Definition of the System

A system is a collection of interrelated components that work together to perform a specific task or a goal.in a system, the different components are connected with each other and they are interdependent.

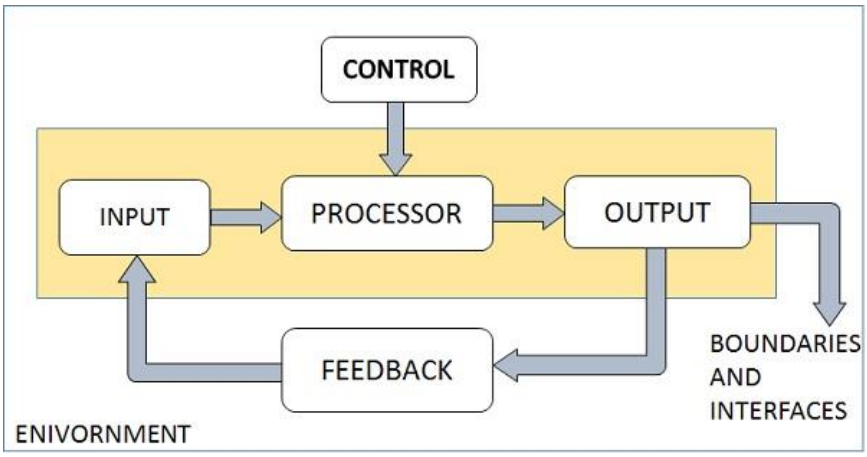
– Eg-Computer System, Bank System, School, Library, etc

Characteristics of a System

- Organization (order)
- Interaction
- Interdependence
- integration
- Central objective.

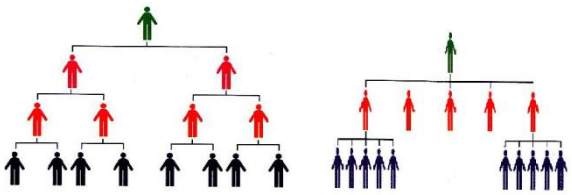
- If we consider a school as a system
  - Goal :Education of student
  - Input :Children, Teachers, Funds
  - Processing :Teaching and learning
  - Output :Educated student

System Components / Elements



1. **Inputs**: - The capture or collection of raw data from within the organization or from its external environment.
2. **Processor**(s): - The conversion, manipulation, and analysis of raw input into a form that is more meaningful to humans
3. **Outputs**: - The distribution of processed information to the people or activities where it will be used.
4. **Control**: - guides the system. It is the decision – making subsystem that controls the pattern of activities governing input, processing, and output.
5. **Feedback**: - Output that is returned to the appropriate members of the organization to help them evaluate or correct the input.
6. **Environment**: - composed of a number of subsystems which an organization operates. It is the source of external elements that impact on the system. In fact, it often determines how a system must function.
7. **Boundaries and interface**: - the limits that identify its components, processes and interrelationship when it interfaces with another system.

What Is an Organizational Structure?



- An organizational structure is a system and a hierarchical arrangement that outlines how certain activities are directed in order to achieve the goals of an organization.
- It is structure depends on the organization's objectives and strategy.
- It determines how the roles, power and responsibilities are assigned, controlled, and coordinated, and how information flows between the different levels of management.

The organizational structure also determines how information flows between levels within the company. For example, in a centralized structure, decisions flow from the top down, while in a decentralized structure, decision-making power is distributed among various levels of the organization.

Information system

- Information system is an integrated set of components for collecting, storing, and processing data to provide information, knowledge, and digital products.
- Business firms and other organizations rely on information systems to carry out and manage their operations, interact with their customers and suppliers, and survive in the marketplace.
- Information systems are used to run inter-organizational supply chains and electronic markets.

1 Computer Based Information System

An integration of hardware and software technologies and human elements designed to produce timely, integrated, accurate and useful information for decision making purposes.

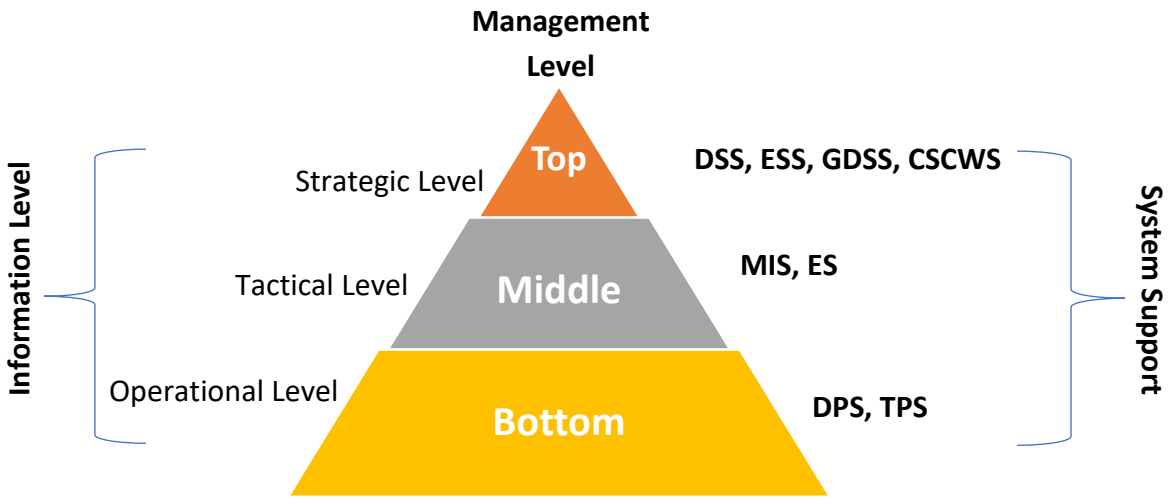
Components

- Hardware
- Software
- Telecommunications
- Databases
- Human resources and procedures

2. Manual System

- In a manual information system, all data processing is done manually. Filling cabinets, manual procedures and papers are vital components of a manual information system.
- Eg:-Book-Keeping system
- School registration and attendance Keeping system
- Library books index system

Management and Information Levels in a Typical Organization



Management Level

Strategic Management Level

- This is the most senior level in an organization. The users at this level make unstructured decisions.
- Senior level managers are concerned with the long-term planning of the organization.
- They use information from tactical managers and external data to guide them when making unstructured decisions.

Tactical Management Level

- This organization level is dominated by middle-level managers, heads of departments, & supervisors. They usually oversee the activities of the users at the operational management level.
- They make semi-structured decisions and these decisions are partly based on set guidelines and judgmental calls.

  Example, a tactical manager can check the credit limit and payments history of a customer and decide to make an exception to raise the credit limit for a particular customer.

  The decision is partly structured in the sense that the tactical manager has to use existing information to identify a payments history that benefits the organization and an allowed increase percentage.

Operational management level

- The operational level is concerned with performing day to day business transactions of the organization.

  Examples - cashiers at a point of sale, bank tellers, nurses in a hospital, customer care staff, etc.

- Users at this level use make structured decisions. This means that they have defined rules that guide them while making decisions.
  Example – Sales person sells the items based on the credit card limit. In here, the person needs to decide whether to give items to a customer or not.

Type of Information System

Three main categories of information systems serve different organizational levels

- **Operational-level information systems** :- support operational managers, keeping track of the elementary activities and transactions
- **Tactical-level information systems**:- serve the monitoring, controlling, decision-making, and administrative activities
- **Strategic-level information systems**:- help senior management tackle and address strategic issues

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Transaction Processing System (TPS)

Transaction processing systems are used to record day to day business transactions of the organization. They are used by users at the operational management level.

Examples

- **Point of Sale Systems** – records daily sales
- **Payroll systems** – processing employee's salary, loans management, etc.
- **Stock Control systems** – keeping track of inventory levels
- **Airline booking systems** – flights booking management

Management Information System (MIS)

Management Information Systems (MIS) are used by tactical managers to monitor the organization's current performance status. The output from a transaction processing system is used as input to a management information system.

The MIS system analyzes the input with routine algorithms i.e. aggregate, compare and summarizes the results to produced reports that tactical managers use to monitor, control and predict future performance.

Examples

- **Sales management systems** – they get input from the point of sale system
- **Budgeting systems** – gives an overview of how much money is spent within the organization for the short and long terms.
- **Human resource management system** – overall welfare of the employees, staff turnover, etc.

Decision Support System (DSS)

Decision support systems are used by senior management to make non-routine decisions. Decision support systems use input from internal systems (transaction processing systems and management information systems) and external systems.

Examples

- **Financial planning systems**
- **Bank loan management systems**

System analysis and design

Systems Analysis

It is a process of collecting and interpreting facts, identifying the problems, and decomposition of a system into its components. And *which Analysis specifies*

- what the system should do
- who will use the syste,
- where and when it will be used.

System analysis is conducted for the purpose of studying a system or its parts in order to identify its objectives. It is a problem solving technique that improves the system and ensures that all the components of the system work efficiently to accomplish their purpose.

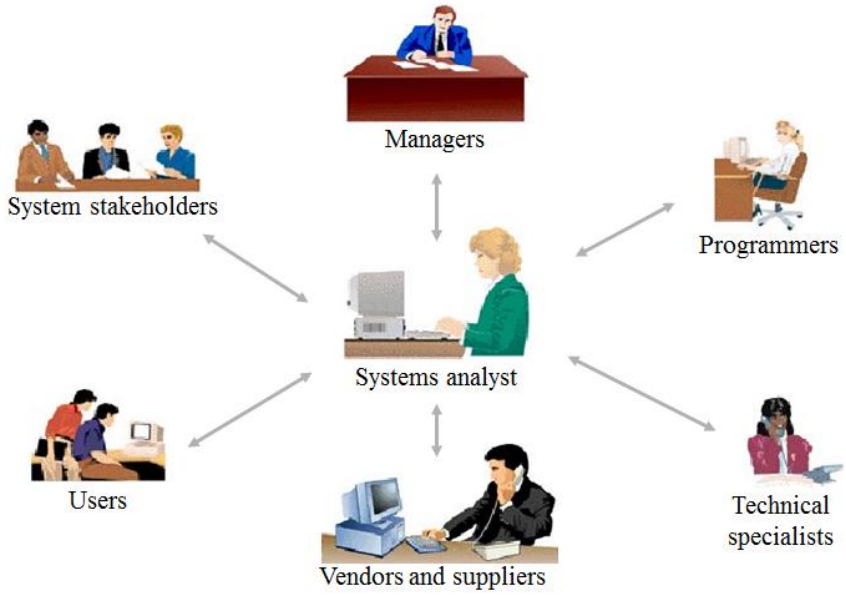
Systems Design

It is a process of planning a new business system or replacing an existing system by defining its components or modules to satisfy the specific requirements. System Design focuses on ***how to accomplish the objective of the system***.

Before planning, you need to understand the old system thoroughly and determine how computers can best be used in order to operate efficiently.

System Analyst

The system analyst is the person (or persons) who guides through the development of an information system. In performing these tasks the analyst must always match the information system objectives with the goals of the organization.



Role of System Analyst differs from organization to organization. Most common responsibilities of System Analyst are following

- Gather and analyze organizational data for developing information systems.
- Study existing business procedures and computer programs
  to determine how both could be better organized and structured for the betterment of the organization.
- Study technological and business trends to be able to recommend changes to technology and business process to take advantage of advances in both.
- Design and guide the implementation of business computed-based information systems.
- Prepare and present reports to management as needed.