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The role of e-health in health institutions governance at Algeria - a case study of - GMAO platform at the Public Institution for approximate Health, Ras El-Ayoun

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Abstract

This research paper addressed the importance of e-health in the optimal management of resources in the health sector, focusing on the role of the digital platform for managing of the maintenance using the computer, GMAO, in the optimal exploitation of medical equipment at its institutions, through the comprehensive follow-up it provides of all medical equipment in the institution, whether during its use. In the various departments and health departments of the institution or through surveilling its periodic preventive and curative maintenance. We also highlight the nature of these platforms and their importance, and touch on the most important axes of their work and how to use them. This was done, through a field study at the Public Institution for aproximate Health, in Ras Laayoune, Batna's statement. The study concluded that this platform plays an important role, in determining the organization's

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direction and strategies, related to the acquisition and maintenance of diverse medical equipment.

✓ **Keyword : é-Health, governance, GMAO platform, health institutions;**

1. INTRODUCTION

The concept of governance is among the modern methods that have emerged as a result of the evolution of the science of administration and management, to address the challenges of controlling organizational resources. This concept has spread worldwide due to the achievements of organizations, especially governmental ones, which have adopted this approach. Its main goal is to optimize the utilization of available resources and preserve public ownership through relying on wiser and more prudent decisions, thereby working to improve the overall performance of the organization.

The reality experienced by Algeria reflects its pursuit of enhancing the overall performance of the state in achieving the aspirations of its citizens. This is accomplished through adopting governance and prudent management approaches for state institutions and working on the development of all sectors and services provided by public facilities, especially those related to healthcare services. Healthcare is one of the most important basic services relied upon by citizens, given Algeria's policy of free treatment and comprehensive healthcare coverage for all segments of society. Therefore, Algeria is undertaking numerous reforms in the healthcare sector, particularly those aligned with the principles of prudent management and optimal resource utilization. It is also working to implement healthy governance methods to achieve development goals in this sector, modernize and reform its structures. The state is pursuing several policies and strategies most of which aim at technological development for all sector structures and facilities, with a focus on widespread use of information and communication technology in all healthcare fields in Algeria.

The concept of electronic health (e-health) is among the most important pillars of

development pursued by the state, along with the mechanisms and means it adopts to apply governance principles in prudent management of public facilities. The state aims to achieve digital coverage for all healthcare institutions and sector structures, integrating information and communication technology into all healthcare fields. This is achieved through relying on a variety of digital platforms to manage various affairs and interests of the sector. Therefore, the digital platform for managing medical equipment GMAO (Computerized Maintenance Management System) is among the most important mechanisms for prudent management of the sector's structures, as the state seeks to optimize the utilization of these resources (medical equipment) within various institutions of the sector by centrally and continuously monitoring them.

1.1 The Problematic

From all the aforementioned, questions arise about the feasibility of achieving the principles of prudent management of state facilities, through the adoption of the e-health approach in all institutions and bodies of the healthcare sector at Algeria, as well as its contribution to the optimal utilization of available resources. Therefore, this study aims to address the following main question:

"How does the e-health direction in Algeria contribute to the optimal and prudent utilization of available resources?"

1.2 The Study Hypotheses

To answer the previous problematic, the following hypotheses can be utilized:

- E-health aims to facilitate the management of all the sector's structures;
- The GMAO platform, works on continuous monitoring of all medical equipment within healthcare institutions, enhancing the possibility of their optimal utilization and preservation;

1.3 Study Contents

To test the validity of the aforementioned hypotheses and address the main problem statement, this study was structured around three main topics: The first topic concerns the concept of health governance and e-health. The second topic is dedicated to studying the digital platform for maintaining medical equipment, GMAO. The third topic discusses the contributions of e-health to the governance of the healthcare sector, using various digital platforms, particularly the GMAO platform.

2. General Concepts

2.1 The Nature of Health Governance

Concept of Governance: Many researchers see the concept of governance and the concept of good governance as two sides of the same coin, where both terms are used to refer to the effective management of resources. However, some researchers believe that the concept of governance is linked to the management of organization, institutions and facilities, unlike the concept of good governance, which is relatively new compared to the concept of governance. It is used to refer to the management of public affairs of the state. (Bouziane, Jalti, 2021, p. 442). It involves the proper utilization of resources for the social and economic development of societies. Nevertheless, the concept of governance and good governance share the same principles, which aim to achieve a set of goals in the same context.

Governance is defined as: "The exercise of economic, political, and administrative powers to manage the affairs and activities of organizations, in its broad sense covering organizational structures, the activities of central, regional, and local government, parliament, institutions, organizations, and individuals encompassed by civil society and the private sector, effectively participating and influencing public policy, which in turn affects all of society." (Ben Ragda, 2019, p. 26)

Health Governance: Health governance is defined as: "Governance aimed at

protecting and enhancing individuals' health, which includes determining strategic directions and objectives, establishing policies, laws, rules, regulations, and decisions, allocating and utilizing resources to achieve goals and strategic objectives, supervising and ensuring their attainment." (Beladi, 2018, p. 4) Therefore, the concept of health governance is reflected through the application of governance principles from a public policy perspective, with the aim of developing and improving services provided to individuals (healthcare services) through a range of mechanisms and strategies, primarily aiming to optimally utilize available resources within the sector.

2.2 Electronic Health

Among the most important mechanisms of development adopted by the state in the healthcare sector currently is keeping pace with the era of technology. The Algerian government adopts a policy of modernizing the structures of the healthcare sector by keeping up with technological advancements worldwide. This is evident through the adoption of the concept of electronic health (e-Health) in all fields of healthcare. This starts with the use of various digital means to facilitate access to healthcare services, such as digital cards, networks, and media, and extends to the provision of healthcare services through electronic means, represented by various modern electronic medical equipment. It also includes the electronic management of various sector structures, relying on a range of digital platforms and information and communication technology tools. Therefore, the concept of electronic health is of great importance to the senior management of the sector and receives significant attention from researchers in the fields of health and healthcare management, leading to the identification of numerous definitions for electronic health.

The World Health Organization (WHO) defines electronic health (e-Health) as the use of information and communication technology for health purposes, which includes all activities related to disease diagnosis, treatment, data management, education, and facilitating communication between patients and doctors. The WHO's definition of e-

Health focuses on the use of information and communication technology at all levels of the healthcare sector. The concept of e-Health is not limited to providing healthcare to patients through information technology means but also encompasses all areas of health (health management, healthcare services such as diagnosis and treatment, and scientific research in the field of health…)

Similarly, the term electronic health refers to all forms of electronic healthcare provided online, ranging from informational and educational products to commercial services and direct services offered by healthcare professionals, companies, or consumers. Electronic health also includes all activities related to providing clinical care to patients, such as all traditional healthcare activities, but it differs and is distinguished by being delivered remotely. (Ben Saad, Zagagh, Bakhoush, 2021, p. 44)

3. Study of the GMAO Platform in the Studied Institution

3.1 The Institution under Study

The Algerian Ministry of Health relies on a range of public and private institutions to provide healthcare services to citizens, under various categories and forms. The most important of these are several public institutions that cover the majority of citizens' needs, in line with Algeria's policy of providing free treatment. Law No. 18-11, dated July 2, 2018, concerning health, has defined all public healthcare institutions in Algeria, as stated in Article 298, classifying them into four categories:

1. University Hospital Centers;

2. Specialized Hospital Institutions;

3. Health Districts;

4. Emergency Medical Aid Institutions;

The healthcare sector is currently undergoing a transitional phase, where some old

classifications of healthcare institutions are still in effect, such as the public institutions of approximate health and the public hospital institutions, which were established by Executive Decree No. 07-140 dated May 20, 2007. Therefore, the public institution of approximate health in Ras El Aioun – the location of the field study – is one of the old classification institutions established under the aforementioned decree. Its current headquarters is in the Ras El Aioun district, Batna province. It has legal personality and financial independence, aiming to provide comprehensive and sequential healthcare services to all residents of the region.

This institution is specifically responsible for all examination and patient monitoring procedures, as well as for monitoring epidemics and all aspects of public health. This grants it possession of a range of medical equipment different from that found in public hospital institutions. The institution relies more on acquiring diagnostic devices such as various radiology machines and vaccine storage equipment, which constitute the main focus of its work. This is unlike public hospital institutions, which focus on clinical care for patients throughout their stay, with equipment specialized for surgical operations and blood purification units, among others. Additionally, the equipment used in specialized hospital institutions differs from that in the public institutions of approximate health, such as radiotherapy devices for cancer treatment in cancer-specialized hospital institutions. Therefore, this difference poses challenges for the sector regarding the management of this vast, diverse, and complex array of equipment. Consequently, the Ministry of Health has adopted a digital platform for this purpose, which works on the continuous monitoring and maintenance of all medical equipment within these institutions across the national territory, since 2017 until today, called the GMAO platform.

3.2 The nature of the digital platforms within the institution

The institution utilizes a range of digital platforms to manage its affairs, in line with the digitization policy of the healthcare sector in Algeria. These platforms cover

the most important core aspects of the institution's work: human resources management, medical equipment management, healthcare services management, and other digital platforms approved by the Ministry of Health. Additionally, there are various digital programs used in all departments of the institution, such as patient medical record management software, financial management and budget monitoring programs, among others. In this paper, we will provide a brief overview of all the digital platforms used within the institution under study, with a specific focus on the digital platform for managing medical equipment.

MDO platform for transmittable disease reporting: The healthcare system in Algeria relies on a digital platform for reporting some communicable diseases that compulsory to report, according to the list of transmittable diseases subject to compulsory declaration (Executive Decree No. 22-250, 2022). All these diseases are reported through a digital platform that connects all national health institutions with the responsible ministry, and the institution uses this platform to report all relevant diseases.

The RH platform for managing human resources: The institution relies on a digital platform dedicated to managing human resources, which is accessed through the intranet. The General Directorate of Public Service and Administrative Reform supervises this platform. It serves to connect all departments subject to civil service law with their respective ministries and the General Directorate of Public Service. Through this platform, all information about employees in the institution (recruitment, appointment, promotion, training, and performance improvement) is entered. The platform also serves as an email system, allowing the institution to receive and send all professional correspondence related to employees' work life, as well as with supervisory authorities.

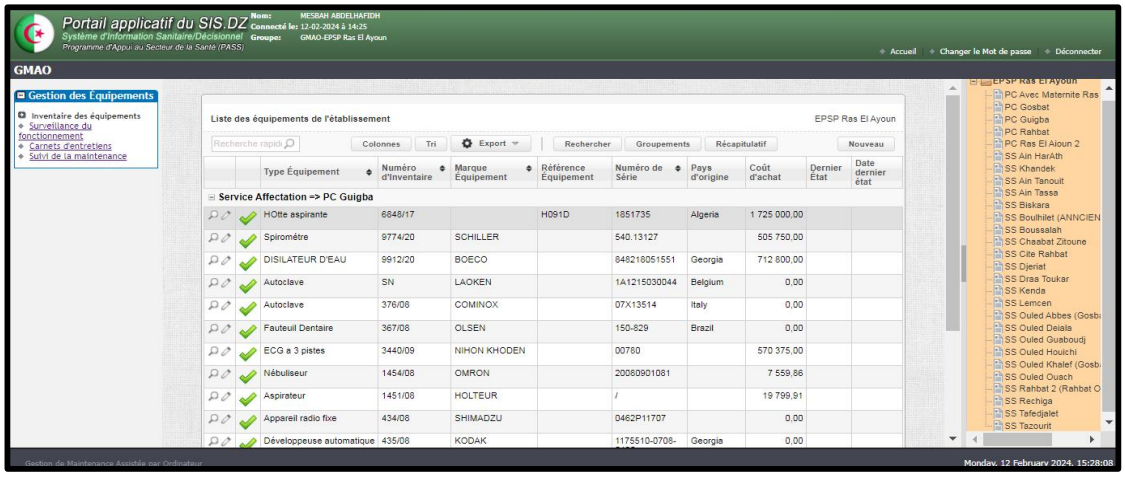
STOK INITIAL platform for managing medications: This platform is dedicated to continuously monitoring medication inventory. Recently adopted by the health sector, it aims to address shortages of certain medications and ensure their availability in adequate quantities. The platform tracks all movements of medication stocks within sector institutions and provides various statistical indicators to facilitate medication management and combat scarcity in Algeria.

3.3 Digital Platform for Computerized Maintenance Management System (GMAO)

The GMAO platform essence: The GMAO digital platform for managing medical equipment, is among the most important mechanisms for monitoring medical equipment within healthcare institutions in Algeria. The supervising ministry works on connecting all healthcare institutions to a unified platform, through which inventory and monitoring of all medical equipment nationwide are conducted. This allows for clarifying all the indicators used for predictive management of this equipment, contributing to the establishment of a clear vision and precise strategy regarding the medical equipment aspect of the sector. The platform also provides a set of dashboards that facilitate the administrative management of these equipment, monitoring their status and situations closely and in real-time. It presents all the equipment held by the institution in tables with important statistical indicators that reflect the status and condition of the equipment.

Accessing the Platform: The user accesses the dedicated space for the respective institution after verifying their credentials. The following main interface appears, as shown in Figure No. 01.

Fig.1. Main Interface of the GMAO Platform



Source: Outputs of the GMAO digital platform

The main interface displays four primary control panels:

1. Equipment Inventory (inventaire des équipements)
2. Usage Monitoring (surveillance du fonctionnent)
3. Service Records (carnets d'entretien)
4. Maintenance Monitoring (suivi de la maintenance)

The institution's equipment list shows all the data about the medical devices it possesses, the type of device, inventory number, device brand, serial number and country of origin. Additionally, the list shows the department to which the device was transferred and where it is currently being used. On the right side of the page, there is a list of all institution departments and their associated treatment rooms.

Equipment Inventory: Equipment inventory is conducted within the platform by entering all relevant data for each device through filling out the equipment information form, accessed by clicking on the "New" (Nouveau) icon in the equipment list on the main interface. The equipment information form appears, divided into four sections:

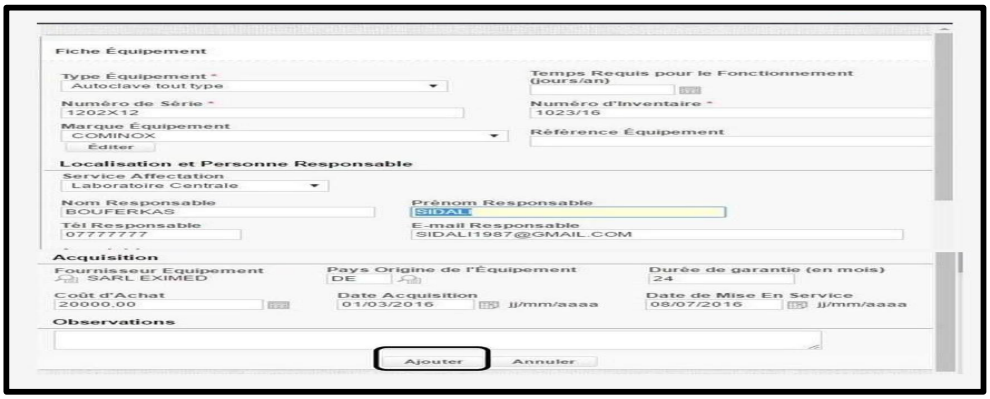
1. The section for medical device data consists of 6 fields, with 3 mandatory fields marked with a red asterisk;

2. The section for data related to the department using the device;

3. The section for data related to all information regarding the institution's ownership of the device;

4. A section dedicated to all additional notes about the device;

Fig.2. Medical Equipment Form



Source: Outputs of the GMAO digital platform

The data in the Medical Equipment Form includes:

1. Device type (mandatory field);

2. Allocated usage time;

3. Serial number (mandatory field);

4. Inventory number (mandatory field);

5. Device brand;

6. Device reference number;

7. Department using the device;

8. Head of the relevant department's surname;
9. Head of the relevant department's name;
10. Head of the relevant department's phone number;
11. Head of the relevant department's email address;
12. Name of the supplying institution or company;
13. Country of origin;
14. Warranty period of the device;
15. Purchase cost;
16. Date of device acquisition;
17. Date of first use of the device;

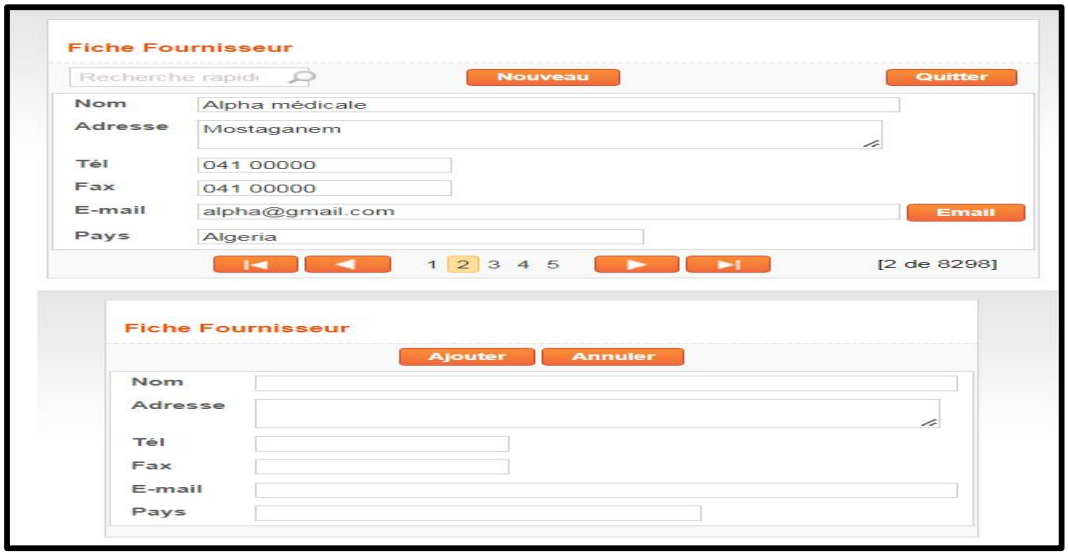
The appropriate device type is selected from the list provided in the platform, then all its data (brand, serial number, model or reference) are entered. This information can be obtained from the manufacturer's card behind the device. Additionally, it is possible to add or modify the device's brand if it is not found in the main list in the platform. This can be done by clicking on the "Edit" icon, as shown in the following figure: Figure No. 05. As for the inventory number, it is usually written on the device by the institution's inventory department after completing all the procedures for acquiring new equipment. It is a code consisting of four digits, indicating the number of devices, tools, and equipment acquired by the institution, followed by a slash (/) and two numbers indicating the year of device acquisition.

Fig.3. Adding a New Brand

Source: Outputs of the GMAO digital platform

For the supplier data dealt with by the institution, all relevant information is entered in field number (13) through a form that appears after clicking on it. The supplier who owns the device in question is selected if they are listed in the platform (usually the same supplier is dealt with multiple times, allowing their name to appear in the platform's list of suppliers). In the event that the supplier's name is not found, an account containing all their information is created by clicking on the "New" (nouveau) icon at the top of the page, which brings up another form at the bottom of the page in the same format. All the new supplier's data is then filled in and inserted into the initial list of suppliers.

Fig.4. Supplier Form



Source: Outputs of the GMAO digital platform

All the supplier's data (company or institution name, address, phone number, fax, email, and country of origin) are entered. Then, the new supplier is registered in the list provided on the platform by clicking on the "Add" (ajouter) icon.

After completing all the steps of inventorying the device, it is added to the institution's repository of medical equipment. By clicking on the "Add" (ajouter) icon in the medical equipment form, the relevant device appears in the list of the institution's equipment on the main interface of the platform.

Monitoring the Status of Equipment: Monitoring the status of medical equipment is done through the dashboard, which appears after clicking on the "Usage Monitoring" (surveillance du fonctionnement) icon on the main page, as shown in Figure No. 02. The equipment monitoring dashboard allows for accessing the current status of the device and making modifications. This is achieved by double-clicking on the device to be modified, then selecting the appropriate status from the nine basic statuses defined in the platform, corresponding to their occurrence dates. Each status is represented by a specific symbol, as follows:

1. « A reforme », Which is Final disposal represented by the letter: A;

2. « Maintenance curative », Preventive maintenance represented by the letter: C;

3. « En installation », Under installation represented by the letter: I;

4. « En marche », In use represented by the letter: M;

5. « Non utiliser », Not utilized represented by the letter: N;

6. « En panne », Malfunctioning represented by the letter: P;

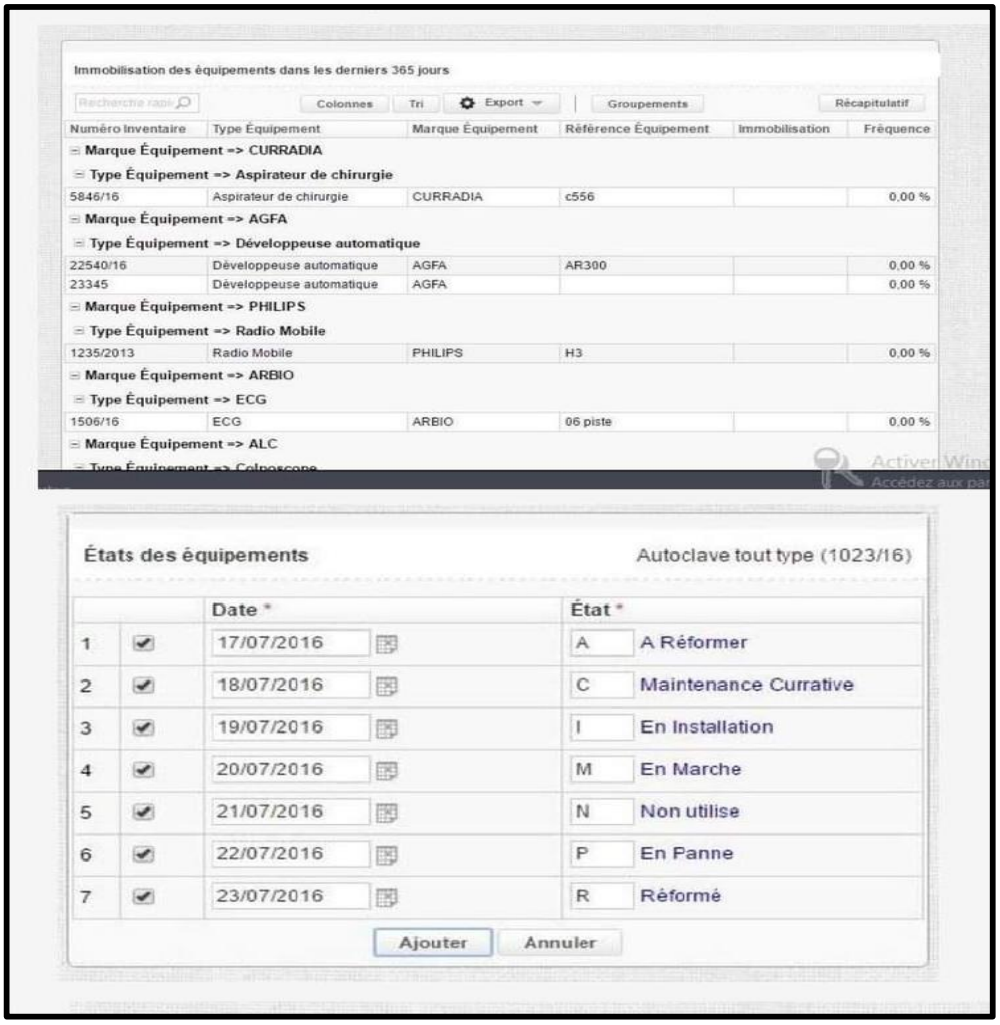
7. « En reforme », Retired represented by the letter: R;

8. « En stock », In stock represented by the letter: S;

9. « Maintenance préventive », Preventive maintenance represented by the letter: V;

After specifying all the operations or statuses that the device went through, the latest status of the device and the date of the last modification are immediately displayed in the list of the institution's equipment on the main interface of the platform. Additionally, it is possible to access all the statuses that the device went through, each according to its occurrence date, displayed together in a single table under "Device Status" (état d'équipements).

Fig.5. Usage Monitoring (surveillance du fonctionnent)

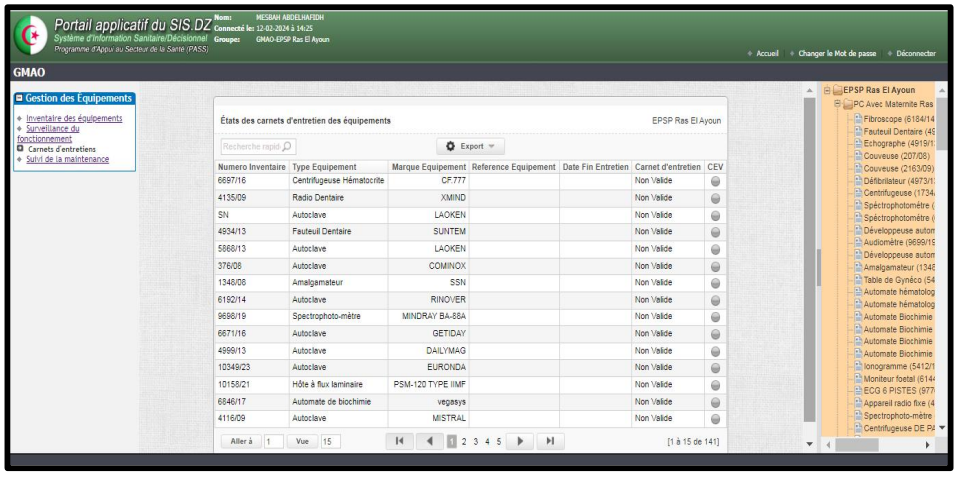


Source: Outputs of the GMAO digital platform

Maintenance Record (carnet d'entretien): The maintenance record of medical

equipment is among the important dashboards provided by the platform for managing medical equipment. It consists of a list of all medical equipment held by the institution, displaying in particular all maintenance operations to be carried out by the institution for its equipment, categorized according to the expected date of performance based on the monthly, weekly, or daily calendar. The maintenance record allows for scheduling future maintenance operations, enabling administrators to prepare all administrative procedures for equipment maintenance before their due dates. This includes providing a work schedule showing all deadlines for periodic maintenance. All of this is accessible by clicking on the "Maintenance Record" (carnets d'entretiens) icon on the platform's main interface, leading to a new page titled " Status of Equipment Maintenance Records" (état des carnet d'entretiens des équipements).

Fig.6. Equipment Maintenance Records" (carnet d'entretiens des équipements)



Source: Outputs of the GMAO digital platform

The process of scheduling maintenance sessions for medical equipment is done in the maintenance log by clicking on the relevant equipment, which then displays a calendar. Through this calendar, the expected or programmed maintenance date is selected. Subsequently, all the data related to the maintenance program is entered on the page that appears after choosing the maintenance date on the calendar, titled: "New Electronic Maintenance Log". The maintenance program data relates in particular to:

1. Start date of the maintenance operation;

2. Type of operation;

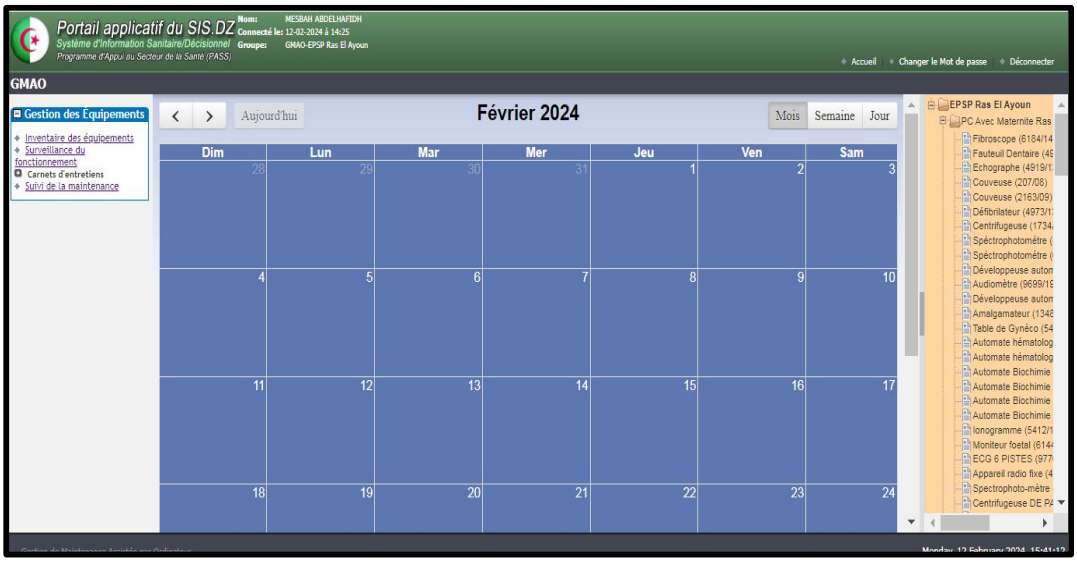
3. Date of completion of the maintenance operation;

4. Field for additional notes about the operation;

5. Field for whether the maintenance operation requires repetition or not;

6. Repetition period of the operation, if necessary, with four options provided by the icon: daily, weekly, monthly, or yearly;

Fig.7. Maintenance Records Calendar



Source: Outputs of the GMAO digital platform

As for the type of maintenance, the platform provides five specific options:

1. Scheduled maintenance (entretien programmé): Involves regular maintenance of some equipment;

2. Installation (Installation): Relates to the installation of new equipment;

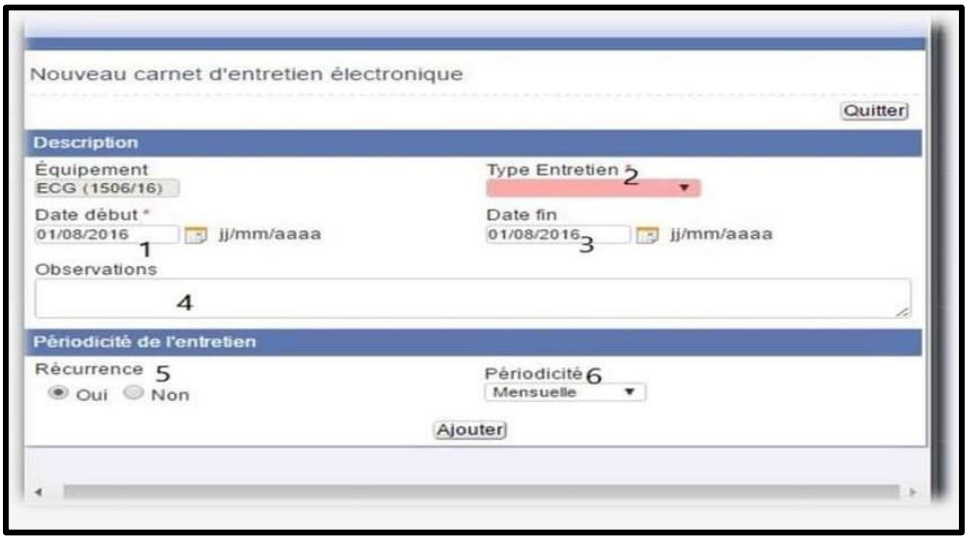
3. Transfer (Relocalisation): Involves the relocation of some large medical equipment;

4. External maintenance (réparation externe): Maintenance carried out by specialized contractors;

5. Internal maintenance (réparation interne): Maintenance performed by employees affiliated with the institution;

Fig.8. Opening a New Maintenance Log

Source: Outputs of the GMAO digital platform

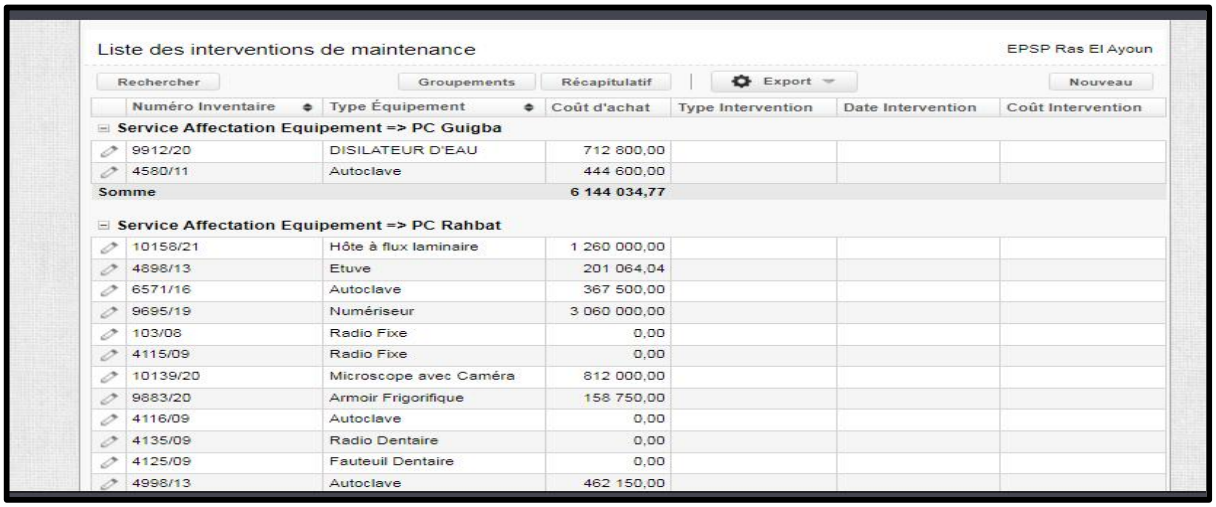


Maintenance Tracking (suivi de la maintenance): Access to the maintenance tracking page is done by clicking on the "Maintenance Tracking" (suivi de la maintenance) icon on the platform's main interface. This action leads to a page titled "Maintenance Intervention List" (liste d'intervention de maintenance), which displays a table containing all the date of the maintenance interventions carried out on the medical equipment of the institution. The table includes data such as equipment information, purchase cost, nature of the maintenance operation, date of the intervention, and its cost.

The maintenance tracking process is carried out by entering all the relevant data regarding the maintenance of the device on the platform after the completion of the operation. This is done by clicking on the "New" (nouveau) icon in the table that contains the maintenance interventions list. This action opens a new window where all

the information about the performed maintenance operation is filled out, according to the maintenance invoice and intervention report provided by the maintenance technician.

Fig.9. Maintenance Interventions

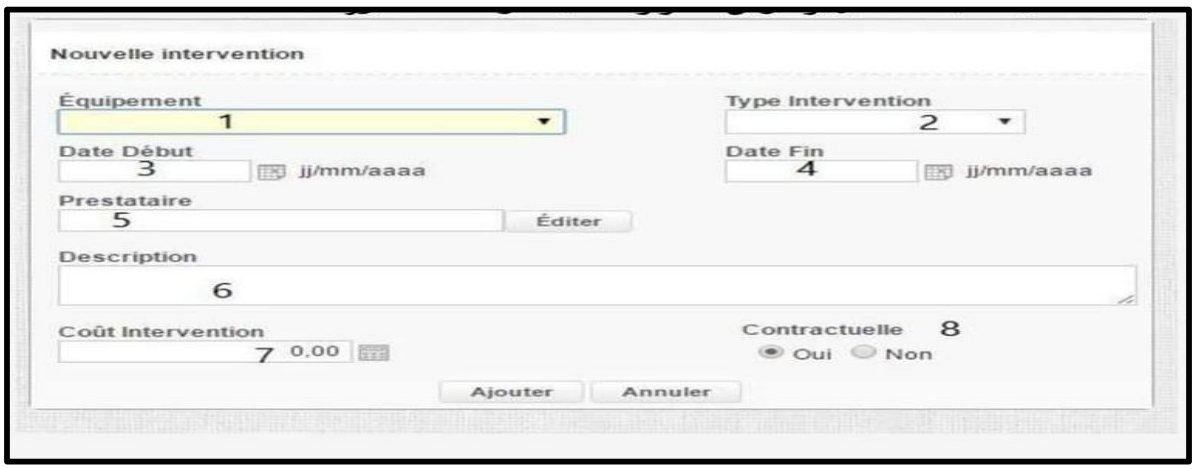


Numéro Inventaire	Type Équipement	Coût d'achat	Type Intervention	Date Intervention	Coût Intervention
Service Affectation Equipement => PC Guigba					
9912/20	DISILATEUR D'EAU	712 800,00			
4580/11	Autoclave	444 600,00			
Somme		**6 144 034,77**			
Service Affectation Equipement => PC Rahbat					
10158/21	Hôte à flux laminaire	1 260 000,00			
4898/13	Etuve	201 064,04			
6571/16	Autoclave	367 500,00			
9695/19	Numériseur	3 060 000,00			
103/08	Radio Fixe	0,00			
4115/09	Radio Fixe	0,00			
10139/20	Microscope avec Caméra	812 000,00			
9883/20	Armoir Frigorifique	158 750,00			
4116/09	Autoclave	0,00			
4135/09	Radio Dentaire	0,00			
4125/09	Fauteuil Dentaire	0,00			
4998/13	Autoclave	462 150,00			

Source: Outputs of the GMAO digital platform

A window for adding a new maintenance intervention appears, containing a set of fields related to all information about the maintenance operation that has been completed. After entering all the information about the operation, the operation is added to the maintenance interventions list by clicking on the "Add" (ajouter) icon.

Fig.10. New Maintenance Intervention



Source: Outputs of the GMAO digital platform

The information in the maintenance intervention card is as follows:

1. A Field related to specifying the device undergoing maintenance;
2. A Field for the type of maintenance;
3. Start date of maintenance work;
4. End date of maintenance work;
5. Field for the maintenance service provider;
6. Additional notes about the maintenance operation;
7. Cost of the maintenance operation;
8. Nature of the maintenance contract;

4. Contributions of e-health in the governance of the health sector

As previously mentioned, e-health is considered one of the most important mechanisms of health governance in Algeria, especially in its aim to enhance, develop, and modernize healthcare services, as well as efficiently and effectively utilize available resources while preserving them. In the same context, e-health operates on several key fronts, focusing on the use of advanced technology in all healthcare fields, aiming to achieve a set of strategic objectives that serve and align with the primary goals of health governance, particularly in managing available resources for development purposes. Therefore, among the most important fronts pursued by e-health are the following points:

4.1 Enhancing and modernizing healthcare services

E-health contributes to the development of health services, through the advantages that digital platforms provide, compared to traditional health activities, as digital

platforms work to:

• Providing continuous monitoring of all aspects of healthcare services delivery, where the digital platform for disease declaration tracks patients' conditions across all national institutions. Additionally, patient monitoring software in healthcare facilities “Patient” enables the creation of a digital medical file for each patient, facilitating accurate monitoring and enumeration of patients, as well as centralized process monitoring.

• Facilitating access to healthcare services by providing medical appointments with specialists without the need for physical travel. E-health also enables remote examination and treatment of patients. In some developed countries, remote surgeries are conducted by doctors from one hospital on patients in other hospitals, utilizing advanced medical equipment and high-speed digital communication networks (Al-Awadi, 2022, p. 165).

• Innovating advanced treatment technologies, as some research and scientific experiments have demonstrated the possibility of treating certain diseases using virtual reality (digital goggles) (Mansour, 2024, p. 189).

4.2 Rationalizing expenditures and reducing costs

E-health contributes to achieving one of the most important goals of health governance, which is rationalizing expenditures and reducing costs, by accurately identifying all resource needs, including medications, medical supplies, equipment, and medical gear, based on indicators provided by platforms that reflect the overall sectoral needs. E-health platforms enable the monitoring of medication inventories and provide all necessary data for precise determination of requirements within healthcare institutions. Moreover, they contribute to predicting shortages in certain medical supplies, which can disrupt the operations of these institutions.

Not to mention the indicators provided by the GMAO platform regarding the status of medical equipment, which contributes to determining the needs of institutions for new equipment and the funding required for maintenance operations. The platform allows for comparing the cost of maintenance with the cost of acquiring new equipment, thus directing towards acquiring new equipment if the cost of maintaining old equipment equals or exceeds the cost of acquiring new ones, or is close to it.

4.3 Optimal Resource Utilization

The digital platform GMAO contributes to the optimal utilization of all medical equipment within healthcare institutions in the sector through comprehensive and continuous monitoring of all medical equipment. The platform's work focuses on four main fronts:

Equipment inventory: Which gives a clear overview of all equipment available in various healthcare facilities nationwide by presenting comprehensive data about these devices (quantity, type, current status, operational readiness, productive lifespan, etc.), aiding in decision-making regarding their use, maintenance, renewal, or disposal.

The indicators provided by the equipment inventory process within the platform contribute to the balanced distribution of medical equipment among healthcare institutions in the sector, according to the requirements of each institution. Some institutions may intentionally refrain from utilizing certain medical equipment due to the lack of qualified human resources for their operation, such as scanners and magnetic resonance imaging (MRI) machines, which they may possess in their inventory but are not using due to the absence of specialized radiologists. However, with the platform providing data on all equipment and their utilization, including those held without utilization, the supervising ministry is now fully informed of all details. This enables optimal utilization of all resources by redistributing them according to the availability of qualified human resources (doctors) and the needs of individuals and

institutions in the region for such equipment.

Usage monitoring: Among the efforts of health governance is the preservation of available resources, especially concerning medical equipment. The supervising ministry faces the problem of neglect and loss of some medical equipment within healthcare institutions, especially in cases of random use and lack of monitoring of their movement within these institutions and accurate determination of responsibilities for them, which may expose them to the risk of loss or neglect. However, the situation is different now, as the GMAO platform allows for monitoring the use of medical equipment within healthcare institutions. It displays all medical equipment used by each department, as well as identifying the department head responsible for using this equipment. This enhances the possibility of continuous monitoring of their movement and places the direct person in charge in a position of obligation to preserve them, given their duties and responsibilities towards these equipment.

Predictive maintenance management: The GMAO platform enables predictive maintenance management through one of its core functions, "maintenance records," which relies on identifying and predicting maintenance operations for medical equipment. These operations are scheduled in advance (during the current year) and entered according to the available schedule in the platform (see Figure No. 07). This contributes to avoiding sudden equipment failures and ensures their continuous utilization without disrupting healthcare services within the institution. It also allows for the early repair of equipment malfunctions, which may prevent damage to other parts, thereby facilitating maintenance procedures, reducing costs, and extending the lifespan of these devices for as long as possible.

Maintenance operations monitoring: Among the most important core functions of the GMAO platform is the monitoring of maintenance operations for medical equipment within healthcare institutions. The platform enables the identification of the type of maintenance performed on medical equipment for each category, including the

cost, duration, frequency of the operation, and the service providers for maintenance, whether internal or external to the institution through maintenance contracts with various specialized entities. Consequently, the platform facilitates decision-making regarding medical equipment by indicating which devices should no longer undergo maintenance due to repeated technical interventions. Thus, it becomes efficient to dispose of them and acquire new equipment, especially if the cost of maintenance approaches or exceeds the cost of purchasing new medical devices. Therefore, the importance of monitoring maintenance is highlighted by its contribution to the efficient utilization of all medical equipment within healthcare institutions nationwide.

4. CONCLUSION

This study concluded that e-health, was significantly achieved some of health governance goals , through all advantages that offers in providing health care services to the patient, as well as the opportunities it provides, for developing and upgrading these services, through this various Accredited digital platforms, which work's to Rational management and optimal exploitation of available resources within the health sector. Therefore, it is necessary to move forward, in the adoption of e-health, as one of the mechanisms for applying governance principles in the health sector, and working on the improvement of all components of e-health in Algeria, not only with the regard of adopting the information and communication technology, in providing health care services and managing sector's structures. Rather, it must working to make digital technology available to all segments of society and in line with all of the developments, the world is experiencing in the field of health, through abanding the consumption orientation (importing technology) and adopting strategies and mechanisms, aiming to create technological innovations locally, and Keep up with the pace of global development.

5. Bibliography List:

1. **Journal article :** Bouziane, A., & Jalti, G. (2021). The Concept of Governance: Emergence Factors and Foundations, and Areas of Application. Journal of Finance and Markets, volume 08, number 02;

2. **Doctoral Thesis:** Ben Ragda, H. (2019). The Role of Institutional Governance in Enhancing and Sustaining Some Institutions -A Case Study of Some Economic Institutions in the Province of Jijel-: University of Setif 01, Algeria;

3. **Seminar article:** Belaadi, A. (2018). Adopting the Concept of Governance in Managing the Healthcare System: The First National Forum on Health and Improving Health Services in Algeria Between the Management Problem and Financing Challenges - Hospitals as a Model-: University of 8 May 1945, Guelma, Algeria;

4. **Journal article:** Ben Said, M., Zakaq, A., & Bekhoush, S. (2021). The Readiness of Electronic Health: The Theoretical Framework. International Policy Journal, volume 05, number 03;

5. **Law No:** 18-11. (20 06, 2018). Concerning Health: Official Gazette of the Algerian Republic, Issue No. 46;

6. **Executive Decree No:** 22-250. (30 06, 2022). Specifies the list of contagious diseases subject to mandatory declaration: Official Gazette of the Algerian Republic, Issue No. 47;

7. **Executive Decree No:** 07-140. (20 05, 2007). Concerning the establishment, organization, and management of public hospital institutions and public health institutions: Official Gazette of the Algerian Republic, Issue No. 33;

8. **Journal article** : Al-Awadi, A. A. (2022). Medical Errors in Electronic Surgery: Journal of Legal and Political Research, volume 07, number 02;

9. **Journal article:** Mansour, J. (2024). Treatment of Acrophobia through Virtual Reality Exposure: Arab Journal of Scientific Research, volume 07, number 63;