Chapter I: Generalities

Part I : The Enterprise

1. Definition of the Enterprise

Providing a clear and coherent definition of an enterprise is considered a challenging process. This difficulty arises from the diversity of ideological and economic opinions, as well as the continuous and rapid development of the enterprise on legal and functional levels. According to LAROUSSE [1], "an enterprise is a commercial or industrial business, an economic unit of production." While this definition appears concise and general, we adopt the one proposed by Gilles BRESSY and Christian KONKUYT, considering the enterprise as "*an autonomous economic unit with human and material resources that it combines to produce goods and services for sale*" [2].

2. Types of Enterprises

Economic enterprises can be classified based on various criteria, with economic, size, and legal criteria being the most commonly used.

2.1. Classification based on Economic Criteria

In this classification, enterprises are distinguished by their belonging to one of the three main sectors of economic activity, namely [3]:

- ***The primary sector:*** includes activities related to the extraction of natural resources, such as agriculture, fishing, forestry, and mining.
- ***The secondary sector:*** includes activities related to the processing of raw materials from the primary sector. It encompasses diverse activities such as the wood industry, aerospace and electronics, petroleum refining, industrial production, and construction.
- ***The tertiary sector:*** encompasses all economic activities not included in the other two sectors, mainly services. Examples include consulting, insurance, education, retail, tourism, catering, and real estate agencies.

2.2. Classification based on Size

In this classification, the following types of enterprises are distinguished:

- Microenterprises, which do not employ any staff.
- Very Small Enterprises (TPE) employing 1 to 9 employees.

- Small Enterprises (PE) employing 10 to 49 employees.
- Medium-sized Enterprises (ME) employing 50 to 499 employees. PE and ME together form Small and Medium Enterprises (SMEs).
- Large Enterprises (GE) employing more than 500 employees.
- Very Large Enterprises (TGE) employing more than 1500 employees.

2.3. Legal Classification

Cette classification met l'accent sur le mode de propriété le mode d'imposition les obligations et les responsabilités, ce qui engendre plusieurs types à savoir [4] :

This classification emphasizes ownership mode, tax treatment, obligations, and responsibilities, resulting in several types, including [4]:

- Sole proprietorship,
- Sole proprietorship with limited liability,
- Limited liability company,
- Joint-stock company,
- General partnership,
- Limited partnership,
- Limited partnership with shares,
- Grouping.

3. Objectives of the Enterprise

Economic enterprises, whether public or private, always seek to achieve a number of objectives that vary and multiply according to the owners, nature, and field of activity of these enterprises. These objectives can be summarized as follows:

3.1. Economic Objectives :

- Ensure profit (difference between expenses and turnover).
- Rationalize production.
- Meet the needs of society.

3.2. Social objectives

- Ensure an acceptable wage level for workers.
- Improve the standard of living for workers.
- Provide multiple assurances to workers (medical, work-related accidents, retirement, etc.).
- Offer various services to workers (consumer cooperatives, restaurants, transportation, etc.).
- Ensure workers have good qualifications.
- Guarantee the future sustainability of the planet and the environment.
- Ethical and responsible conduct with customers.

3.3. Technological Objectives

Through scientific research, enterprises constantly strive to enrich and improve their products and services while optimizing production processes and tools to enhance products and improve working conditions and the quality of life for their employees.

4. Functions of the Enterprise

An enterprise operates only if tasks are precisely distributed, and the role of each within the enterprise is clearly defined. The larger the enterprise, the more structured it needs to be to operate efficiently. The functions of the enterprise vary according to its nature of activity, but generally, we can distinguish the following eight functions [5]:

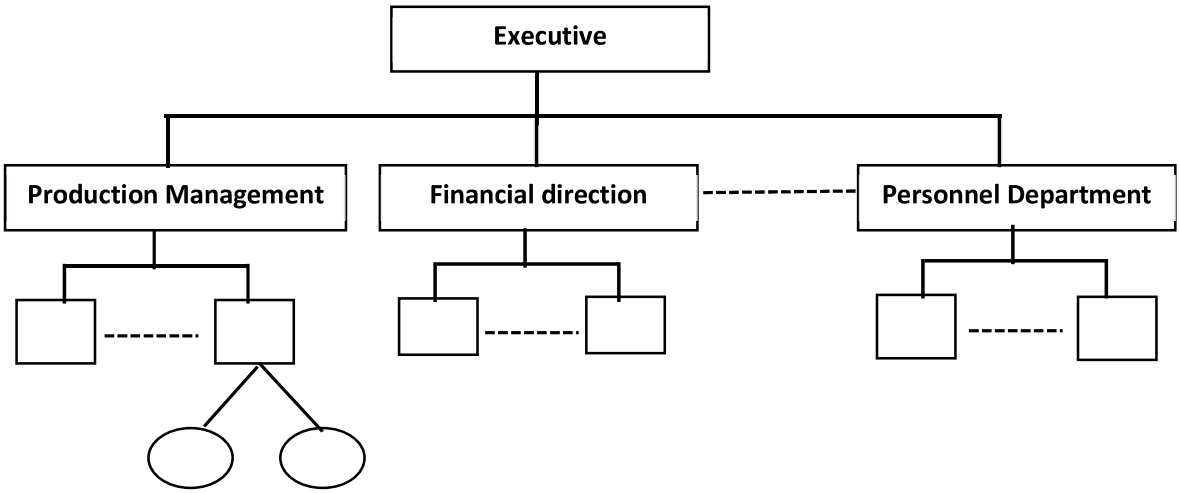
Functions	Objectives
The function of management and general administration	To plan, organize, command, coordinate, and control the functioning of the company.
The purchasing function	Procure the raw materials and components necessary for production.
The finance and accounting function	Acquire and use financial resources for the development of the company.

The logistics function	Optimize all physical and informational flows of the company from suppliers, customers, stock, and transportation.
The marketing and sales function	The Marketing and Sales function encompasses all activities and processes allowing a company to: • Understand consumer expectations and the market situation in which it operates. • Attempt to influence consumer behavior in line with its objectives.
The production function	The Production function encompasses all activities that transform raw materials and components into products sold to customers.
The research and development function	The Research & Development function includes all processes that, starting from fundamental research or an invention, ensure its industrial feasibility.
The human resources function	The Human Resources function's mission is to ensure that the organization has the necessary personnel for its operation and that this personnel does its best to improve the organization's performance while flourishing.

5. Enterprise Structure

The structure of an enterprise how an enterprise distributes, organizes, coordinates, and controls its activities. The company's structure is represented by an organizational chart that illustrates the distribution of its areas of activity and the various dependencies between them. There are several types of structures, such as [6]:

5.1. Hierarchical structure

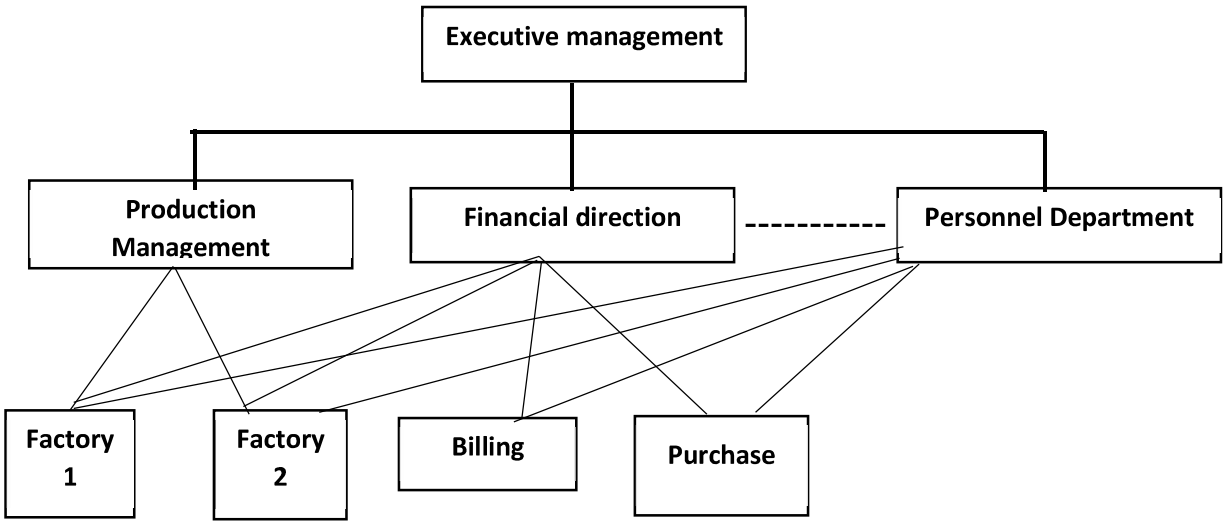


This structure is based on the principle of unity of command, with each employee reporting to only one hierarchical superior.

Benefits: simplicity of command, clarity and security.

Disadvantages: compartmentalization, poor circulation of information, cumbersomeness, bureaucracy.

5.2. Functional structure

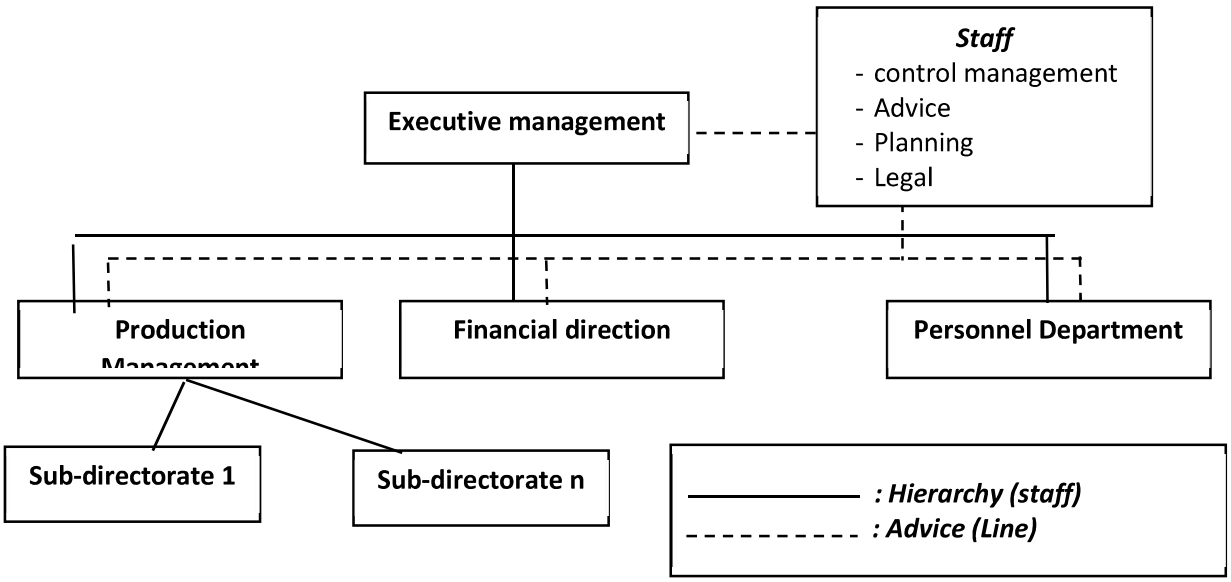


This structure is simple and promotes specialization, it is based on the principle of functional division of authority and plurality of command, each employee dependent on several leaders, each having authority only in their area of competence.

Benefits: very effective specialization of personnel, grouping of skills.

Disadvantages: possibility of conflicts generated by the multiplicity of command, risk of dilution of responsibilities

5.3. Hierarchical-functional structure (Staff and line)



This structure is based on the unity of command formed by the hierarchical leaders (Line). But the latter must take suggestions and recommendations from managers or advisors (General Staff).

Benefits: decision-makers are supported by specialist advisors who offer them advice and suggest proposals in order to make good decisions.

Disadvantages: risk of having difficult relationships between operational and functional staff

6. Information system

6.1. System

Many definitions have been proposed for the concept System. Among the most relevant definitions we find that of Joël De Rosnay who defines a system as being a set of elements in dynamic interaction, organized according to a goal [7]. JL LEMOINE, for his part, underlines in the theory of the general system [8] that the system is:

- something (anything, identifiable),
- who does something (activity, function),
- and which has a structure,
- evolves over time,
- in something (environment),
- for something (purpose)

6.2. Information

Information is the organized set of data, which constitutes a message about a given phenomenon or event. Information enables problem-solving and decision-making, since its rational use is the basis of knowledge [9]. To say that information is good, it must verify certain criteria of relevance or quality which are:

- Source identifiability
- Accessibility
- Reliability
- Bringing novelty
- Precision, accuracy and completeness.
- Dated and updated.
- Utility.

6.3. Information system

It is the organization (man, organization chart, management rules, procedures, etc.) and the tools (computer applications, methods, calculation rules, materials, etc.) that allow the actors of a company to communicate, process and store information. It represents all the elements involved in the management, storage, processing, transport and dissemination of information within an organization or company [10].

In IT and telecommunications and more generally in the business world, the term Information System (IS) has the following meanings:

_ An organized set of resources (personnel, data, procedures, hardware, software, etc.) making it possible to acquire, store, structure and communicate information in the form of texts, images, sounds, or coded data in organizations.

- Depending on their main purpose, we distinguish between Information Systems supporting operations (transaction processing, industrial process control, supporting office operations and communication) and Information Systems supporting management (help with production of reports, decision support, etc.).

7. The business as a system

The company as a system is considered as an organized whole composed of different functions, services, individuals in permanent interaction, all having objectives that may be contradictory. In the systems approach, a system must verify the following six characteristics:

- *A system is a finite whole.*
- *A system acts according to a goal*
- *A system has regulated behaviour.*
- *A system learns about its own behaviour.*
- *A system decides its behaviour.*
- *A system memorizes.*

The company verifies all of these characteristics and therefore we can consider it as a system:

- **First characteristic: A company constitutes a finite whole.**

A company is an identifiable organization made up of individuals and resources (financial, physical, informational, etc.) brought together in a sustainable manner.

- **Second characteristic: A company acts with a purpose.**

A business is an economic organization that produces goods and/or services in order to create wealth.

- **Third characteristic: A company is a regulated organization.**

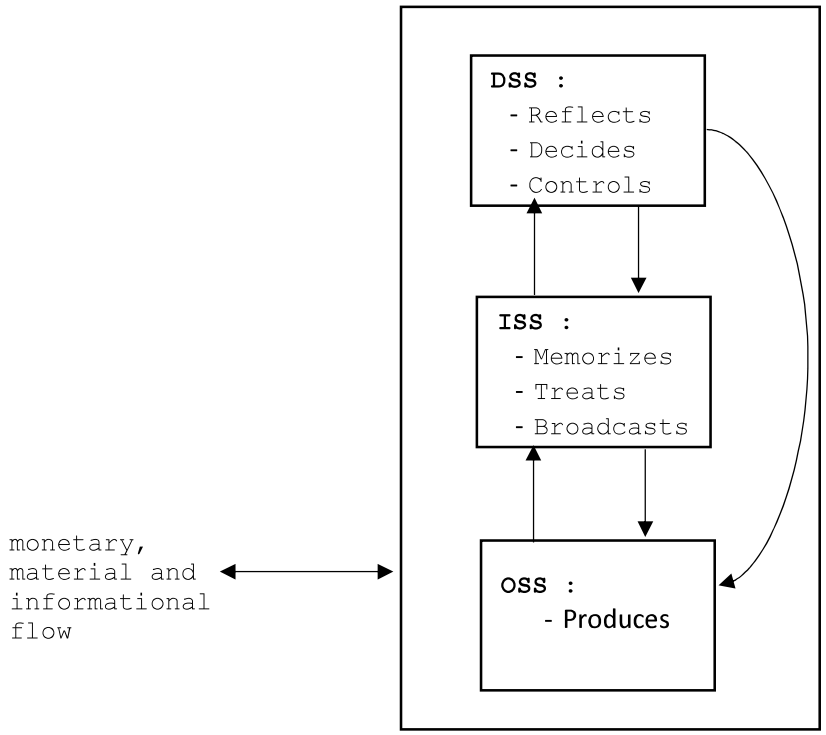
Environmental disturbances may occur. The company must have a set of means and methods allowing it to control its activity to achieve its objectives and to protect itself against probable disruptions. The company therefore has a subsystem, the decision system, practicing regulation based on information flows.

- **Fourth, fifth and sixth characteristic**

A company learns about its own behaviour, memorizes the different information and decides based on this information.

8. The three subsystems of the company

A business is a system composed of three interdependent subsystems which are:



Environment

8.1. The operating system

Ensures the operation of the system by carrying out the physical production of internal and external goods and services. It is connected to the environment by external flows and to other subsystems by internal information flows. Its activity is controlled by the decision system.

8.2. The decision system (or steering system or management system)

Finalizes the company by assigning its objectives. It is connected to other subsystems by internal information flows. He analyses the environment and the internal functioning of the company. It controls the execution of operating system tasks and ensures system regulation by designing solution scenarios. In addition to the two types of regulation previously mentioned, there is regulation “by alert” based on information signalling internal malfunctions. For example, stopping a machine on a production line requires its adjustment.

8.3. The information system

Provides the company with information (of internal or environmental origin), memorizes the information, processes it and communicates it to the other subsystems to which it is connected. The information system therefore constitutes the obligatory place of passage for all company information, whether external or internal.

Internal information is of different types. The information sent by the operating system to the information system is detailed information providing information on the results obtained by the activity.

The work of the information system consists of memorizing this information and synthesizing it to then transmit it to the decision-making system.

The decision system uses the synthetic information received from the information system. He makes decisions and transmits his orders in the form of incentive information.

To carry out these tasks, the operating system uses the information stored by the information system.

9. Decision-making process

The decision-making process is a method of gathering information, evaluating alternatives, and then making a final decision. This process can generally be done in seven steps [11]:

- **Identify the decision to make**

  To make a decision well, we must clearly identify the problem to be solved in order to arrive at an effective decision.

- **Collect useful information**

  Once the problem is identified, it is time to gather the necessary information to make our choice.

- **Suggest alternatives**

  After collecting the necessary information, we need to identify potential solutions to our problem

- **Sort**

  In this phase it is necessary to evaluate each possible solution, focusing on its positive and negative points. Consequently, sorting is done in order to have priorities of choice between the possible alternatives.

- **Make a choice**

  After evaluating the alternatives, we must decide and opt for a choice

- **Take action**

  Once the decision is made, we must make it happen and put it into practice.

- **Analyse the final decision and its repercussions (positive and negative)**

  In this step we must answer the following questions: Is the problem solved? Are the objectives achieved? the answer to these questions allows lessons to be drawn for future decision-making processes.

9.1. Programmable decision techniques

9.1.1. Decision table

A decision table is a logic tool making it possible to easily model a set of choices of a certain complexity. Instead of obtaining a series of conditions nested by a succession of IF..., THEN..., ELSE..., it is possible to create a table containing them. This type of table is particularly useful in computer programming[12].

The information expressed in decision tables can also be represented as decision trees or in a programming language as a series of if-then-else and switch-case statements.

A decision table is presented in the form of a table divided into two parts [13]:

1. The strain: it in turn includes two parts which can be described:

- The conditions: they are the propositions to be tested.
- Actions: which must be executed for each set of conditions.

2. The body: it also corresponds to two parts:

- The values of the conditions (condition inputs): these are the values that can take
- A condition and build a rule.
- Action values (action inputs): these are the actions that must be executed if the corresponding rule is satisfied.

Example:

The following example represents a decision table provided by a technical support company to diagnose printer problems based on symptoms described to them over the phone by their customers.

		Rules							
Terms	The printer prints	F	F	F	F	T	T	T	T
	The red-light flashes	T	T	F	F	T	T	F	F
	The printer is recognized by the computer	F	T	F	T	F	T	F	T
Actions	Check the power cable			X					—
	Check the printer-to-computer cable	X		X					—
	Make sure the printer software is installed	X		X		X		X	—
	Check/replace ink	X	X				X		—
	Check for paper jams		X		X				—

9.1.2. Decision tree

In graph theory, a tree is an undirected, acyclic, connected graph. All nodes are divided into three categories [14]:

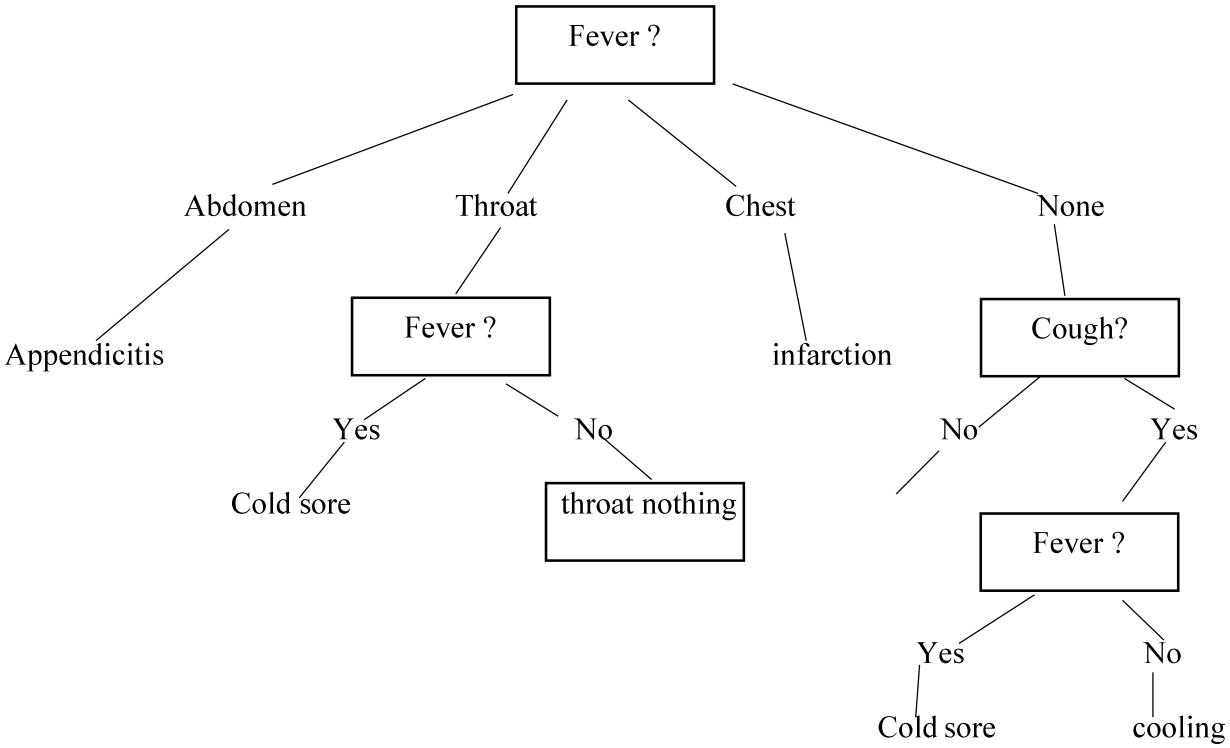
- Root node (access to the tree is via this node),
- Internal nodes: nodes which have descendants (or children), which are in turn nodes,
- Terminal nodes (or leaves): nodes that have no descendants.

According to [15] “A decision tree is a tool to help with decision making. It brings together on the same graph different possible choices faced with a situation in the form of tree branches (hence its name) with, at each end of the branches, a potential decision.

The decision tree is found in many fields such as medicine, business intelligence, data mining, security, etc.

Example:

Medical diagnosis [14]



10.Computerized information system (CIS)

The computerized information system is the part of the company's IS which is automated using information technologies (IT or IT in English). The SII must enable productivity and/or efficiency gains by optimizing the organization of the company through the circulation of information.

11.Contribution of information systems to business management

The contribution of IS to business management is more than considerable and cannot be summarized in a few sentences. However, we can retain the following most important points:

- Leaders make decisions with more certainty, more objectivity and with minimal risk.
- The achievement of the objectives is planned, the means and strategies to be implemented to achieve them are explained.
- The organization knows and therefore follows the evolution and requirements of its external environment.
- Collaboration and cooperation between the different systems of the organization as well as their coordination become easier.

12.Functional aspects of an information system

In its different missions, an information system must accomplish four basic functions which are [15]:

12.1. Collecting information

Collecting information from the IS consists of collecting information, then entering it, that is, making it "enter" the IS. We can say that information collection is the act of recording information in order to process it. The information thus collected may be of an internal nature, it is the flow of information which is generated by the internal entities of the organization (supply, production, employee management, accounting, sales, etc.), or of an internal nature. external this is the flow of information generated by stakeholders external to the company (customers, suppliers, State, etc.)

12.2. Memorizing information

Once collected and entered, the information must be stored in a durable, stable and secure manner so that it can be used later or simply to meet legal obligations.

Storage organization can be done through files or databases. These can be stored in:

- The hard drives of the organization's IS servers. In this case the information is only accessible from this server;
- Storage areas within the organization's IS. These are very large hard drives accessible via the company network. In this context, information is accessible from all components of the IS but only within the organization;
- The Cloud. In this context, information is accessible from anywhere in the world.

12.3. Information processing

Information processing involves producing new information from existing information through computer programs or manual operations.

Information processing takes care of the following tasks:

- **Consult the information**: this is the simplest processing since it consists of accessing the information as it was recorded;
- **Organize information**: this processing consists of structuring the information according to specific criteria. This could, for example, group information by customer, by geographic areas, by activities and many others;
- **Update information**: this processing will consist of resuming previously recorded information and updating it;
- **Produce new information**: from existing information(s), this processing will allow the creation of new information.

12.4. Dissemination of information

After processing, the resulting information must be made available to users. In this case, the information must be communicated to the right recipients, at the right time and in a directly usable form.

13.Enterprise flows

For the enterprise to ensure these basic functions (purchase, production, sale, etc.), it must carry out exchanges or transfers either within these departments or with the external environment. These transfers are called FLOWS. We distinguish three types of flows which are:

13.1. Physical flows (or real flows)

A physical flow corresponds to a transfer of goods or services (raw materials, finished products, office equipment, etc.).

13.2. Monetary flows

A monetary flow represents a transfer of money (payment from a supplier, payment from a customer, etc.).

13.3. Information flows

An information flow represents a transfer of information, within the company (internal flow) or between the company and its partners (external flow). These flows are very often necessary and prior to other types of flows, that is to say, physical and monetary flows must always be accompanied by a flow of information.

14.Flowchart

A flow diagram gives an overview (or map) of the circulation of information (flows) between internal or external actors who participate in a field of study. The components of a flowchart are:

14.1. Field of study

A field of study represents activities within a company that concern a specific and very precise phenomenon.

14.2. Actor

The actor is an active entity intervening in the field of study by means of flows. An actor is a consumer or creator of information as he can be:

- A stakeholder outside the company (suppliers, customers, etc.).
- An area of the company (personnel department, accounting, etc.).
- Buyers, sellers, students... varies depending on the case.

14.3. Flows

A flow symbolizes an exchange between two actors of the information system studied. It is represented by an arrow, has a name and can, for the sake of chronological readability, be numbered.

Example: