS)
- Office Automation System (OAS)

Transaction Processing System (TPS) : The most fundamental computer based system in an organization pertains to the processing of business transactions. A transaction processing system can be defined as a system that captures, classifies, stores, maintains, updates and retrieves transaction data for record keeping and input to the other types of CBIS.

An Information system that processes data arising from the occurrence of business transactions.

- Transaction processing systems (TPS) are aimed at improving the routine business activities on which all organizations depend.
- A transaction is any event or activity that affects the organization which occur as part of doing business, such as sales, purchases, deposit, withdrawals, refunds and payments.
- Common transactions include placing orders, billing customers, hiring employees, and depositing cheques.
- The types of transactions that occur vary from organization to organization.
 - Transaction processing, the set of procedures for handling the transactions, often includes the activities like calculation, storage and retrieval, classification, summarization, sorting.
 - Transaction processing procedures are often called standard operating procedures.

Example: The routines associated with general banking transactions typify the use of standard operating procedures for the handling of deposits and withdraws, cashing of cheques, and other processes.

Management Information System (MIS) : Data processing by computers has been extremely effective because of several reasons. The main reason is that huge amount of data relating to accounts and other transactions can be processed very quickly. MIS are more concerned with levels of

management with information essential to the running of smooth business. This Information must be as relevant, timely, accurate, complete and concise as is economically feasible.

MIS is an information system which process data and converts it into information. A MIS uses TPS for its data inputs. The information generated by the information system may be used for control of operations, strategic and long range planning, short range planning, management control and other managerial problem solving. It has some functional business areas. They are

Marketing
Production
Human resources
Finance
Accounting etc...

TPS---->DATA---->INPUT---->PROCESSING---->OUTPUT----->INFORMATION

Decision Support System (DSS) : The Decision support system (DSS) is an information system application that assist decision making. Decision support systems tend to be designed primarily to serve management control level and strategic planning level managers. The data in the database typically is a combination of master files (internal corporate data) and from external sources . It is an information system that offers the kind of information that may not be predictable. Business professionals may need such information only once. These systems do not produce regularly scheduled management reports. Instead, they are designed to respond to wide range of requests. It is true that all the decisions in an organization are not of a recurring nature. Decision support systems assist managers, who make decisions that are not highly structured, often called unstructured or semi structured decision. The decision support systems support, but do not replace, judgments of managers.

Executive Information Systems

Executive information systems (EIS) are management information systems tailored to the strategic information needs of top management. Top executives get the information they need from many sources, including letters, memos, periodicals, and reports produced manually as well as by computer systems. Other sources of executive information are meetings, telephone calls, and social activities. Thus, much of a top executive's information comes from non-computer services. Computer generated information has not played a primary role in meeting many top executives' information needs.

Characteristics of EIS

- Serves top level executive
- Can access both internal and external data

- Provide extensive analysis tool for taking correct decision
- Extract summary data
- Provide information needed in time.
- Provide information in graphical form
- Support decision making

Office Automation System (OAS) : Office automation refers to the application of computer and communication technology to office functions. Office automation systems are meant to improve the productivity of managers at various level of management by providing secretarial assistance and better communication facilities. Office automation systems are the combination of hardware, software and people in information systems, that process office transactions and support office activities at all levels of the organisation. These systems include a wide range of support facilities, which include word processing, electronic filing, electronic mail, message switching, data storage, data and voice communication etc.

In the first category, the following is a list of activities.

- Typing
- Mailing
- Scheduling of meetings and conferences
- Calendar keeping and
- Retrieving documents

In the secondary category,

- Conferencing
- Production of information
- Controlling performance

Expert Systems

An expert system is a knowledge-based information systems; that is, it uses its knowledge about a specific area to act as an expert consultant to users. The components of an expert system are a knowledge base and software modules that perform inferences on the knowledge and offer answers to a user's questions. Expert systems are being used in many different fields, including medicine, engineering, the physical sciences, and business. For example, expert systems now help diagnose illnesses, search for minerals, analyze compounds, recommend repairs, and do financial planning. Expert systems can support either operations or management activities.

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