Types of Systems

The systems can be divided into the following types −

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.

Open or Closed Systems

- An open system must interact with its environment. It receives inputs from and delivers outputs to the outside of the system. For example, an information system which must adapt to the changing environmental conditions.
- A closed system does not interact with its environment. It is isolated from environmental influences. A completely closed system is rare in reality.

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.

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.

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.

Deterministic or Probabilistic System

- Deterministic system operates in a predictable manner and the interaction between system components is known with certainty. For example, two molecules of hydrogen and one molecule of oxygen makes water.
- Probabilistic System shows uncertain behavior. The exact output is not known. For example, Weather forecasting, mail delivery.

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.

Man–Made Information Systems

- It is an interconnected set of information resources to manage data for particular organization, under Direct Management Control (DMC).
- This system includes hardware, software, communication, data, and application for producing information according to the need of an organization.

Man-made information systems are divided into three types −

- **Formal Information System** − It is based on the flow of information in the form of memos, instructions, etc., from top level to lower levels of management.
- **Informal Information System** − This is employee-based system which solves the day to day work related problems.
- **Computer Based System** − This system is directly dependent on the computer for managing business applications. For example, automatic library system, railway reservation system, banking system, etc.

Systems Models

Schematic Models

- A schematic model is a 2-D chart that shows system elements and their linkages.
- Different arrows are used to show information flow, material flow, and information feedback.

Flow System Models

- A flow system model shows the orderly flow of the material, energy, and information that hold the system together.
- Program Evaluation and Review Technique (PERT), for example, is used to abstract a real-world system in model form.

Static System Models

- They represent one pair of relationships such as *activity–time* or *cost–quantity*.
- The Gantt chart, for example, gives a static picture of an activity-time relationship.

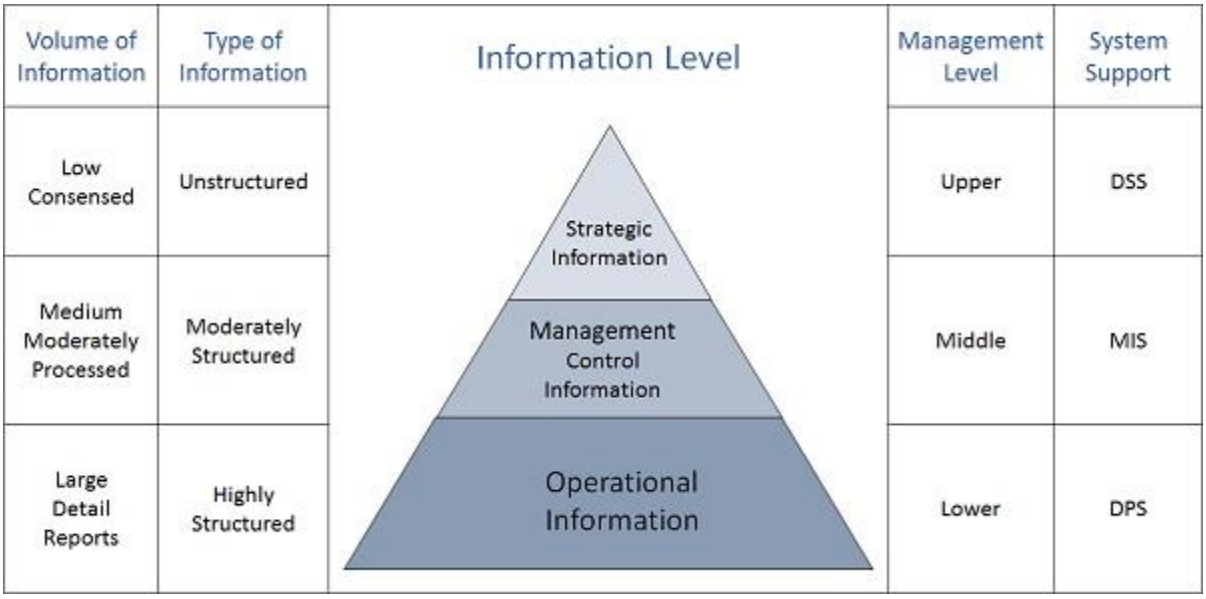
Dynamic System Models

- Business organizations are dynamic systems. A dynamic model approximates the type of organization or application that analysts deal with.
- It shows an ongoing, constantly changing status of the system. It consists of −

- Inputs that enter the system
- The processor through which transformation takes place
- The program(s) required for processing
- The output(s) that result from processing.

Categories of Information

There are three categories of information related to managerial levels and the decision managers make.



Strategic Information

- This information is required by topmost management for long range planning policies for next few years. For example, trends in revenues, financial investment, and human resources, and population growth.
- This type of information is achieved with the aid of Decision Support System (DSS).

Managerial Information

- This type of Information is required by middle management for short and intermediate range planning which is in terms of months. For example, sales analysis, cash flow projection, and annual financial statements.
- It is achieved with the aid of Management Information Systems (MIS).

Operational information

- This type of information is required by low management for daily and short-term planning to enforce day-to-day operational activities. For example, keeping employee attendance records, overdue purchase orders, and current stocks available.
- It is achieved with the aid of Data Processing Systems (DPS).