

Obstacles to implement ISO standards within the Sonatrach Group: the case of GP1Z and NAFTAL

معوقات تطبيق معايير ISO داخل مجمع سوناطراك: حالة GP1 و نفطال

ZAHAF Wahiba¹, BENYAHIA-TAIBI Ghalia², BELOUNIS Djihene³

¹ Ecole Nationale Polytechnique d'Oran ENPO, zahafwahiba@yahoo.fr

² Université d'Oran 2, Laboratoire LARAFIT, taibi.benyahia@univ-oran2.dz

Université d'Oran 2, belounisdjihane@gmail.com

Received on: 16/12/2024

Accepted on: 01/06/2025

published on: 06/06/2025

Abstract: The aim of this article is to present obstacles of implementing an ISO standard within an Algerian public company. We administered a questionnaire to managers in a complex (GP1Z) and a subsidiary (Naftal) of the Sonatrach group. The results indicate that the main obstacles to standardization are the nature of the standard implemented, the size of the company, the nature of its product, the stability of top management and employee resistance.

Keys words: standardization, ISO, obstacles, GPZ, Naftal, Sonatrach.

JEL classification codes: L15 ; L20 ; L32 ; M10.

ملخص: الهدف من هذا المقال هو عرض معوقات تطبيق معايير الأيزو داخل الشركات العمومية الجزائرية. قمنا بتوجيه استبيان إلى المديرين في مجمع (GP1Z) وشركة فرعية (نفطال) التابعة لمجمع سوناطراك. تشير النتائج إلى أن المعوقات الرئيسية لتطبيق معايير الأيزو هي طبيعة المعيار المطبق، حجم الشركة، طبيعة منتجاتها، استقرار الإدارة العليا ومقاومة الموظفين.

الكلمات المفتاحية: المعايير، الأيزو، العوائق، GP1Z، نفطال، سوناطراك.

تصنيف JEL: L15, L20, L32, M10

Corresponding author: BENYAHIA-TAIBI G.: taibi.benyahia@univ-oran2.dz

1-Introduction

Globalization has increased the need for national and international standards. Products and services manufactured, traded, and consumed worldwide are increasingly standardized, transcending political, cultural, economic, and other boundaries.

At a global level, standardization is a complex structure that extends from the national level of each country to the international level. The World Standards Cooperation is the umbrella organization for partner international standards bodies such as ISO (International Standard Organization), IEC (International Electrotechnical Commission) and ITU (International Telecommunication Union).

ISO, in particular, is an international institution dedicated to promoting standardization. The ISO standardization process is based on consensus between the various actors involved. Considered as one of the oldest international non-governmental organizations, ISO has sought, since its creation in 1946, to facilitate exchanges and cooperation between people and companies. According to ISO's founders, ISO standards help make life easier, safer, and better (ISO, 2024).

Thanks to ISO certificates, companies of different sizes in different sectors, can access new markets, benefit from international recognition, a competitive edge, optimization in risk management, operational efficiency, customer satisfaction, cost reduction, and a commitment to sustainable development (El Allaki, 2024).

Standardization influences national policies through:

- Defining priorities in order to focus efforts on more critical areas and ensure effective implementation of standards.
- Involving stakeholders (companies, ministries, universities, etc.), by modifying working relationships, for example by stimulating efficiency and quality.
- Conflict management through common bases for regulations and contracts, defining the role of the State as promoter at international and supranational level.
- Promoting economic development by improving the quality and efficiency of sectoral infrastructures, services, and products.

Our research question is formulated as follows: ***What is the approach, the objectives and the obstacles encountered by the Algerian public enterprise in implementing ISO standardization?***

The focus is on the obstacles to standardization in Algerian public-sector companies, addressing the influences on operational staff and the perception of managers.

To this end, we will first review the principles of standardization and the Algerian context. We will then present a review of literature. Finally, we will

present and discuss the results obtained from the field survey of two Sonatrach structures.

2-Conceptual approach

We will discuss in this first topic, definition and presentation of key words and main works and research about our subject.

2-1- Standardization

(Grenard, 1996) defines a standard as a technical specification, in the form of a document, which defines and determines the characteristics of goods, services or processes. In fact, standardization refers to the process of developing and producing standards.

Standards have several characteristics (Grenard, 1996):

- It is public (accessibility and official publications).
- It is the result of a collective decision.
- It enables the resolution of technical or commercial problems, which are frequently encountered.
- It is designed for common, repeated use by economic agents.

Standards are voluntary in nature, and a source of knowledge. Globalization has intensified the role of standardization. This applies to all sectors: the production of goods and services, finance, etc., whether for-profit or not (Daoudi, 2016).

Each standard offers advantages to the organization. Overall, standardization makes it possible to:

- ✓ Appropriate solutions proven by other companies or organizations, whether in the technical or commercial field.
- ✓ Take advantage of market opportunities and access international markets through export.
- ✓ Improve management practices.
- ✓ Facilitate technology transfer through codification.
- ✓ Improve brand image with customers and consumers.
- ✓ Save resources, rationalize production.
- ✓ Consumer and worker protection and safety too.

According to (Legrand, 2016), standards guarantee the performance, conformity and safety of new products and processes; they are essential to innovation.

Each standard has its own contribution to the organization. ISO 14001, for example, contributes to compliance with environmental regulations, as well as to employee and public expectations in terms of environmental risk prevention. This standard is aimed at companies concerned with the application of a strategic approach that can make the investments made in preserving the environment profitable (Ben Yedder& Farhoud, 2009).

In some cases, the standard allows awards to be granted. In Algeria, a quality award was launched in 2003.

Title: Obstacles to implement ISO standard within the Sonatrach Group

The ISO standard is of crucial importance in the context of sustainable development and corporate social responsibility, as it integrates the three key dimensions of this concept (sustainable development): economic (ISO 9001), environmental (ISO 14001) and social (ISO 26000) (Boiral, 2008).

At international level, ISO (International Standardization Organization) is the body entirely dedicated to standardization. Founded in 1947 in London, the first ISO standard appeared in 1951 (ISO/R 1:1951, now ISO 1:2022), and concerned the normal reference temperature for industrial length measurements.

After more than 70 years of existence, ISO has:

- ✓ 25334 International Standards covering all fields.
- ✓ 171 members representing different countries.
- ✓ 834 technical committees (and subcommittees) responsible for standards development.

This organization does not issue certificates. Organizations wishing to issue a certificate to ISO standards should contact the accredited certification bodies in their country (e.g., IANOR in Algeria, DIN in Germany or AFNOR in France). There is only one accreditation body in each country. The French certification organization AFNOR is accredited by COFRAC, the Algerian certification body IANOR is accredited by ALGERAC.

For the year 2023, the balance is as follows (ISO, 2024):

- ✓ 1465 standards
- ✓ 3954 technical bodies
- ✓ 7879 meetings
- ✓ 4104 registered projects
- ✓ 1879 projects registered in 2023
- ✓ 43 technical meetings per day

An annual survey is carried out to record the number of certificates issued and the number of sites, broken down by sector and country. The data collected shows the number of certificates issued by national certification bodies accredited by members of the International Accreditation Forum.

For a comparison between 2021 and 2022, the ISO institutional site provides data on the number of certificates and the number of sites covered, for these standards. For 2022, we have the following data:

Table N°1. International standards in 2022

Standards	Total number of valid certificates	Total number of covered sites
ISO 9001:2015	1 265 216	1 666 172
ISO 14001:2015	528 903	740 208
ISO 45001:2018	397 339	512 069
ISO IEC 27001:2013	71 549	120 128
ISO 22000:2018	45 459	51 535
ISO 13485:2016	29 543	40 208
ISO 50001:2018	27 631	53 569
ISO 20000-1:2018	27 009	29 616

ISO 37001:2016	5 901	12 769
ISO 22301:2012&2019	3 200	10 658
ISO 39001:2012	1 550	3 662
ISO 55001:2014	997	2 449
ISO 28000:2007	521	973
ISO 20121:2012	247	526
ISO 29001:2020	177	253
ISO 44001:2017	118	166

Source : ISO survey (ISO, 2022)

According to the table, three standards are widely used worldwide: ISO 9001, ISO 14001, and ISO 45001.

ISO 9001 is the world's leading standard, both in terms of the number of valid certificates and the number of sites covered. As a reminder, ISO 9001 is an international standard that establishes quality management system (QMS) requirements and offers organizations the guarantee of presenting quality products and services to customers.

In second place is the ISO 14001 environmental management system (EMS) standard, which demonstrates an organization's commitment to environmental protection.

In 3rd place is ISO 45001, which refers to the Occupational Health and Safety Management System (OHSMS). It replaced OHSAS 18001 in 2018. Its adoption is increasingly widespread. It demonstrates an organization's commitment to protecting its workers, particularly in high-risk activities such as the primary sector (mining, for example) or construction.

2-2- Standardization in Algeria

2-2-1- Standardization system in Algeria

Algeria's standardization system is governed by IANOR.

IANOR (Institut Algérien de Normalisation) is a public industrial-commercial establishment (EPIC) created by Executive Decree No. 98-69 of February 21, 1998, amended, and supplemented by Executive Decree No. 11-20 of January 25, 2011. It is attached to the Ministry of Industry and Pharmaceutical Production. This certification body is the Algerian representative to the ISO organization.

It is responsible specially of four missions:

1. Standardization: development, publication, and distribution of standards.
2. Informing economic operators by making available any document or information relating to standardization.
3. Training (IANOR Academy) through inter- and intra-company training courses in standardization and the organization of training seminars. In addition, IANOR supports Algerian economic players in setting up reference systems, through its auditing, consulting, and support services.

Title: Obstacles to implement ISO standard within the Sonatrach Group

4. Certification, such as the TEDJ brand, the Halal label or the FI KHIDMATIKOUM quality label.

With its 72 national technical committees, IANOR covers all areas of economic life and has over 11,000 references (IANOR, 2024).

The national technical committees bring together a wide range of players, including representatives of public institutions and organizations, economic players, consumer, and environmental protection associations, etc.

2-2-2- Assistance for standardization in Algeria

In 1999, the Algerian government set up a financial aid program to support certification under the Industrial Competitiveness Fund (Fonds pour la Compétitivité Industrielle FPCI). This program is aimed at industrial companies, whether public or private, intending to engage in certification in order to open up to the international market. A set of specifications must be completed in order to benefit from the program.

According to (Ministry of Industry and Pharmaceutical Production, 2024), financial assistance is as follows:

- A State subsidy of up to 80% of the cost in dinars of the support contract for setting up the management system(s), up to a limit of two (02) million dinars per system.

- A state subsidy of 80% of the cost in dinars of certification, up to a limit of one (01) million dinars per system.

A certificate of conformity is required in invitations to tender and specifications.

The work of (Khelladi, 2013) shows the importance of the state in the adoption of sustainable, environmentally oriented business practices in Algeria.

2-2-3- Inventory of standardization in Algeria

For Algeria, we summarize the main data in the following table and diagram for 2022:

Table N°3.Key figures for standardization in Algeria (2022)

Standards	Standards	Sites
ISO 9001:2015 Quality management systems --	499	1153
ISO 14001:2015 Environmental management systems	116	201
ISO/IEC 27001:2013 Information technology -- Security techniques -- Information security management systems	1	31
ISO 22000:2018 Food safety management systems -	12	16
ISO 45001:2018 Occupational health and safety management systems	81	132
ISO 13485:2016 Medical devices -- Quality management systems	8	10
ISO 50001:2011&2018 Energy management systems	4	8
ISO 22301:2012 Societal security - Business continuity management systems	-	2
ISO 39001:2012 Road traffic safety management systems	1	7

Source : ISO survey (ISO, 2022).

We find the same pattern for Algeria as at global level, namely interest in three main standards for organizations: ISO 9001 for quality management systems, ISO 14001 for environmental management systems, and ISO 45001 for occupational health and safety management systems.

The three least-used standards are ISO 22301, ISO 39001 and ISO 27001 for business continuity management systems, road safety management systems and information security management systems, respectively.

Algerian certification regulations were adapted in the wake of the country's attempts to join the WTO (World Trade Organization) and to meet the demands of globalization. Thus, the IANOR and ALGERAC (OrganismeAlgériend'Accréditation) were created (Haffaf&Bouzadi, 2021).

With regard to the most widely used standard worldwide, ISO 9001 (see graph below), survey data for 2022 indicate the following results:

Companies in the construction sector hold the majority of valid certificates in 2022 (49 certificates), followed by the rubber and plastics sector (33 certificates), engineering services (28 certificates) and the metal industry (27 certificates).

Compared with neighboring countries, we have these figures:

Table N°4. The number of valid certificates in 2022 in Algeria and neighboring countries

Country /Standard	ISO 9001	ISO 14001	ISO 45001	ISO 9001	ISO 14001
Algeria	449	116	81	449	116
Tunisia	903	235	172	903	235
Morocco	1091	253	173	1091	253
Egypt	3140	1245	1428	3140	1245
World	<u>1 265 216</u>	<u>528 903</u>	<u>397 339</u>	<u>1 265 216</u>	<u>528 903</u>

Source: ISO survey (ISO, 2022).

The number of valid certificates in 2022 in Algeria and North African countries shows:

Algeria is in last place in terms of valid certificates. The country with the most certificates is Egypt, which leads in the three main standards presented. Algeria has approximately half of what Tunisia and Morocco have, and less than 15% of what Egypt has.

By global comparison, Algeria has: 0.03% of total ISO 9001:2015 certificates (the most widespread management practice worldwide), 0.02% of total ISO 14001:2015 and ISO 45001:2018 certificates. This indicates either a lack of interest on the part of Algerian organizations, or difficulties and obstacles.

The aim of this article is to shed light on the obstacles encountered in implementing standardization.

2-3- Literature review

We identified several works to evaluate the effect of standardization and its impact on company performance, competitiveness, or human resource

Title: Obstacles to implement ISO standard within the Sonatrach Group

management practices (Hendricks & Singhal, 1996; Corbett, Montes-Sancho, & Kirsch, 2005; Rolland & Tran, 2006; Belkassem, 2014; Amrani & Boukhezer, 2021; Daoudi, 2016; Belghache, 2017), and few studies concerning the obstacles to implementing a standard. A few studies are worth mentioning, however:

According to (Stashevsk & Elizur, 2000), the rational and technical aspects of Quality Management will not be relevant if the company's employees are not convinced of the importance of investing themselves in a continuous improvement process in all company functions. In this sense, empowerment plays a key role in the success of standardization initiatives.

The survey carried out by (Bahmed & Hariz, 2011) on a sample of 17 Algerian ISO 14001-certified companies showed that the main obstacles are:

- ✓ Poor communication.
- ✓ Insufficient management commitment.
- ✓ Lack of staff buy-in.

REME (Réseaud'Entreprises Maghrébines pour l'Environnement) carried out a Maghreb-wide survey in 2012 of 150 managers in Algeria, Tunisia, and Morocco (REME, 2012). According to the results:

%70 of Algerian managers are unfamiliar with the ISO14001 standard, compared with 63% and 49% for Morocco and Tunisia, respectively. The majority of Algerian companies do not have ISO 14001 certification (89%). Around 20% of Algerian and Moroccan managers surveyed felt that ISO 14001 was not important.

The aim of (Belkassem, 2014)'s thesis is to shed light on the reasons for and impact of ISO 9000 version 2000 standard on companies. The survey involved 12 ISO 90001-certified companies. The results show mainly that the difficulties linked to the quality project are low staff involvement and the obsolescence of the documentation system. The managers questioned emphasized:

- Lack of training for some employees, who find it difficult to understand the standard and its requirements, the process involved, etc.
- Lack of conviction in the necessity of the approach.
- Resistance on the part of employees to any change that might affect their habits.

Employee awareness and motivation are essential to the successful implementation of a quality approach. Successful implementation requires the contribution of all employees.

The study by (Maazouzi & Benterbeh, 2020) aims to answer the question:

To what extent is it possible to implement the environmental management system and energy management according to the two international standards (ISO14001-50001) in improving the environmental rehabilitation programs of Sonatrach in Hassi R'Mel, Wilaya of Laghouat?

In the article, the authors mention the following obstacles to implementing an environmental and energy management system:

- ✓ Fear of the time, cost and effort required to set up and operate the system.
- ✓ The prevailing culture in some organizations, which is not interested in environmental issues.
- ✓ Lack of decision-making autonomy in public organizations.
- ✓ Inefficiency of organizations active in environmental preservation.
- ✓ Financial, technical and information constraints.

Finally, some organizations see the implementation of an environmental and energy management systems and an energy management system as a return to the bureaucratic system, due to the use of rigorous procedures and steps.

These studies show that the main obstacles to standardization are:

- ✓ Poor communication about the standard.
- ✓ Lack of conviction about the need for the standard.
- ✓ Lack of training for some employees, with difficulties in understanding the standard, its requirements, its process, etc.
- ✓ Financial, technical and information constraints in implementing the standard.
- ✓ Insufficient management commitment coupled with low staff involvement.
- ✓ Resistance to change on the part of some employees.

3- Methods

Our survey is carried out at two companies belonging to the SONATRACH group, which have implemented different management systems. The GP1Z complex, implementing the Energy Management System, and the NAFTAL subsidiary, implementing the Integrated Management System. In order to highlight the obstacles to the implementation of ISO standards within the Sonatrach group, we used a questionnaire addressed to managers.

The objectives of the questionnaire are to understand what the ISO standard means to the employees of the companies surveyed, the way in which the standard has been implemented, the main objectives and the obstacles encountered.

The questionnaire comprises 32 questions, and is organized along five axes:

1. What? What ISO standards mean to the employees?
2. How? How was the standard implemented?
3. Why? The objectives of implementing international standards.
4. The obstacles encountered by the companies studied in applying these standards.
5. Identifying the managers questioned.

Table N°5. Characteristics of questioned managers

Characteristics of managers questioned		GP1Z		NAFTAL	
		Nbr	%	Nbr	%
Gender	Man	32	80	25	71

Title: Obstacles to implement ISO standard within the Sonatrach Group

Age	Woman	8	18	10	29
	Lessthan 30	2	5	2	6
	31-35 years	5	12	3	8
	36-40	10	25	8	23
	41-45	11	28	12	34
	46-50	8	20	8	23
	More than 50 yearsold	4	10	2	6
Seniority	1- 5 years	2	4	1	3
	5 - 10	12	32	10	28
	11 - 20	17	41	22	63
	More than 20 years	9	23	2	6
Studies	Universityd	5	12	4	11
	Post-Graduation	35	88	31	89
Function	egree	35	88	31	89
	Graduation	35	88	31	89
	Head of unit	/	/	1	3
	Head of center	/	/	2	6
	Head of department	8	18	10	28
	Head of service	2	7	22	63
	SupervisoryOfficer	30	75	/	/
Total of managers		40	100	35	100

Source : authors

The study sample is made up mainly of men, over 40 years of age, with more than 5 years seniority. These are people with a higher level of education, especially in graduation. With regard to the position held by the questioned, they are mainly supervisor, heads of center or heads of department.

4- Results and discussion

We will discuss in this topic, main results of our research.

4-1- The case of GP1Z

Like many international companies, the GP1Z complex is committed to implementing the ISO 50001: 2018 in 2020. This international standard, which is not mandatory, provides the company with guidelines for installing an energy management system. The latter is recognized for its ability to help organizations improve their energy performance through better use of energy-intensive assets. For some, it helps reduce their environmental impact and improve their image. For others, it aims to reduce costs and improve their competitiveness (ISO, 2018).

4-1-1-Presentation of the company

Our first field study was carried out at one of the largest LPG processing complexes in Algeria, belonging to SONATRACH. This complex is located between the Mers-El-Hadjadj thermal power plant, 40km east of Oran, and the liquefied natural gas complexes to the west. It is known as the GP1/Z in Arzew or JUMBO GPL complex and belongs to the LNG & LPG division of SONATRACH's LQS activity. GP1/Z was created under a key contract with the contribution of a Japanese IHI-CITON consortium and was handed over on September 2, 1984. The complex's main mission is to separate and refrigerate LPG into Propane and Butane from the gas and oil fields of southern Algeria,

for sale on national and international markets. GP1Z's strategic geographical location, especially its proximity to the Mediterranean Sea, gives it an advantageous position on the international LPG market.

Our study was carried out in the QHSE department, itself part of the Management Information System (MIS) department. The QHSE department is targeted because it is responsible for ensuring that the processes required for the various management systems are properly applied within the complex. It advises management on the definition of QHSE policy, and also supports other structures in the application of management systems.

4-1-2- Implementing standard in GP1Z

In applying the guidelines of the international ISO 50001 standard, managers at the GP1/Z complex have pursued a process summarized as follows:

1) Supporting the implementation of the Energy Management System by applying, in 2020, to the Agence Nationale pour la Promotion et la Rationalisation de l'Utilisation de l'Energie APRUE (National Agency for the Promotion and Rationalization of Energy Use) for the implementation of an energy efficiency action program.

2) The creation of an energy management team. To this end, a multidisciplinary team of twenty-two managers and engineers has been set up. Its role is to update the energy review and identify the requirements for EMS certification.

3) Training this team and the process pilots (process directors and department heads).

4) Setting up a diagnosis through a project kick-off meeting with the energy team in accordance with the ISO 50001 standard, site visits, on-site EMS diagnosis, etc.

5) Implementation of the energy management system by drafting all necessary documentation (GP1Z policy, determining the relevant stakeholders, mapping the GP1Z complex, mapping the processes of all pilots, determining the internal and external issues of the complex, creating an internal auditor group, and constituting the steering group of the energy management system), and ensuring the integration of this energy system into the complex's IMS.

6) Conducting an internal audit. To do this, the complex prepared the internal audit plan before the audit date, then this audit was carried out with the integration of the internal auditors of the GP1Z Complex as auditors in training, and finally an action plan with deadlines was developed for processing the findings.

7) Developing a management review according to ISO 50001:2018.

After completing all the steps necessary for certification, the GP1Z complex was judged by AFNOR, following an audit in accordance with the requirements of the ISO 50001: 2018 Standard, and it obtained the certificate on April 20, 2022.

4-1-3- Objectives & obstacles

GP1Z complex managers agreed (100%) that the main objective of implementing the ISO 50001 standard is to improve the competitiveness of their company in the face of competition by demonstrating its commitment to implementing international standards. Knowing that for many customers, compliance with international standards, especially ISO standards being the most recognized, is both a guarantee of credibility and trust.

Some managers (50%) stressed that their company seeks through this system to reduce costs with energy savings (95%), preserve the safety of the complex's facilities (80%), and optimize the use of available energy sources to reduce negative effects on the environment (60%).

Other managers (40%) affirm that thanks to the implementation of energy management system (EMS), the GP1Z complex will be exempt from energy audit and will benefit from the reduction of the TGAP (General Tax on Polluting Activities).

Regarding the obstacles, managers highlight the existence of several. The emphasis is placed first on the problem of the limited technical knowledge of the GP1Z complex staff in the energy field (100%). This required a diversified training plan and external support before and during the implementation of this standard.

The majority of managers interviewed also underline resistance behaviors (90%). Some employees refused the standard because it created an overload of work for them: the implementation of this ISO standard is accompanied by the application of new work procedures, new instructions, and the use of new documents, which embarrassed them. In addition, the standards limited their freedom at work.

Some managers (60%) highlight during the implementation of the EMS, other difficulties particularly interpreting the directives of the standard (90%), and the slowness of the process to establish the energy review and data monitoring (80%). The managers interviewed also emphasize the existence of other obstacles, especially the prioritization of less expensive production investments to the detriment of less energy-intensive investments (80%), the sometimes use of measurement tools not always adapted to monitoring all the data of the GP1Z structures (80%), and the tightening of energy policies necessary to implement the EMS (50%).

4-1-4- Assessment of the ISO 50001:2018 Standard

The managers interviewed agreed (100%) that the EMS is managed by a team composed mainly of the complex director, the QHSE manager and the managers who are at the head of the various structures of the complex.

In order to inform the complex staff about this management system, the managers declare that several communication channels have been used. The emphasis is on meetings, messaging, teledisplay, and also training. Moreover, it was noted from the beginning of the survey that all the managers of the complex

are aware of the existence of several management systems including the EMS, they are even well informed about the various certifications obtained (QMS, MIS and EMS). Furthermore, the majority of the managers interviewed (85%) also recognize the existence of some operational staff of the complex who are unaware of important aspects related to these management systems, particularly the EMS. To justify this situation, the emphasis is placed by these managers on training and awareness-raising actions implemented for the benefit of the complex's staff on the importance of the energy management system. All the questioned state that managers with supervisory tasks have benefited from more actions compared to operational staff, which in some way justifies the ignorance of the latter (operational staff) of certain aspects of the standard.

Concerning the assessment of the ISO 50001 standard by the managers of the GP1Z complex, the respondents were divided into two groups: one group being the most significant (60%) having considered the standard as an opportunity for them and their company in the sense that it has allowed them to reduce expenses following energy savings, and also to reduce negative effects on the environment while another remaining group being the least significant having considered this system as a constraint that was imposed, and does not add any positive aspect to their company. According to this last group, the implementation of the EMS created an overload of work for them that embarrassed and constrained them daily. The EMS is added to other management systems especially the MIS implemented at the same time and limited their freedom. These employees did not understand the interest of this new management system that came as it is supposed to help their company to make savings while its financial situation is comfortable.

4-2- The case of NAFTAL

NAFTAL has been engaged since 2005 in the ISO certification, separately, of its three branches of activity (fuel, commercial, LPG). However, in 2017, and to face the imbalance observed between its branches in terms of standardization, this company decided to stop the duality and it launched itself, in the implementation of a unified IMS (Integrated Management System).

4-2-1- Presentation of the company

The second case study concerns one of the most important subsidiaries of the large public group SONATRACH. Since August 1987, NAFTAL has marketed and distributed petroleum products and their derivatives on the Algerian market. NAFTAL is responsible for carrying out: the Fuels activity which includes aviation and marine, and land fuels (supply, storage, refueling of land fuels), the LPG activity being responsible for the supply, storage, refueling, filling, and marketing of LPG. Not forgetting the Commercial activity dealing with the distribution and marketing of different products (earth fuels, earth lubricants, bitumen, tires, and other products intended for the automobile, etc.).

Our study was carried out mainly with managers working within three large structures belonging to the NAFTAL company, namely: the Oran Fuel

Title: Obstacles to implement ISO standard within the Sonatrach Group

District located in Petit Lac, the Oran LPG District located in Hai Si Redouane, and the NAFTAL CDS 317 Depot in Oran located in Petit Lac. The QHSE departments of these structures are targeted because they are directly involved in the implementation of the standard, in addition to other departments, particularly those related to operations.

4-2-2- IMS implementation process within NAFTAL

The implementation of the unified Integrated Management System (IMS) follows the following steps:

- 1) The implementation of an initial QSE (Quality, Safety and Environment) audit within the structures belonging to the three branches of the NAFTAL company, starting with the pilot sites.

- 2) The creation of an IMS steering team. To this end, meetings were organized to assign the pilots of this approach and also to discuss the resources allocated.

- 3) Project planning (actions to be carried out, resources to be allocated, etc.).

- 4) Definition of the operation, specifying the responsibilities of each collaborator. In this step, the implementation of a documentary system is essential. This step is also characterized by the implementation and/or updating of instructions, work procedures, the creation of new structures (e.g., Metrology Department, communication department, etc.).

- 5) Monitoring and correction of errors. Monitoring the progress of the structures in terms of application of the IMS requirements, was done through the sending of internal auditors. Indeed, in order to ensure the standardization of the IMS between the branches, internal auditors were exchanged between these branches to benefit from the experience of those who are ahead in terms of standardization.

4-2-3- Objectives & obstacles

The managers interviewed agreed (100%) that the central objective of implementing a unified IMS within NAFTAL is to improve its image on the international market. According to these managers, customers, on an international scale, often have more trust in companies that try to comply with international standards.

The majority of managers interviewed (95%) also emphasized their company's desire, through the unified IMS, to address the imbalance observed between the branches of activity of the NAFTAL company in terms of standards. This will ensure consistency between the different structures.

Some managers interviewed (50%) highlight their company's desire to ensure, through this system, the continuous improvement of its internal operations.

Other managers interviewed (40%) specify that the IMS is implemented within their company for the sake of profitability. According to them, the IMS

allows NAFTAL to optimize resources, considering aspects related to quality, safety, and the environment.

Regarding the obstacles facing the implementation of the IMS within NAFTAL, the managers interviewed highlighted the following:

- The Covid-19 pandemic having constituted, according to all respondents (100%), a real handicap for the smooth running of the project (meetings were postponed or cancelled, employees were released, working hours were reduced to adapt to the lockdown, training was postponed or cancelled, the travel of external auditors coming from abroad was cancelled, etc.).
- The instability of the top management is considered by many managers (80%) as the cause behind the slowdown in the implementation of the unified IMS, moreover since the announcement of the project (unified IMS) in 2017 until 2021 only, four CEOs have been appointed to head this company. Knowing that each new CEO makes changes and often takes decisions that are sometimes contradictory to those taken by his predecessor.
- The size of NAFTAL and the considerable number of its branches and structures are also considered, by the managers questioned (70%), one of the causes of the slowdown in IMS.
- Despite the efforts made, some managers (80%) highlighted the flagrant lack of resources needed to meet the requirements of this standard, which hindered the smooth running of this standard and delayed its obtaining in some way. According to these managers, this is due on the one hand to the nature of the IMS which integrates three ISO standards (9001, 5001 and 14001), and on the other hand to the nature of the products of this company being both strategic and specific (dangerous). These products require considerable and specific resources to comply with the requirements of this system which is itself complex (integration of the three standards).
- Finally, the stress is placed by some managers (60%) on the resistance of some employees. According to them, the IMS created an overload of work for them and limited their freedom when carrying out daily tasks, especially following the reception of auditors who came to check and report malfunctions.

4-2-4- Assessments of the IMS

Since 2017, the implementation of the IMS has been the business of the majority of employees of the NAFTAL subsidiary, particularly managers with supervisory tasks.

From the beginning, several workshops were organized where working groups were formed to discuss the ideas, they consider relevant for the implementation of the IMS. In addition, an idea box and an improvement sheet are made available to staff to suggest improvements.

Also, to present this project, several tools of communication were used. The emphasis is placed by the managers interviewed on the various information

Title: Obstacles to implement ISO standard within the Sonatrach Group

and awareness sessions organized by the IMS pilots, the designation, at the level of each NAFTAL structure (district, center, depot), of a communication pilot who takes care of the informational aspect of this system, the posting of the letters of commitment of the CEO of the NAFTAL company in the implementation of the IMS to remind the staff of the importance of this system, the organization of coordination meetings, etc.

Furthermore, these managers also recognize the ignorance of this system by some employees. In terms of information on the IMS, particular attention was given by the pilots of this project to managers to the detriment of operational staff. This ambiguity has way fueled the resistance among employees. Regarding the assessment of the IMS by the managers, the respondents were divided into three distinct groups: A first group being the least representative (10%) who did not want to comment on its interest, because it is not yet completed and the IMS has not yet been obtained. While a second group of nearly 40% of managers were against the way in which this project was implemented. The emphasis is placed by this group on the flagrant lack of resources mobilized, the insufficiency of the information provided to the operational staff on the system, the overload of work that created for them which prevented them from properly carrying out their tasks, etc. While the third group being the most representative (50%) agreed that this project is advantageous for the company.

Despite the difficulties encountered, the implementation of the IMS and its unification between the structures of the three NAFTAL branches has allowed, according to many managers, a general awareness of the issues of quality, safety at work, and environmental protection.

This last group of managers also point out that this project has allowed the company to continuously improve its internal operations (documents ensuring traceability, periodic checks by auditors reporting malfunctions, etc.), and has also allowed it to improve its image. According to these managers, their company seeks through this system to align itself with international standards in order to offer its customers the maximum guarantee. Knowing that even if certification has not yet been obtained, the IMS is used in the speeches of managers as a symbol of their company's commitment to its customers, employees, and environment.

4-3- Discussion

At the end of this study, we can first note that the implementation of the standard is the business of all staff (Belkassem, 2014) starting with top managers to operational staff. The negligence of operational employees in information (Bahmed& Hariz, 2011) and training, can create a feeling of inequality, ambiguity, and difficulties in applying the requirements of the standard (Belkassem, 2014).

During the implementation of information, awareness-raising and training actions on the standard, special attention was often given to managers with

supervisory tasks to the detriment of operational staff, which created in these employees a feeling of inequality, difficulties in application and especially provoked their resistance. It is also noted from the results of our study that the central objective of the implementation of international standards is the improvement of the company's image, which is consistent with the literature (Arnaud & Sprimont, 2016). Knowing that standardization, in recent years, despite the difficulties of its implementation (Hortensius, 2013), has become a sign of the company's commitment to best practices and a guarantee of trust both internally and externally (Serre-Combe & Solbes, 2018) given that customers in particular trust companies that align with standards (ISO, 2016).

Furthermore, the nature of the standard implemented, the size of the company, the nature of its product, the stability of top management, as well as the resistance caused by the constraints of implementing the standard are factors that can influence the implementation of the standard.

When implementing the standard, the nature of the standard can be a source of difficulty in the sense that the more complicated the standard, the more difficult it is to implement it and the means required for its implementation will be significant (Hortensius, 2013). Indeed, the implementation of the ISO 50001 standard within GP1Z was less difficult compared to the IMS applied at NAFTAL, given that the IMS integrates three standards at once. It is therefore not easy to set up an IMS (Dies & Paris, 2021) which represents the formalization of a global management and decision-making tool with the aims of controlling risks and improving overall performance by considering the societal approach (Friderich, 2020). Consequently, despite the efforts deployed within NAFTAL, the resources mobilized for the implementation of the IMS were considered insufficient.

Initially intended for large industrial companies, the standards have spread to small companies and service companies (Loukil, 2009). The size of the company can be a source of difficulty when implementing the standard in the sense that the larger the company, the more difficult it is to control the implementation of the standard in its various structures. This is the case of NAFTAL, the largest subsidiary of SONATRACH with a complicated organizational structure containing three branches themselves containing several structures (districts, centers, depots) spread across the entire Algerian territory, which has slowed down in some way the obtaining of IMS certification.

The nature of the company's products may also present a difficulty that could hinder the implementation of the standard in the sense that the more the company manufactures strategic (important) products of a dangerous nature, the more difficult it is to apply the standard because these products require the mobilization of specific means. This is the case of NAFTAL, which has been seeking for several years to obtain IMS certification, which requires, given the nature of its products (strategic and dangerous), considerable and specific means

Title: Obstacles to implement ISO standard within the Sonatrach Group

to comply with the requirements of this new system, which includes three standards at the same time.

The instability of top management can also impede the implementation of the standard, this is the case of the NAFTAL company which has experienced, since the announcement of the implementation of the IMS, the appointment of several CEOs.

The resistance of employees (Belkassem, 2014) can also complicate the implementation of the standard. The latter often creates an overload of work for the staff following training, meetings, new documents, etc., and it can even limit the freedom of employees following the repetitive reception of auditors. This overload of work is often at the origin of the resistance (Kanter, 2012).

5- Conclusion

The objective of this research is to identify the obstacles to the implementation of ISO standards in Algerian public companies. We have highlighted the low rate of valid standards in Algeria compared to neighboring countries.

Our methodology is based on an in-depth survey of two companies belonging to the Sonatrach group: the GP1Z complex which has implemented the EMS (Energy Management System) and the NAFTAL subsidiary which has implemented an Integrated Management System IMS. The results of the questionnaire survey identify a set of constraints.

According to our findings, some actions can be planned to facilitate the implementation of the standard:

- Set up, for all staff, a communication and awareness plan rich in the interest of the standard (success factor). All employees must feel the standard as an opportunity for them and their company.
- Plan actions encouraging the involvement of staff in the implementation of the standard (success factor). Employees should never be given the impression that some of them are privileged over others, even if they are managers with supervisory tasks, because the standard is the business of all staff.
- Mobilize the resources required by the standard in question (success factor). The lack of resources constitutes an obstacle that can generate others (resistance, demotivation, etc.).

Our results and findings open the way to new avenues of research whether at the level of public companies or other subsidiaries or complexes of the Sonatrach group in order to make comparisons. It is also possible to analyze the case of private companies and the obstacles to the implementation of a standard. Finally, it would be interesting to question the owners of private companies, concerning their interest or disinterest in international standards but also the obstacles and constraints at the level of the human component, in particular the middle and operational managers.

References

- Amrani, S., &Boukhezer, N. (2021). Réduction de la Consommation de L'énergie Electrique Comme pas Vers la Transition Energétique en Algérie : Expérience de la performance énergétique de la société algérienne de sacs et enduits SASACE. *Revue el Bashaer*.
- Arnaud, E., & Sprimont, P. (2016). Perceptions et attitudes liées à la norme ISO 9001 : une analyse auprès des salariés opérationnels. *Comptabilité Contrôle Audit / Accounting Auditing Control*.
- Bahmed, L., &Hariz, S. (2011). Evaluation de la perception humaine et sociale du système de Management Environnemental au niveau des Entreprises Algériennes. *Social and humain sciences Review*.
- Belghache, S. (2017). les effets de la certification selon La norme ISO9001 sur les pratiques de gestion des ressources humaines dans les entreprises algériennes. *Dirassat*.
- Belkassem, Z. (2014). La compétitivité des entreprises algériennes : approche par la normalisation et le management de la qualité Une étude comparative. Thèse de doctorat en Management, option Stratégies. Université d'Oran 2.
- Ben Yedder, M., &Farhoud, M. (2009). Le développement durable est-il bienvenu dans les organisations ? Cas de l'implantation d'un Système de Management Environnemental en Tunisie. *Développement durable et territoires*.
- Boiral, O. (2008). Les pays du sud à l'épreuve des normes ISO : vers un sous-développement durable? *Management International*.
- Corbett, C., Montes-Sancho, M., & Kirsch, D. (2005). The Financial Impact of ISO 9000 Certification in the United States: An Empirical Analysis. *Management Science*.
- Daoudi, M. (2016). Mondialisation, Normalisation ISO et Effets de la certification ISO 9001 sur les entreprises algériennes. *Revue algérienne d'économie et gestion*.
- Dies, A., & Paris, F. (2021). Construire et établir mes documents pour un système de management unique (intégré) - Versions 2015 et 2018. Paris: AFNOR Editions.
- El Allaki, S. (2024, mai 02). Captain Contrat. Récupéré sur Norme ISO: que représente cette certification: <https://www.captaincontrat.com/creer-son-entreprise/les-demarches/certification-norme-iso>
- Friderich, G. (2020, avril 10). Mise en place d'un système de management intégré. *Système de management : la revue de direction*.
- Grenard, A. (1996). Normalisation, certification : quelques éléments de définition. *Revue d'économie industrielle*.
- Haffaf, S., &Bouzadi, S. (2021). Les Enjeux De La Certification Et Le Rôle Du Programme Du Programme D'aide à La Certification En Algérie. *Revue d'Economie et de Gestion*.
- Hendricks, K., & Singhal, V. (1996). Quality awards and the market value of the firm: An empirical investigation. *Management Science*.
- Hortensius, D. (2013, février 18). Systèmes de management intégrés. Récupéré sur ISO: <https://www.iso.org/fr/news/2013/02/Ref1709.html>
- IANOR. (2024, mai 02). Institut Algérien de Normalisation. Récupéré sur <https://www.ianor.dz/>: <https://www.ianor.dz/>
- ISO . (2016). ISOFocus. Récupéré sur A l'heure de la confiance : https://www.iso.org/fr/isofocus_117.html
- ISO . (2018). ISO 50001 Système de mangement de l'énergie. Genève: ISO.
- ISO. (2022). The ISO Survey of Management System Standard Certifications. ISO .
- ISO. (2022). The ISO Survey of Management System Standard Certifications 2022 comparison with 2021. ISO.
- ISO. (2024, mai). Récupéré sur Organisation internationale de normalisation : <https://www.iso.org/fr/home.html>
- Kanter, R. M. (2012). Ten Reasons People Resist Change. *Harvard Business Review*.

Title: Obstacles to implement ISO standard within the Sonatrach Group

- Khelladi, M. (2013). Les éco-stratégies en Algérie, entre institutions et ressources ; essai d'analyse . ANDESE : Vie et sciences de l'entreprise .
- Legrand, C. (2016). Norme, innovation et stratégies marketing ; analyse comparée et perspectives. Prospective et stratégie.
- Loukil, F. (2009). Normalisation et développement durable. Innovations, pp. 35-57.
- Maazouzi, A., & Benterbeh, B. (2020). (توطين نظامي الإدارة البيئية وإدارة الطاقة) Iso14001-Iso50001 كمدخل لتعزيز برامج التأهيل البيئي. Revue des Réformes Economiques et Intégration En Economie Mondiale.
- Ministère de l'industrie et de la production pharmaceutique. (2024, mai). Récupéré sur Ministère de l'industrie et de la production pharmaceutique : <https://www.industrie.gov.dz/fr/competitivite-industrielle/#competitivite-industrielle>
- REME. (2012). La situation des entreprises maghrébines concernant la gestion environnementale. Récupéré sur Réseau d'Entreprises Maghrébines pour l'Environnement: <https://docplayer.fr/15833818-La-situation-des-entreprises-maghrebines-concernant-la-gestion-environnementale-une-enquete-dans-le-cadre-du-reme.html>.
- Rolland, S., & Tran, S. (2006). La certification qualité est-elle un facteur de compétitivité pour les entreprises? Le cas de la norme ISO 9001. « Nouvelles régulations, Normalisation et Dynamique des organisations ». Nancy.
- Serre-Combe, P., & Solbes, F. (2018, novembre 6). La normalisation; un cadre de progrès pour tous. Restitution Hylaw : La normalisation au coeur du dispositif. Paris: AFNOR.
- Stashevsk, & Elizur. (2000). The effect of quality management and participation in decision making. Journal of quality management.