Information System of the Algerian Company for Electricity and Gas Distribution - Médéa Unit

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Abstract:

This study aims to identify the applications of information systems within the Algerian Company for Electricity and Gas Distribution - Médéa Unit by addressing the general framework of information systems, presenting the Algerian Company for Electricity and Gas Distribution (Sonelgaz), and exploring the multiple information system applications employed in managing the departments of the Médéa Unit.

The research concludes that information systems are of great significance, as they facilitate the various operations conducted by the institution, given its large size, and contribute to making appropriate decisions.

Keywords : System; Informations; Information system; National company for electricity and gas distribution; Sonelgaz.

Jel Classification Codes: M10, M15.

الملخص:

تهدف هذه الدراسة للتعرف على تطبيقات نظام المعلومات في الشركة الجزائرية لتوزيع الكهرباء و الغاز وحدة المدية وذلك من خلال تطرقنا للإطار العام لنظام المعلومات ، وكذا التعرف على الشركة الجزائرية لتوزيع الكهرباء و الغاز(سونلغاز) ، بالإضافة إلى مختلف تطبيقات نظام المعلومات السائد في تسيير مصالح الشركة الجزائرية لتوزيع الكهرباء و الغاز(سونلغاز) وحدة المدية.

من خلال هذه الدراسة خلصنا إلى أن نظام معلومات ذو أهمية بالغة من خلال تسهيله لمختلف العمليات التي تقوم بها المؤسسة نظراً لكبر حجمها ومساهمته في اتخاذ القرارات المناسبة في المؤسسة.

الكلمات المفتاحية: نظام، معلومات، نظام معلومات، شركة وطنية لتوزيع الكهرباء والغاز، سونلغاز.

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1. Introduction :

Information has become a fundamental factor in the development of institutions. It is now regarded as a competitive tool and a strategic resource upon which their survival depends, particularly in a work environment characterized by rapid change resulting from accelerated technological developments. The availability of information to the institution at the right time and with the appropriate quality enables it to face challenges and find solutions to the problems it encounters.

Information systems have received significant attention from researchers across multiple domains due to institutions' need to find optimal solutions for organizing their functions and to benefit from the advantages of these systems in effectively fulfilling their objectives, especially in light of the vast amount of data and information available. Information systems within institutions have also undergone significant development through the use of various technological tools such as computers, databases, and communication networks, promoting competitiveness and speeding up decision-making.

The Electricity and Gas Distribution Company (Sonelgaz) is one of the significant national economic institutions, given the nature of its activities and the services it provides. Undoubtedly, it necessitates an information system to manage its various departments, fulfill its set objectives, and assist its managers in making appropriate decisions. Therefore, this study aims to examine the information system, its key elements, and to shed light on its current state and main applications within the Algerian Company for Electricity and Gas Distribution (Sonelgaz) in the Médéa Unit.

Study Importance: The importance of this study stems from the following points:

- The effective role played by information systems in facilitating multiple operations associated with organizational management and supporting decision-making.
- The significance of information systems in simplifying processes and allowing easy access to and storage of information, despite its large volume and the size of the institutions concerned.
- The contribution of information systems to align with developments in the business environment and their use of various information technologies, which facilitate the exchange and flow of information.

Study Objectives: This study aims to:

- Identify the main aspects associated with the theoretical framework of information systems.
- Introduce the Algerian Company for Electricity and Gas Distribution.
- Examine the information systems utilized by the Algerian Company for Electricity and Gas Distribution (Sonelgaz) in Médéa.

This study seeks to address the following research problem:

What is the current state of the information system in the Algerian Company for Electricity and Gas Distribution, Médéa Unit?

To explore this topic, the following elements will be discussed:

- General Framework of the Information System.
- Information System in the Algerian Company for Electricity and Gas Distribution, Médéa Unit.

2. The System: The term system has acquired several meanings employed to describe different administrative, technical, and scientific phenomena, and it includes all domains, activities, and daily operations.

2.1. Definition of a System: The word system originates from the Greek term "systema" which means "an organized relationship between a set of units and components. (Rahim, 2001, p. 25).

Terminologically, it refers to "a set of elements whose structure and functions are organized. (Khireddine, 2003, p. 36)

A system has also been described as "a group or collection of interrelated components connected through organized or reciprocal interactions to perform a specific function. (Al-Sirafi, 2005, p. 25)

Based on the above definitions, a system can be defined as a set of parts, elements, or subsystems that integrate and interact with one another to achieve a goal or a set of interrelated goals in order to perform a specific function.

2.2 Features of System: A system is characterized by a set of features, most notably the following: (Mohammed, 2015, pp. 18-19)

- **System Objective:** Every system must have a goal it aims to fulfill; otherwise, its existence would be unjustified. Once the overall objective is defined, sub-objectives for each element of the system can be identified. These components must work together in full coordination so that each achieves its specific objective, thus contributing to the overall system goal.
- **System Levels:** Each system involves a number of subsystems, the total of which forms the overall system. For purposes of study and analysis, it is preferable to first define the general system and then determine the subsystems within it.
- **Wholeness and Comprehensiveness:** A system is not merely the sum of its parts; rather, it is the result of the interaction among its elements. It is grounded in the mutual interaction and integration of its components, or on the integration of its subsystems. Each subsystem should be viewed as part of the whole, highlighting a holistic perspective rather than a partial one when examining the relationship between system elements and the overall system.
- **Adaptability:** This refers to the system's ability to respond to changes in the external environment. Open and semi-open systems are distinguished by their capacity to respond to environmental changes.

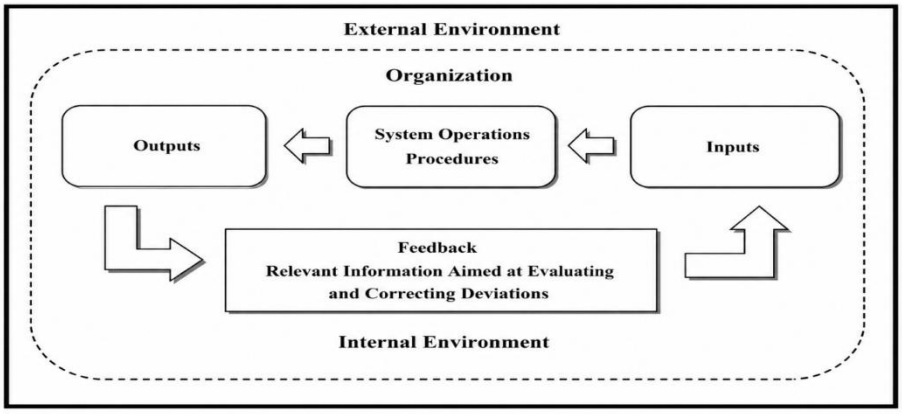
Semi-open systems are often more capable of adaptation and fulfilling balance through their relationships with the external environment, especially through feedback and control processes.

- **System Boundaries:** A system contains imaginary, conceptual, or organizational boundaries, which are often non-physical, separating it from its external environment. Defining these boundaries helps in comprehending the overall system independently of other systems and facilities its study and analysis.

2.3 Elements of a System: A system is a set of interconnected parts that work together to transform inputs from the environment into outputs. It includes the following components: (Al-Abd, 2003, p. 02):

- **Inputs:** These represent the multiple resources required by the system to fulfill its objectives. Inputs are obtained from different sources within the surrounding environment; they may also consist of previous outputs of the same system or outputs from other related systems.
- **Processes:** These encompass all the activities conducted by the system to transform inputs into outputs. They vary relying on the system's objectives, the nature of the desired results, and the environmental conditions surrounding the system.
- **Output:** These are the results produced by the system as a consequence of the operations and activities performed on the inputs. Outputs may take the form of goods, services, or information. They can be utilized as inputs for other systems, reused by the same system, or discarded if they are not usable.
- **Feedback:** To ensure the proper functioning and control of the system, a feedback mechanism is necessary. It seeks to correct deviations resulting from the comparison between the system's actual outputs and the planned outputs.
- **Environment:** The elements of the system can be illustrated through the following diagram:

Figure (1-1): System Components



Source: Salem Fawzi Al-Abbadi, Jalil Kazem Al-Ardhi, Reference for This Memo, p. 47.

- Every system operates within two environments: an internal environment, where multiple operations and interactions take place, and an external environment, with which the system interacts reciprocally and by which it is influenced. It is important to note that the environment identifies the system's

effectiveness, and a system cannot be properly understood or analyzed without studying the environment to which it belongs (Al-Aridi, 2012, p. 44).

3. **Definition of Information:** The word information is derived from the word "Inform", and it originates from the French and Latin term written in the same form: Information.

Information is defined as data resulting from the processing of data manually, by computer, or both, within a specific context and with a high level of reliability (Jassim, 2010, p. 51).

Information refers to facts and ideas exchanged among people in their daily lives through multiple communication media and through different information centers and systems.

Based on the above, information can be referred to as data that has been organized and processed to become meaningful to the user, in order to make appropriate decisions or to enhance the decision-making process.

4. **Information System:**

4.1 Definition of an Information System: An information system plays an important and critical role within an institution as a producer of information. It is "a system concerned with collecting, directing, analyzing, storing, and retrieving information within the institution, (Hareem, 2002, p. 217)" meaning that it represents "a set of technologies and procedures that allow information to flow within the institution. (Equilbey, 2001, p. 347)"

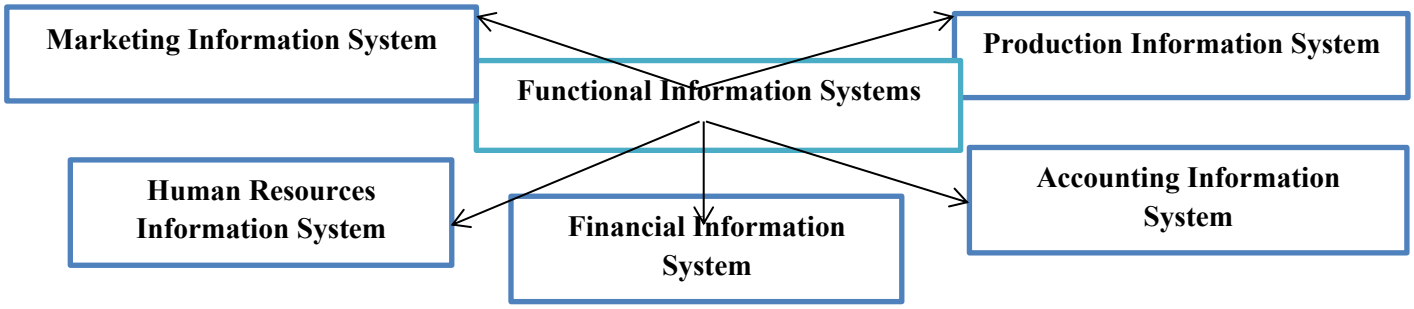
An information system is also described as "an organized set of techniques, methods, and rules designed for collecting, storing, processing, and transmitting information, with the aim of assisting individuals within the institution (work teams, managers, etc.) in making managerial decisions. (Lamari, 2003, p. 06)"

4.2 Types of Information Systems: Information systems can be divided into two main categories: functional information systems and management information systems.

4.2.1 Functional information System: From the perspective of functional information systems, the information system within an institution represents "a coordinated set of partial information systems that are integrated with one another to transform data into information through multiple methods, in order to promote productivity. (Scott, 1986, p. 97)"

Therefore, partial information systems are distributed across the main functions of the institution. The most significant of these can be illustrated in the following figure:

Figure No. (02): Types of Functional Information Systems.



Source: Prepared by the researcher based on Amer Ibrahim Qandilji and Alaa Al-Din Abdul Qadir Al-Janabi, Management Information Systems, Dar Al-Masirah for Publishing and Distribution, Amman, 2005, p. 77.

The figure above indicates that the information system within an institution consists of:

- **Production Information System:** It offers multiple production data and information that help management make several production-related decisions, such as material requirements planning and production scheduling.
- **Marketing Information System:** It analyzes marketing data and transforms it into information to supply decision-makers with timely insights, such as information about the market and distribution channels.
- **Accounting Information System:** It is a set of accounting instructions and procedures that represent a series of written and computational operations covering all institutional activities. It provides users with information reflected in major financial reports such as budgets and income statements.
- **Financial Information System:** It focuses on offering information relevant to decisions associated with financial activities, identifying financial allocations, and monitoring them.
- **Human Resources Information System:** It collects and maintains data describing human resources within the institution and converts it into information in the form of reports.

Therefore, an information system can be defined as an organized network of components that interact with one another to produce information that helps each function (production, finance, human resources, etc.) perform its tasks more effectively, particularly in decision-making.

4.2.2 Mangement information System: There are several types of management information systems within an institution. The most significant are the following:

- **Transaction Processing Systems:** These are computer-based systems that collect, record, and process data associated with the daily events of the institutions' activities, as well as external environmental events. They disseminate this information in the form of routine reports to users both inside and outside the institution (Habiba, 2015, p. 98). These systems help in collecting,

storing, and processing the information required to perform functions, automate activities, and simplify and enhance processes (al, 2007, p. 113).

- **Office Automation Systems:** These systems represent a specific type of information processing system that can be utilized within business and office activities. Office automation encompasses all types of formal and informal communication systems related to transmitting written and non-written information from one person to another, whether inside or outside the institution (Malloukhiya, 2006, p. 12).
- **Management Information System:** This is an integrated system consisted of a set of people, equipment, and procedures that work together to collect, organize, analyze, and process data and then convert it into more useful information. These systems are usually linked to both the internal and external environments of the institution with the aim of providing management with accurate and sufficient information to support administrative functions such as planning, organizing, coordinating, controlling, and making semi-structured and unstructured decisions more efficiently and effectively (Al-Shawabkeh, 2011, p. 129).
- **Decision Support Systems:** The main concept of decision support systems is to provide a system that enables direct interaction between the computer and the decision-maker without the need for information specialists during use. These systems support decision-makers by providing data and models necessary for solving unstructured and semi-structured problems (Abbas, 2014, p. 135). They can be employed in strategic and long-term planning. The main objective of decision support systems is to enhance and improve the decision-making process.
- **Expert Systems:** These systems represent the advanced and developed form of modern information systems. They are a type of knowledge-based system and a more advanced form of artificial intelligence, widely used today. They are grounded in a principle similar to human reasoning (Al-Najjar, 2010, p. 170). These systems rely on knowledge and software that simulate the thinking processes of a human expert and provide decision-makers with advice they would expect from a human consultant (Al-Hasaniah, 2006, p. 423). An expert system acquires, represents, and stores knowledge in a specific scientific field and then utilizes it to support decision-making.

4.3 Objectives of the Information System: There are several objectives that information systems seek to fulfill, most notably the following:

- Directing and organizing the institutions' activities by offering appropriate and accurate information (Couleau-Dupont, 2016, p. 15).

- Assisting decision-makers by providing the necessary components that allow them to make appropriate decisions at the right time.
- Offering relevant information that enables monitoring the development and performance of the institution.
- Facilitating the preparation and production of administrative reports.
- Enhancing and stimulating communication flows within the institution.
- Coordinating different activities within the institution by providing information at the right time.
- Linking subsystems together into an integrated system, allowing data and information to flow smoothly, which leads to coordination among their activities.
- Helping to align the objectives of subsystems within the institution with the overall institutional goals, thus contributing to the fulfillment of these goals.
- Enhancing institutional performance through feedback generated during the implementation of plans and projects (Al-Adwan, 2016, p. 06).

4.4 Significance of the Information System: Information constitutes the fundamental element of an information system, as every human activity is both a producer and a consumer of information at the same time. Without information and the ease of its exchange, no strategy could be formulated or implemented. Similarly, all decisions require the availability of information. However, obtaining such information is not easy, as it must be collected, stored, and maintained. Information systems derive their significance from the importance of information itself, which is regarded as the vital lifeline of institutions of all types. It is the window through which an institution views its internal and external environment and through which it envisions its future. It also allows communication between its subsystems. Information has become so valuable that possessing it is more important than possessing financial resources, as those who own it are capable of fulfilling distinction and superiority.

The significance of information systems can also be expressed through the phases of administrative work, encompassing defining objectives, designing plans to fulfill them, monitoring implementation, and evaluating performance. All of these processes depend on the availability of the required information and the efficiency of the information system that guarantees the flow of information from its sources to users. Accordingly, information must be used in the best and most organized manner, and here the role of information systems becomes evident.

In light of the above, the growing importance of information systems becomes apparent in an increasingly complex business environment, with expanding institutions and diversified activities. This makes it essential

to provide the necessary information that enables management to make appropriate decisions in a world marked by intense competition and institutions striving to foster or maintain their market share.

5. Information System in the Algerian Company for Electricity and Gas Distribution, Médéa Unit

5.1 Presentation of the Algerian Company for Electricity and Gas Distribution(Sonelgaz):

Sonelgaz has undergone several developments and transformations in accordance with environmental conditions and requirements. This chapter presents a historical overview of the company, its organizational structure, as well as its objectives and significance, as follows:

Historical Overview of the Company: Sonelgaz is classified among service and industrial companies, as it is responsible for the production and distribution of electrical energy and gas. This institution has gone through several phases since independence, during which its objectives and means were modified in response to changing conditions. The main stages are as follows:

The public institution "Electricity and Gas of Algeria," known by the acronym EGA, was established in 1974. EGA was managed by the Algerian state, particularly during the period between 1962 and 1969, a stage marked by economic and social development efforts following the restoration of national sovereignty. The state mobilized its efforts to meet the rapidly growing needs of the population.

In 1969, EGA was transformed into the "National Company for Electricity and Gas" (Sonelgaz). At that time, the institution had grown significantly, reaching about 6,000 employees and approximately 700,000 customers. The purpose of this transformation was to provide the company with organizational and managerial capabilities that would enable it to support the country's economic development, especially industrial development. In addition to energy sales, the company also aimed to maintain household appliances operating on electricity and gas.

In 1978, the use of natural gas and electricity expanded in artisanal and industrial sectors, which led the company to focus its efforts on a nationwide electrification program.

In 1983, the institution was structured into specialized subsidiary companies for technical works, namely:

- **Kahrif:** for electrification and electricity supply.
- **Kahrakib:** for electrical installations and infrastructure.
- **Kanaghaz:** for gas transport networks.
- **Eterkib:** for civil engineering.
- **AMC:** responsible for the manufacture of meters and measurement and control devices.

Thanks to these subsidiaries, Sonelgaz currently possesses essential electricity and gas infrastructure that meets the country's economic and social development needs. In 1991, Sonelgaz became a public industrial and commercial establishment (EPIC). In 2002, it was transformed into a joint-stock company (SPA). This transformation allowed the company to expand its activities into other energy-related domains and enabled it to

operate beyond the national territory. As a joint-stock company, it is required to hold a portfolio of shares and other securities, with the possibility of acquiring additional shares.

During the years between 2004 and 2006, the company became a holding group (or conglomerate) by restructuring itself into subsidiary companies responsible for core activities:

- Sonelgaz Electricity Production (SPE)
- Electricity Transmission Network Operator (GRTE)
- Gas Transmission Network Operator (GRTG)

In 2006, the distribution activity structure was divided among four companies:

- Algiers Region (SDA)
- Central Region (SDC)
- Eastern Region (SDE)
- Western Region (SDD)

The GRTE Company and the Algerian Electricity Transmission Network Management Company (SPE) were added to these entities to form the basic activity pole GRTG (Algerian Gas Transmission Network Management). This latter also includes:

- SKT Electricity Company of Terga
- SDK Electricity Company of Koudiet Eddraouch
- SKB Electricity Company of Berrouaghia
- SKS Electricity Company of Skikda

These four companies are electricity production plants established with the participation of Sonelgaz during the same year, 2006. In the context of supporting the institution of Sonelgaz as a group and implementing a significant development program for the conglomerate, the five works companies were restructured, namely:

- Kahrif Electricity Works Network
- Eterkib Infrastructure Construction Company
- Industrial Installation Company
- Kanaghaz Pipeline Construction Company

In 2007, Sonelgaz's selection and training centers were upgraded into a higher institute, the Electricity and Gas Training Institute, in January 2009. In the same year, the restructuring process of the Sonelgaz Group was completed with the creation of the Electricity and Gas Engineering entity and the real estate company for the electrical and gas industry (ELIT). The Algerian Technology and Information Company (SOPIEG) was also established.

Today, Sonelgaz has become a group composed of 39 companies, encompassing five directly owned subsidiaries:

- Algerian Energy Company
- Algerian Energy and Telecommunications Company
- New Energy in Algeria
- Algerian Engineering Services Company
- Algerian Company AEC

5.2 Significance, Objectives, and Functions of the Institution:

5.2.1 Significance of the Institution: As Sonelgaz is a national company engaged in commercial activities, once it acquires legal personality under the law, it becomes subject to commercial law and is obliged to keep commercial records. Its legal form is a joint-stock company (SPA). Sonelgaz has always played a role in the economic and social development of the country, contributing to the implementation of national energy policy across the entire territory, particularly in rural electrification and public gas distribution. It has helped increase the electrification coverage rate to more than 97% and the gas coverage rate to over 43%.

5.2.2 Objec of the Information System : In addition to its usual activities of electricity production, transmission, and the distribution of electricity and gas, Sonelgaz aims to operate and expand into the hydrocarbons sector and, in general, to carry out activities outside Algeria. Sonelgaz is always determined to do more and better; therefore, it has mobilized considerable investments to fulfill the following objectives:

- Developing and fostering electrical infrastructure across the entire national territory.
- Implementing an exceptional investment program sought at increasing electricity production capacity during the period 2005–2010.
- Upgrading and promoting its electricity and gas transmission networks and enhancing and modernizing services provided to customers.
- Becoming a competitive entreprise capable of encountering emerging competition.
- In the medium term, becoming one of the five best operators in the sector in the Mediterranean basin.
- As an economic entreprise, it always aims to achieve profitability and ensure sustainability.

5.2.3 Function of the Institution: Sonelgaz is the historical operator in the field of electricity and gas supply in Algeria. Its main functions can be summarized as follows:

- Producing, transmitting, and distributing electricity and gas.

- Transporting and distributing gas through pipelines while respecting all safety conditions and procedures at the lowest possible cost.
- Marketing electricity and gas outside the country.
- Planning and preparing annual and multi-year programs and ensuring their funding.
- Studying and developing action programs necessary for operational cycles.
- Managing and training the human resources required to accomplish all its missions.
- Designing and implementing an appropriate commercial policy in line with the general terms and conditions.

5.3 **Presentation of the Sub-Directorate in Médéa:** The Sub-Directorate in Médéa is affiliated with the main branch, which encompasses three divisions known as the Electricity and Gas Distribution Company of the Centre (SDC), according to the parent company's organizational structure. The main tasks of this branch are:

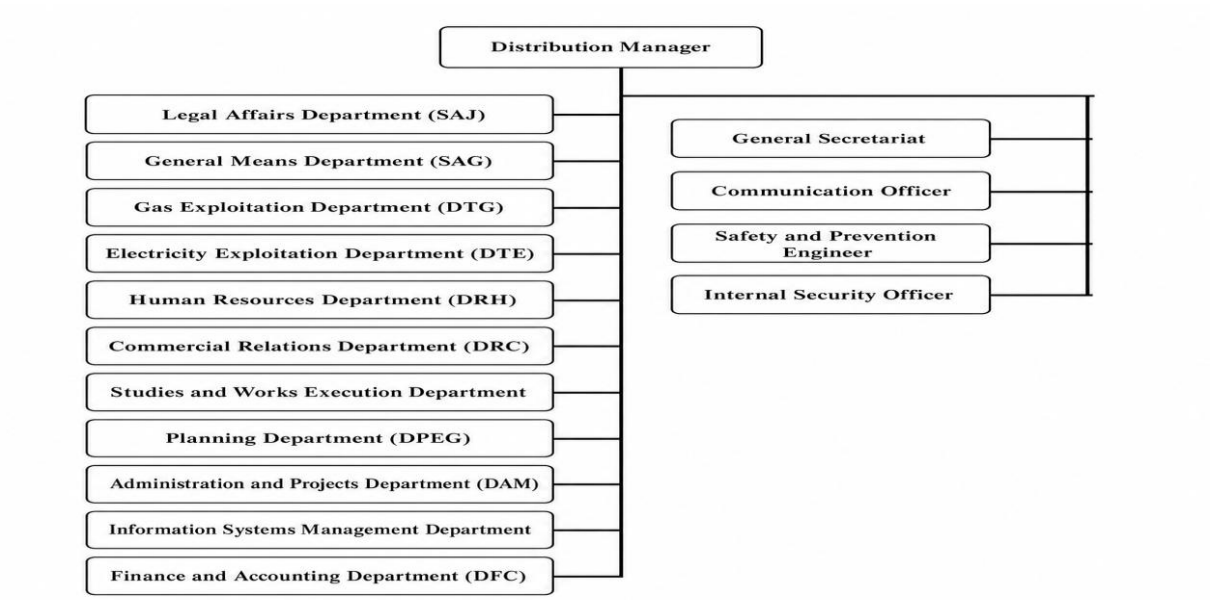
- Developing electricity and gas networks to allow the connection of new customers.
- Marketing electricity and gas.
- Ensuring better conditions in terms of safety, service quality, and lower costs.

The general organizational structure of the branch consists of:

1. **Distribution Director:** Manages the directorate, coordinates between various departments and section heads, and monitors the progress of activities.
2. **General Secretariat:** A secretary who assists the director in performing his duties, organizing appointments, and receiving visitors.
3. **Communication Officer:** Responsible for internal communication among employees and external communication with other institutions. He also organizes awareness and informational campaigns carried out by the directorate.
4. **Safety and Prevention Engineer:** Ensures the implementation of regulations that protect workers from potential risks during their duties, as well as safeguarding citizens from any dangers that may arise during electricity and gas network installation or extension works.
5. **Internal Security Officer:** Maintains security within the directorate, enforces related regulations, and ensures the protection of employees inside the institution.
6. **Legal Affairs Department:** Includes legal officers who represent the directorate before judicial authorities and defend the interests of the institution.
7. **General Means Department:** Provides the necessary resources for the directorate's operations, manages the institution's real estate assets, and supervises the archives section.

8. **Studies and Works Execution Department:** Studies projects submitted for electricity and gas connections, supervises and monitors the execution of works, and offers solutions to reported issues.
9. **Electricity Exploitation Department:** Draws technical maps for high and low voltage services, prepares operational maps, follows up and analyzes installation statistics, and develops future plans for energy needs and consumption.
10. **Gas Exploitation Department:** Develops programs for installations, follows up maintenance work, updates plans daily, and creates a database for monitoring consumption.
11. **Human Resources Department:** Manages employee records and implements human resource management policies set by the general administration.
12. **Commercial Relations Department:** Ensures compliance with procedures for connecting customers to electricity and gas, guarantees customer satisfaction, and handles complaints.
13. **Information Systems Management Department:** Manages the information system employed by multiple departments, administers local networks and communications, and maintains IT equipment and systems.
14. **Planning Department:** Prepares strategic plans for the development of new long-term electricity and gas networks.
15. **Administration and Projects Department:** Acts as an intermediary between commercial relations and customers and is responsible for preparing service and investment contracts undertaken by the institution.
16. **Finance and Accounting Department:**

Figure No. (03): Organizational Structure of the Sub-Directorate in Médéa "DD Médéa"



Source: Sonelgaz Company, Médéa Branch.

1. Handles all financial accounting operations of the directorate, manages funds, prepares the general budget, and monitors and supervises all accounting operations.

The following figure illustrates the organizational structure of the Sub-Directorate in Médéa "DD Médéa."

5.4 Information System of the Algerian Company for Electricity and Gas Distribution, Médéa

This element presents a case study of the Algerian Company for Electricity and Gas Distribution in Médéa in terms of its use of information systems.

5.4.1 Information System of the Algerian Company for Electricity and Gas Distribution, Médéa

The company has the necessary human competencies responsible for developing, installing, and maintaining information system programs and applications across its multiple departments and services in order to facilitate the accomplishment of required tasks. Notably, most of these programs are developed at the level of ELIT (Electricity and Information Technology), a subsidiary of the Sonelgaz Group. These programs are implemented in all electricity and gas distribution companies affiliated with the group in a unified manner. Among these systems are the following:

- **Human Resources Management System (NOVA).**
- **Financial and Accounting Management System (HISSAB):** This is an automated management system that facilitates the company's accounting process with considerable time savings and high accuracy.

Figure No. (04): Screenshot of the HISSAB program interface



Source: Finance and Accounting Department, Algerian Company for Electricity and Gas Distribution (Sonelgaz), Médéa, 2026.

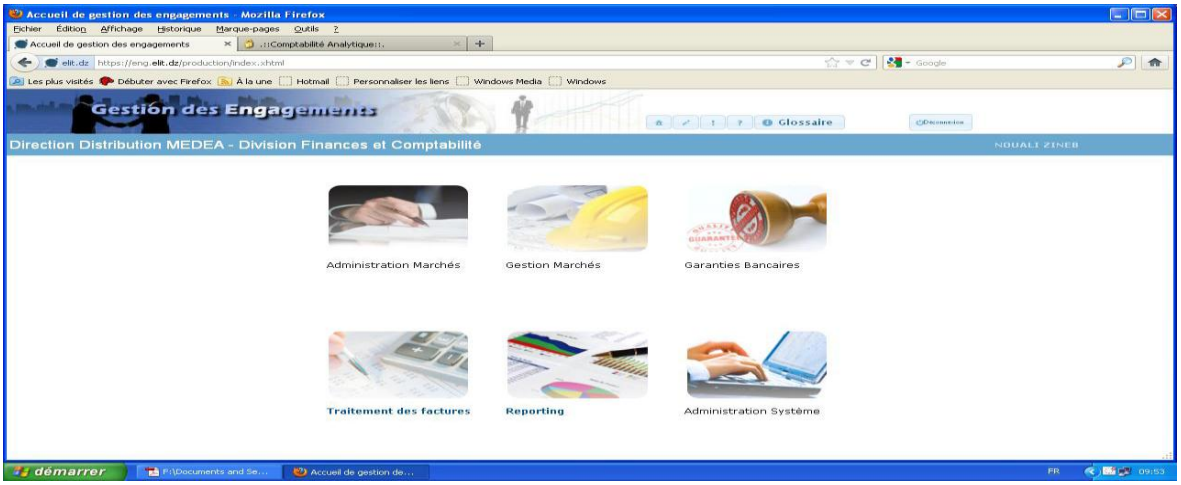
It allows accounting to be managed in accordance with the Financial Accounting System (SCF) in force in Algeria. Its functions include (Accounting, 2026):

- General accounting
- Analytical accounting

- Investment management
- Property management
- Invoice processing
- Reconciliation and accounting entries
- Reporting

- **Cash Management System (SGC):** This system enables regular monitoring of treasury operations in coordination with the financial system MALYA to support decision-making and to track the company's daily transactions associated with revenues and payments. Its functions include: (Accounting, 2026)
  - Managing the treasury plan (planned, supplementary, executed, etc.).
  - Preparing the cash position statement.
  - Cash reconciliation.
  - Automatic integration of banking operations.
  - Automatic payroll calculation.
- **Engagement Management System (SGE):** This system is designed for the efficient management of the company and contract operations. It is grounded in Algerian regulations governing the institution and control of public procurement. Its functions include (Accounting, 2026):
  - Management of bids and tenders.
  - Contract management.
  - Management of bank guarantees.
  - Monitoring contracts and suppliers.

Figure No. (05): Screenshot of the SGE program interface.

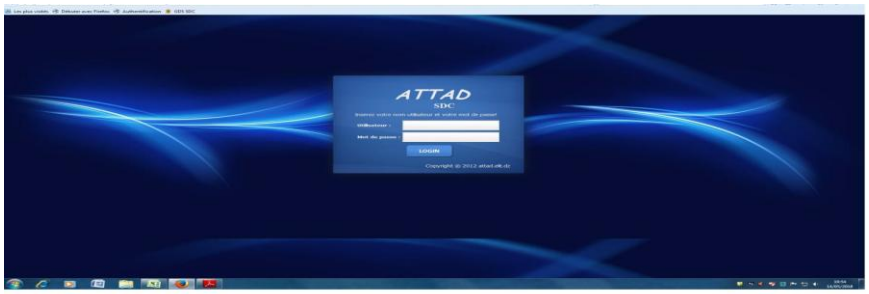


Source: Finance and Accounting Department, Algerian Company for Electricity and Gas Distribution (Sonelgaz), Médéa, 2026.

Notably, the previously mentioned systems (HISSAB, SGC, MALYA, SGE) are utilized at the level of the Finance and Accounting Department, except for SGE, which is used across various departments of the company, such as the Administration and Projects Department (D.A.M), the General Means Department (S.A.G), the Gas Exploitation Department (D.T.G), and the Electricity Exploitation Department (D.T.E).

- **ATTAD System:** This system is employed within the General Means Department (SAG) and is designed in accordance with IAS/IFRS accounting standards. It is dedicated to inventory management operations (such as electricity and gas meters purchased from the company C.E.E.G, which is a subsidiary of the group and was formerly known as C.A.M.E.G). It contributes to saving time and organizing expenditures. Its functions include (Department, 2026):
    - Managing supply operations to evaluate inventory inputs grounded in costs.
    - Managing multiple changes in inventory movements.
    - Tracking serial numbers, encompassing expiry dates.
    - Managing inventory stocktaking operations.

Figure No. (06): Screenshot of the ATTAD program interface.



Source: General Means Department, Algerian Company for Electricity and Gas Distribution (Sonelgaz), Médéa, 2026.

- **ADDAD System:** This system is also used within the General Means Department (SAG).

Figure No. (07): Screenshot of the ADDAD program interface.



Source: Finance and Accounting Department, Algerian Company for Electricity and Gas Distribution (Sonelgaz), Médéa, 2026.

Employees receive specialized training for the use of these newly implemented systems by sending one or more staff members to specialized training centers to learn how the system works and how to use it. These trained employees then, in turn, train the rest of the staff assigned to work on these systems.

It is noteworthy that each authorized employee using these programs is assigned a personal confidential password to access the systems. This ensures greater control and assigns personal responsibility to the user in case of any error.

The company also includes a considerable number of computers and related devices and provides a computer for each administrative employee.

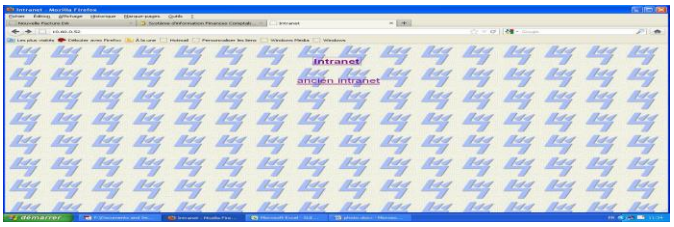
These systems operate through both Internet and intranet networks, while the Information Systems Department (CTI) is responsible for maintaining equipment and communication networks, as well as correcting technical issues that may occur across different departments, particularly financial ones.

A dedicated fiber-optic network has been implemented to overcome the frequent Internet outages associated with Algeria Telecom's ADSL connection. Communication between different departments is also conducted through a "Coordination" system (email), utilized by executives to send instructions, exchange correspondence, and transfer digital files quickly and easily, avoiding physical movement. These messages are formal in nature. Another system used for file transfer between employees is FTP.

The company also has a range of physical resources, encompassing computers, industrial and office printers connected to the network, and software (Office 2007, 2010: Word, Excel, PowerPoint, etc.). Moreover, it uses servers to manage the company's applications on the internal network.

The company also includes an INTRANET system that can be accessed by all employees without requiring a password. Through this system, multiple data can be accessed, such as electricity and gas consumption values for individual customers, institutions, and public administrations ((DRC), 2026), etc.

Figure No. (08): Screenshot of the INTRANET system interface.



Source: Commercial Relations Department (DRC), Algerian Company for Electricity and Gas Distribution (Sonelgaz), Médéa, 2026.

5.4.2 Applications of the Human Resources Information System at the Human Resources Management Department Level:

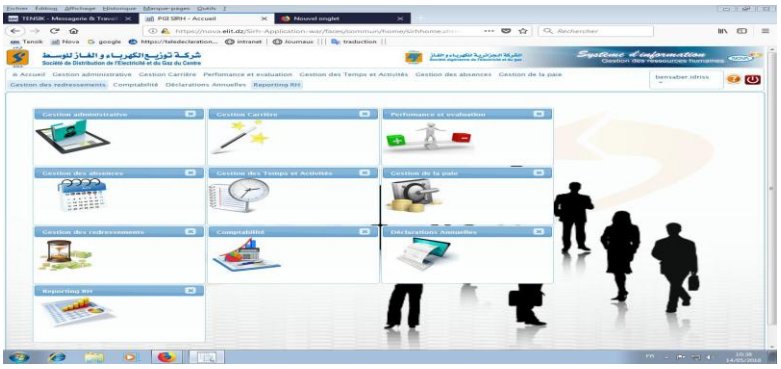
This department utilizes the NOVA Human Resource Management System, which is a human capital management system that ensures efficient human resources management. It is an integrated program that includes all the required data about any employee from the moment of recruitment until retirement, encompassing incentives, promotions, and leave requests. Upon recruitment, the employee submits a file to the professional management department of personnel, where his/her data is entered into the system and assigned a specific identification number. Its functions encompass:

- Administrative management (employee files).
- Time and activity management.
- Payroll processing.

- Management of allowances and compensation.
- Training management and planning.
- Publication of administrative documents.
- Management of leave and absences.
- Evaluation and promotion management; and Generation of pay slips.

This system allows access to the complete file of any employee simply by utilizing their personal code. It also records every piece of information entered, the time of entry, and the employee who entered it, since each user authorized to work on the system has a personal password.

Figure No. (09): Screenshot of the NOVA program interface.



Source: Human Resources Department, Algerian Company for Electricity and Gas Distribution (Sonelgaz), Médéa, 2026.

Payroll Information System: The Human Resources Department (DRH) employs the NOVA system (Human Resources Management Information Network) to manage employee salaries. The preparation of payroll statements depends on the information system, which offers the necessary data, summarized as follows (Department H. R., 2026):

- Monthly Attendance Sheet: This sheet is prepared monthly by each employee. It covers the period from the 1st to the 30th or 31st of the month. It encompasses the number of working hours, authorized and unauthorized absences, the number of meal units, and overtime hours if applicable. This sheet is signed by the employee and the head of the department.

- Data Entry into the NOVA System: After preparing these sheets, each department head sends them to the Human Resources Department, which records them in the NOVA system by entering all the information included in the sheets, in addition to employee-specific data and allowances and bonuses not shown in the attendance sheets, such as performance bonuses and single salary allowances, etc.

- Payroll Processing by the IT Unit: Payroll data recorded in the NOVA system is processed during the period from the 4th to the 6th of the month. It is then sent back to the Human Resources Department, which reviews the payroll information and approves it.

- Control and Approval by the Finance and Accounting Department: When payroll files reach the Finance and Accounting Department, the chief accountant integrates them into the financial and accounting information system. Accounting entries are automatically generated by the system. Finally, the head of the Finance and Accounting Department approves them and returns them to the Human Resources Department.

- Printing of Payroll Statements: After approval by the Finance and Accounting Department and their return to the Human Resource Department, the latter sends them to the Human Resources Directorate in Blida (SDC). At the same time, the Human Resources Department prints the payroll statements and distributes them to employees. Daily payroll sheets and supporting documents are also printed.

- Salary Payment to Employees: The Human Resources Directorate in Blida (SDC) sends a CD-ROM to both the bank (BNA) and the central postal service (CCP) on the 9th of the month as the final deadline. Salary collection by employees takes place on the 12th of the month.

6. Conclusion :

In this research, the theoretical framework of information systems has been addressed by presenting its main elements, including its concept and features, as well as discussing its significance and types. Furthermore, the study examined the reality of the information system within the Sonelgaz Company, which is a national institution that has gone through several phases and transformations. This evolution has led it to become a large, well-structured institution with a strong reputation. The company relies on information systems to conduct its daily activities and functions, which contributes to saving time, enhancing communication, reducing costs, and increasing efficiency in task execution.

It can be concluded that the information system plays a significant role within the institution by ensuring the proper management of operations, helping in error and risk detection, and supporting decision-making processes. Moreover, poorly designed systems may lead to severe consequences within the institution. Accordingly, those responsible for designing and implementing these systems must ensure that they achieve their intended functions as planned, through continuous monitoring and regular updates to align with developments in the business environment.

7. Results and discussion :

The following findings were obtained:

- The information system provides objective, accurate, and timely information resources, making decisions associated with managing institutional services more objective, fair, and effective.
- Advanced information systems contribute to the speed and accuracy of data collection, processing, and information production, as well as facilitating its transfer and exchange.
- The existence of a branch within the Sonelgaz Group (ELIT) responsible for developing and monitoring software reflects the institution's commitment to keeping up with modern technologies to enhance information systems.
- The institution includes several programs and technologies that make up its information system, confirming its significant importance in ensuring proper organizational management.
- The information system supports control processes and the evaluation of institutional performance.

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