Chapter 2: Systemic approach to organizations.

Introduction

The (Information system) IS plays a fundamental role in the functioning of an organization. Therefore, it cannot be defined or described without defining or describing what an organization is. We will therefore study the company from an organizational perspective and how information flows through this organization.

The company as an organization must be considered from two points of view:

- Firstly, it is a network of functional areas (sales, accounting, procurement, etc.) interconnected by circuits through which flows (monetary, material, or information) circulate.
- Secondly, it is an organization with several levels of responsibility where each level has decision-making power (general management, financial management, service, section, etc.). Decisions lead to actions. Based on the results obtained, further actions are taken.

1- Information circuit:

The company is seen as a complex organization where various functions are performed to achieve certain objectives: These functions are carried out by different functional areas interconnected and exchanging all kinds of information. This involves studying information circuits.

Information circuit refers to the structured pathways through which information travels within an organization or between entities. It outlines how data is collected, transmitted, processed, and shared across different parts of a system or company.

Key characteristics of an information circuit include:

- **Internal circuits**: Information flow within the organization, such as between services (sales, finance, production, etc.).
- **External circuits**: Information exchanged between the organization and external stakeholders, like clients, suppliers, or financial institutions (Bank).
- **Flow of data**: Includes data formats (digital or physical), protocols, and the mediums used for transmission (emails, software systems, databases, etc.).
- **Feedback loops**: Information often flows in a cyclical manner, allowing for the continuous evaluation and adjustment of processes based on outcomes.

An efficient information circuit ensures that the right information reaches the right people at the right time, facilitating decision-making, coordination, and overall performance.

Example
Purchasing raw materials to produce a product for sale involves three of the company's main functions:

- Procurement,
- Production, and
- Sales.

There are other functions such as administration, human resources, etc. This set of business sectors is not isolated. The company is open to the external world and maintains constant relationships with the bank, its clients, and its suppliers.

These relationships can be schematically represented as follows:
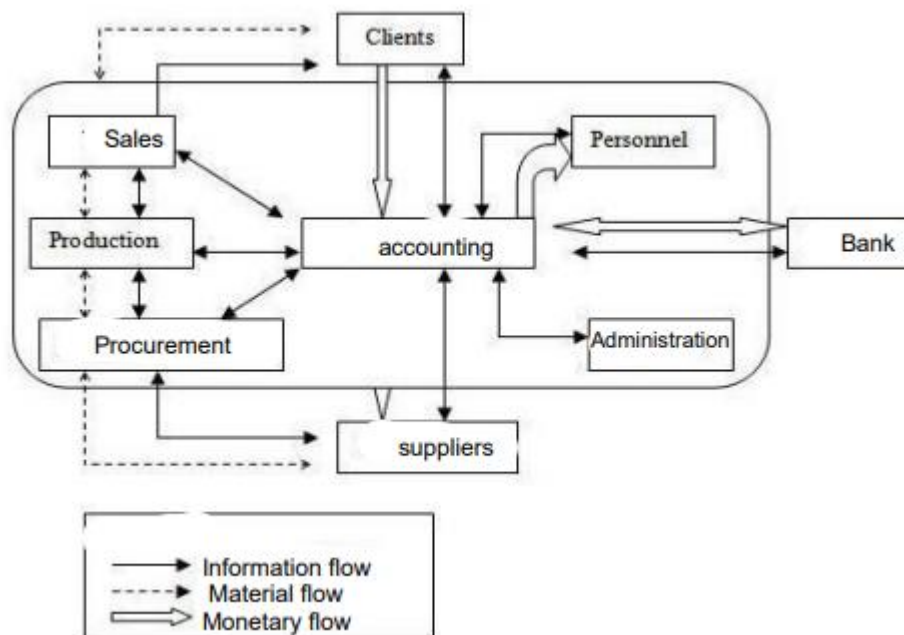
Business sectors are connected by circuits through which flows circulate. These are primarily: information flows, material flows, and monetary flows. Any type of flow (other than information) must be accompanied by an information flow. The circuits can be either internal or external.

Through these circuits, information plays a crucial role, as it is necessary for understanding all the flows that pass through them. It is therefore essential to standardize it. Standardization generally involves:

- Coding the information,
- Standardizing its formats.

Standardization reduces the risk of errors and makes operations easier to perform. However, errors still occur, so before storing data in the database, it must be verified

2. An information system definition

The information system (IS) is a central component of a company or organization. It enables the various actors to transmit information and communicate through a combination of hardware, human, and software resources. An IS facilitates the creation, collection, storage, processing, and modification of information in different formats.

The main goal of an IS is to provide the right information to the right person at the right time, in the correct format.

3. Interaction between Existing Systems

An organization is composed of multiple systems. There are the operating system, control system, and information system, which are three subsystems that interact with each other:

- **The operating system**: This forms the foundation of any organization. It enables the transformation of information with the goal of delivering it to the right person. It corresponds to the various departments or services within a company.

- **The control system**: This system supervises and guides the operating system, setting goals and making decisions. It sits at the top of the information system.

- **The information system**: This acts as the intermediary between the other two systems. It is responsible for collecting, storing, transforming, and disseminating data and information within both the operating and control systems.

In summary, an information system allows the operating system to communicate the collected and processed information to the control system, which is responsible for oversight (control) and decision-making.
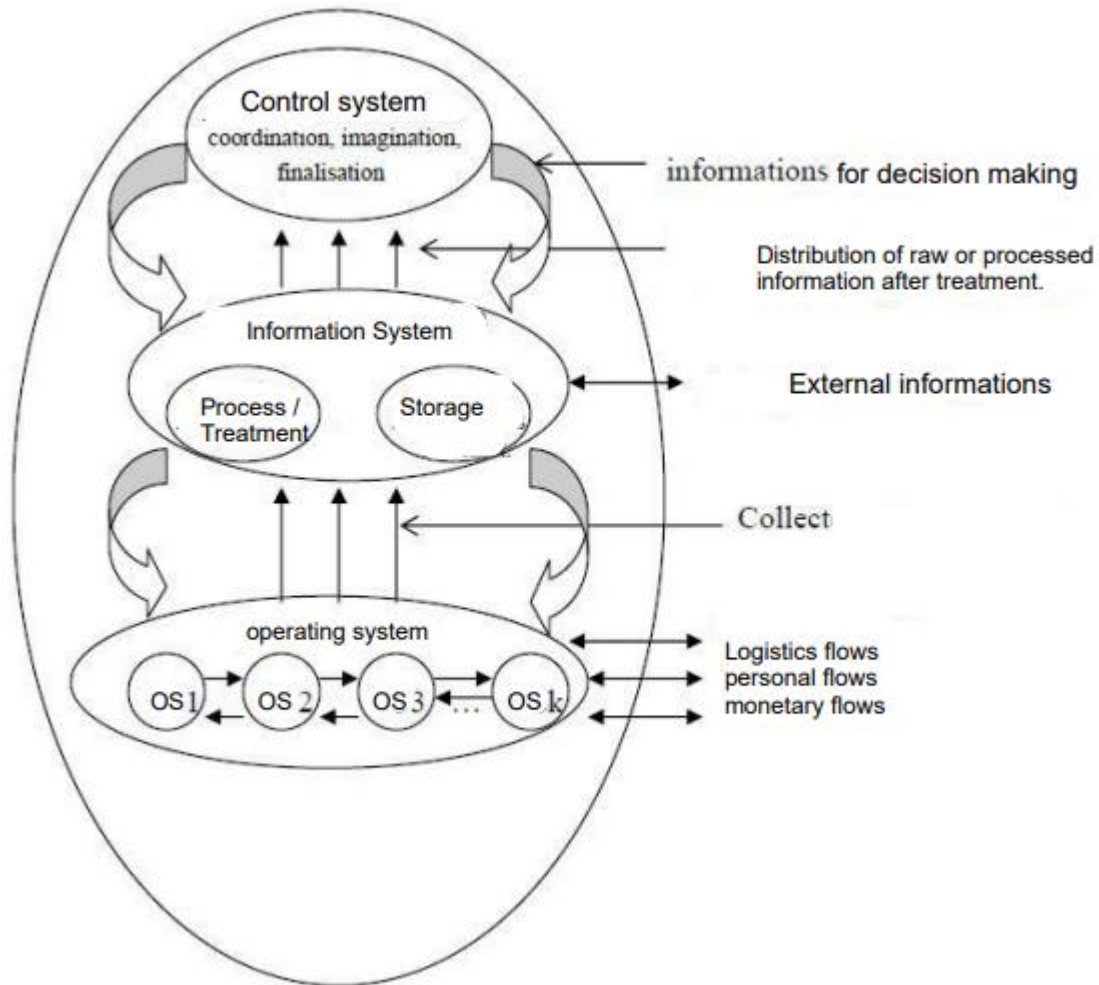
Figure 02: Systemic diagram of a company

4. Functions of an Information System (IS)

There are four main functions of an IS:

1. **Collect**: This is where data originates, as information is gathered from the internal or external environment of the company.

2. **Store**: Once the information is acquired, the IS preserves it. It must be readily available and stored in a way that ensures its longevity.

3. **Transform/Process**: This phase involves transforming the information and selecting the appropriate medium for processing it. New information is generated by modifying its content or format.

4. **Distribute**: The IS then transmits the information to its internal or external environment.

The goal of the IS is to provide information within an organization that is directly usable by different actors, thereby facilitating decision-making.

5.Role of the Information System (IS) in a Company's Performance

The IS has two main purposes: functional and social.

Regarding the **i) functional purpose**, the IS serves as a communication tool between different departments within a company and plays both an operational and strategic role.

ii) The social purpose focuses on employee integration, promoting social interaction and corporate culture through the dissemination of information.

Today, the IS plays a critical role in a company and is even essential for its smooth functioning. A well-performing IS enabling a company to optimize its processes, outsource low-value tasks, improve customer relations, enhance communication, and boost productivity.