

Advancing the renewal of the Algerian health system in light of the transition to digital health

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Abstract: Good health is a fundamental right for every individual and is considered one of the key indicators of social and economic development across nations. With the escalating challenges of the 21st century and the growing need to ensure health security, the necessity to innovate new strategies that overcome these challenges and enhance the use of digital technology in the health sector has become evident. In this context, rapid technological advancements particularly through smartphones, high-speed internet, and wireless communication have brought about qualitative shifts within the healthcare system, opening promising prospects for improving service quality and facilitating access to care.

This research paper seeks to examine the strategy of digital transformation in the health sector in Algeria, with a focus on the mechanisms of its implementation in public health facilities, while highlighting the state's efforts to improve hospital services and overcome the challenges posed by the contemporary context.

Keywords: Health, Digital Transformation, Artificial Intelligence, Health Services, Healthcare Sector.

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1. INTRODUCTION

The world is witnessing rapid developments as a result of advancements in the information and communication technology sector. The impact of these advancements is increasingly felt across various economic sectors in all countries, particularly the health sector, which has historically been cautious in adopting and implementing this technology due to its sensitive human nature. However, the profound human impact of the COVID-19 pandemic, with its high death toll and the resulting complications in the overall health situation, especially after its transformation from an illness to an epidemic and then a pandemic, has underscored the urgent need to integrate technological solutions at an accelerated pace. Consequently, digital health has become a priority for the World Health Organization in general, and for governments in particular.

Given that health is a fundamental and indispensable human right, international conventions have affirmed the right of every individual to enjoy the highest attainable standard of health. This has compelled countries worldwide to work on developing and upgrading their health systems to keep pace with the serious threats facing public health and the emergencies resulting from the rapid spread of the COVID-19 pandemic. In this context, most countries, particularly developed nations, have adopted plans and strategies aimed at promoting and developing comprehensive healthcare. The shift towards digital health, or the digitization of the health sector, has been considered one of the most effective aspects of these policies.

For its part, Algeria has sought to adopt this digital approach and leverage it to modernize and upgrade its various economic and service sectors, both public and private. The health sector is at the forefront, as it is one of the most important sectors receiving attention from the Algerian state

due to its close connection with members of society.¹ However, this sector still faces a number of challenges and shortcomings that require addressing and working to improve performance and raise the level of healthcare services provided. Based on the above, we have chosen to pose the following research question:

To what extent is the adoption of digital health tools effective in improving the performance of the Algerian health sector?

The importance of this study stems from the urgent need to keep pace with the profound transformations occurring in the technological environment. This contributes to improving operational efficiency, reducing costs, enhancing innovation and excellence, and raising the level of healthcare services. This aligns with the pursuit of digital health, supporting the path of digital innovation and promoting the move towards smart cities. The study's objectives can be summarized as follows:

- Presenting the conceptual framework of digital health, along with understanding the implications of the transition and its key advantages.
- Identifying the most significant challenges hindering the implementation of digitalization in the health sector in general, and in Algeria in particular.
- Examining the current state of digital health in Algeria and its prospects for development.

To answer the posed question and gain a deeper understanding of the subject, a descriptive-analytical approach was employed to present and discuss the concepts, relying on quantitative data where necessary. The study is organized according to the following sections:

Section 1: The Concept of Digital Health.

Section 2: The implications of digital health between improving performance and overcoming obstacles.

1 See Article 63 of Presidential Decree No. 20-442 of December 30, 2020, concerning the promulgation of the constitutional amendment, approved in the referendum of November 1, 2020, Official Gazette No. 82 of December 30, 2020.

See also Article 2/1 of Law No. 18-11 of July 2, 2018, concerning health, Official Gazette No. 46 of July 29, 2018.

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Section 3: The Reality of Digital Healthcare in Algeria and Prospects for its Development.

2. The first section: The concept of digital health

The term "digital health" is a relatively new term that emerged as a result of the advanced use of information technology in the health sector. In this section, we will attempt to define the meaning of digital health and its most important applications.

2.1 First: Definition of Digital Health

Digital health is a composite concept that combines digitization technologies with the field of healthcare. Digitization refers to the process of converting information and data sources from their traditional form into digital formats that can be processed and read machine-read. This is achieved using the binary system, which converts data into a sequence of binary numbers, allowing for its electronic storage, processing, and exchange within digital systems. The World Health Organization defined health in 1945 as: “a state of complete physical, mental, and social well-being and not merely the absence of disease, infirmity, or disability.”¹

Digital health, or e-health, refers to a term used to describe a wide range of technologies aimed at serving the fields of healthcare, health informatics, health education, and health promotion. This concept is closely related to other terms such as "mobile health" and "smart health," due to their overlap in goals and technological means used.

The World Health Organization has defined it as: “The cost-effective and secure use of information and communication technologies in support of health-related fields, including health care, health surveillance, health training, health literature, health education, health knowledge and research, and health education, in order to achieve a strategic vision based on better

1 Sabrina Benakouch, Saleh Lakehal, (2025), Digital Transformation in the Health Sector: Towards Enhancing the Quality of Health Services in Algeria, Maaref Journal, Volume 20, Issue 01, p. 164.

health outcomes and lower health costs.”¹

Digital health has evolved beyond the traditional use of technology in the health field to become an integrated system based on artificial intelligence, interoperable data exchange, and open and secure digital platforms. This transformation has contributed to redirecting healthcare towards more preventive and personalized models that prioritize patient needs and enhance the effectiveness of early medical interventions.

The concept of digital health is not new; rather, it emerged in response to a range of growing global challenges, such as population aging, rising infant mortality rates, disease outbreaks, and the exorbitant costs of healthcare, in addition to the effects of poverty and social discrimination. In this context, various stakeholders in the digital health ecosystem—patients, healthcare practitioners, researchers, application developers, and manufacturers and distributors of medical devices—are striving to develop innovative solutions and applications that will improve the quality of care and achieve the desired goals of digital health.²

Therefore, most countries strive to achieve quality in health services in accordance with the concept developed by the World Health Organization, which defines quality healthcare as "providing a range of diagnostic and therapeutic activities to each patient in a coherent manner that ensures the best possible health outcomes, according to the current state of medical knowledge, at the lowest possible cost and with the lowest level of

1 In this context, Jeff Duchess, founder and CEO of Onedrop Digital Health, believes that digital health has become a crucial pillar of modern healthcare. He explained that combining traditional healthcare approaches with digital technologies will better serve patients by providing more efficient solutions, increasingly tailored to their individual circumstances and adaptable to their lives, especially during the COVID-19 crisis.

See: Nawal Wasar, (2022), “Digital Health in the Context of the COVID-19 Pandemic – Digital Health Applications via Smartphones as a Model,” *International Journal of Social Communication*, Vol. 9, Issue 1, p. 402.

2Amal Abdi, Hanane Laarouk, (2024), Digital Health in a Post-Coronavirus Pandemic Scenario: Global Experiences and the Algerian Experience, *Journal of Research and Development Studies*, Volume 11, Issue 01, p. 377.

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therapeutic risks."¹

With the aim of activating digitization in the health sector, Algeria established the National Agency for Digitalization in Health under Executive Decree No. 22-251 ². According to Article 02 thereof, the Agency is a public institution of an industrial and commercial nature, enjoying legal personality and financial independence, and carrying out its tasks under the supervision of the Minister in charge of Health. It should be noted that Article 06 thereof has entrusted some tasks to the Agency, most notably establishing a national system that ensures the digitization of medical activities and allows for the exchange, security, and confidentiality of health data among health professionals, as well as providing a medical file with an identifier for each patient and sharing it with other doctors within the framework of protecting the information of each patient. The Agency also considers all activities that fall under health, such as telemedicine and teletreatment, and developing online medical training so that the sector can ensure remote medical and paramedical training for health professionals.³

2.2 Second: Digital Health Applications

Digital health applications have witnessed continuous development aimed at enhancing public health, both through treatment and prevention, by adopting innovative methods. The most prominent of these applications include:

2.2.1- Telemedicine: This is a medical practice that relies on modern communication methods, enabling doctors to communicate with patients for diagnosis and to provide appropriate treatments, as well as to monitor

1 Siham Zerouali, (2022), Global Strategies for Upgrading the Comprehensive Health Care System in Light of the Corona Pandemic - Digital Health as a Model - Journal of Comparative Legal Studies, Volume 08, Issue 02, p. 514.

2 See Executive Decree No. 22-251 dated June 30, 2022 relating to the National Agency for Digitalization in Health, Official Gazette of the People's Democratic Republic of Algeria No. 47 dated July 11, 2022.

3 Sabrina Benakouch, Saleh Lakehal, previous reference, p. 165.

patients' conditions remotely. It is considered one of the most efficient technologies for reducing healthcare costs globally and is implemented through:

***Telephone Diagnosis:** Contacting qualified medical diagnostic physicians by phone allows them to prescribe medications and document medical records filled out during the call.

***Remote Medical Monitoring Devices:** This technology often uses satellites to determine the patient's location via a GPS system. This allows for pinpointing the patient's location in emergency and urgent situations to ensure they receive healthcare as quickly as possible.

*** Robots:** Robots have replaced humans in performing some remote surgical procedures, especially in emergency cases. They are equipped with interactive screens and basic medical equipment. However, the development of this technology has remained relatively slow due to high costs and concerns about the potential elimination of some human jobs.¹

2.2.2- Big Data: This refers to a collection of data whose size exceeds the processing capacity of traditional database tools, whether in terms of collection, sharing, transmission, storage, management, or analysis, within an acceptable timeframe. This technology plays a significant role in achieving accuracy, efficiency, and speed, and in improving healthcare services provided to patients, from diagnosis to treatment. This is achieved by analyzing patient records and comparing them with previous records. Big data analysis can help in making quick and accurate decisions about a patient's condition.²

2.2.3- Artificial Intelligence and Data Analysis: Artificial intelligence is employed in analyzing health data and discovering patterns that humans may not easily notice. It also contributes to the early diagnosis of some diseases, such as cancer, and the prediction of potential health conditions

¹ Amal Abdi, Hanane Laarouk, the previous reference, p. 378, p. 379.

² Radhia Arrouf, (2025), Health Digitalization and its Role in Modernizing and Upgrading the Health Sector in Algeria, Al-Aseel Journal of Economic and Political Research, Volume 09, Issue 01, p. 291.

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before they occur.¹

2.2.4. Wearable Smart Devices: These are devices and tools that can be worn as convenient accessories, such as watches, shirts, jackets, etc. They are used in proactive healthcare by tracking health indicators and physical activity, such as heart rate, blood oxygen levels, and sleep patterns. These devices often interact with smartphones and tablets via apps like Google Fit and Apple Health. The Cleveland Clinic ranked the pacemaker app for smartphones as the best innovation of 2019, as it allows for the secure and wireless transfer of data to the patient's file and then to the doctor. The use of these devices is projected to experience a compound annual growth rate of 15.1% between 2023 and 2025.²

2.2.5. Health Apps: Health apps allow older adults to monitor their health daily. They also help them remember to take medications, monitor blood sugar levels, or measure physical activity, thus contributing to increased health awareness.

2.2.6- Electronic records: These records represent an electronic collection of health information provided to patients, including demographic and personal data, as well as statistics such as age and weight. They also include vital information, history of previous and current treatment, follow-up medical records, medication history, vaccination status, test results, and laboratory X-ray images. The digital health record contributes to improving the overall quality of healthcare by reducing adverse drug reactions and providing an accurate medical history that healthcare providers and patients

¹ The accuracy and efficiency of artificial intelligence and machine learning have been utilized in diagnosing and predicting various types of cancer. Artificial intelligence is also used in tailoring (personalizing) medication to determine the best care options for cancer patients. Despite the emergence of excellent results, the need for comprehensive research continues to further improve outcomes.

For further details, see: Maher Abdel Latif Rashed, (2024), Artificial Intelligence in Healthcare, Arab Center for Authoring and Translating Health Sciences, Health Culture Series, First Arabic Edition, Kuwait, p. 42.

² Amal Abdi, Hanan Laarouk, previous reference, p. 379.

can rely on to make informed and reliable health decisions.¹

3. The Second section: The implications of digital health between improving performance and overcoming obstacles

The health sector in Algeria is one of the vital sectors that requires urgent improvement in the quality of services and expanding access to them. Despite the efforts made to modernize the health infrastructure, many hospitals and facilities still rely on traditional systems that hinder the provision of rapid and effective health care. From this perspective, digitalization emerges as an innovative option to enhance the efficiency of the health system. However, it imposes complex technical and human challenges that require a conscious approach and sound planning.

3.1 First: The Positive Impacts of Digitalization on the Healthcare System

Digitalization in the healthcare sector contributes to providing accurate and rapid medical care for patients. Modern technologies also enable easy management and access to health records. From this perspective, digital health management offers numerous benefits and advantages for both patients and healthcare institutions, including the following:

*For patients, digital management allows for unified patient registration, ensuring the availability of their medical data for future visits. This contributes to improving the quality and speed of healthcare provided. It also enables the electronic transmission of medical records, reducing the number of field and in-person visits to clinics and saving patients time and effort. Furthermore, it empowers patients to become more independent and capable of self-managing their conditions and making sound decisions regarding their health by consulting multiple doctors and learning from other patients' experiences. Consequently, patients can receive more personalized healthcare focused on improving their quality of life.

¹ Sghier Ouis Benyettou, Radhia Bouchaour, (2024), A Reading on the Digital Transformation of the Healthcare System in Algeria, Journal of Business and Trade Economics, Volume 09, Issue 02, p. 364.

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*For healthcare professionals, digital management enhances the efficiency of voice communication and information exchange among staff. Achieving more effective utilization of medical staff and enabling rapid searching within the digital database to monitor and supervise employee performance instantly and in real time.

* Digital management allows for the conversion of medical payments and costs into an accurate and error-free digital format, reducing opportunities for fraud, as invoices are generated automatically and directly linked to service records.¹

* Sharing medical expertise, providing easy access to the results of medical and pharmaceutical studies and research, particularly in leading healthcare hospitals, and facilitating the exchange of knowledge and experience with these advanced institutions.

* Reducing healthcare costs, as information and communication technology, through telemedicine and remote care, contributes to lowering healthcare expenses.

* Easier access, enabling citizens to access healthcare services anytime and anywhere, especially for patients in isolated and rural areas, eliminating the hardship of traveling to distant hospitals.

* Contributing to enhanced prevention and improved public health by providing awareness and educational programs via digital applications, empowering individuals to take proactive measures to improve their lifestyles and reduce their risk of developing chronic diseases.

* Providing urgent primary care services: Digital health facilitates access to specialist physicians and enhances healthcare accessibility for individuals with limited mobility, transportation challenges, or time constraints, while ensuring effective medical interventions in emergency situations.

*Monitoring and tracking the spread of epidemics based on geographic and demographic data, with the aim of containing them and intervening

¹ Radhia Arrouf, previous reference, p. 292.

promptly.

*Strengthening cooperation among healthcare institutions by facilitating the exchange of medical services and information, thereby improving the quality of care and reducing the isolation of medical personnel in remote or isolated areas.

*Digitalization contributes to streamlining administrative procedures by minimizing manual data entry, thus reducing the need to handle paper documents when digital capabilities are available. This transformation allows for the allocation of human resources to more productive and value-added tasks.

Therefore, the integration and interconnection of the aforementioned elements contribute to improving the performance of healthcare facilities and enabling them to provide high-quality healthcare services to their users.

3.2 Second: Challenges Associated with Implementing Digital Health

The process of digitizing healthcare facilities faces a number of challenges, the most prominent of which are:

3.2.1- Legal Challenges: A clear and consistent legal framework is essential for the successful digitization of the health sector. In Algeria, this legal framework suffers from a lack of consistency, as it lacks appropriate legislation that keeps pace with the requirements of digital transformation in the health sector. Current laws do not cover important areas such as data protection, cybersecurity, and the licensing mechanisms necessary for implementing digital health systems, thus limiting digital transformation efforts.

Therefore, the absence of such legislation negatively impacts the ability of health institutions to adopt digital solutions and increases the risks associated with data protection and ensuring information confidentiality.¹

3.2.2- Privacy and Security: These constitute one of the most prominent challenges in the field of digital healthcare, as protecting patient data is of paramount importance. Healthcare institutions must comply with applicable laws and adopt advanced security solutions to ensure information

¹ Abdelkader Messad, (2024), Challenges of Digitalizing the Health Sector in Algeria, Journal of Environmental Studies and Sustainable Development, Volume 03, Issue 01, p. 92.

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safety, such as adherence to the General Data Protection Regulation (GDPR). This is becoming increasingly important given the continuous expansion of technology use in healthcare services, necessitating an effective response to cyber threats.¹

3.2.3- Challenges related to information security and health information network data: The digital transformation of the healthcare system presents the challenge of providing secure health networks, information, and digital data against any breaches, intrusions, or data theft. Data must also be protected from any natural disasters that could disrupt healthcare services.²

3.2.4- The digital divide: A significant number of individuals still face difficulties accessing digital devices or the internet, particularly in certain geographic areas. This hinders their ability to fully benefit from these technologies. A clear disparity exists in access to technology between urban and rural areas, as well as between those with and without digital skills. This digital divide is one of the factors that may prevent some patients from fully benefiting from telehealth services.³

3.2.5- The challenge of digital transformation costs: Despite the positive results that have emerged from the health sector's move towards digitization, whether in terms of improving the quality of services provided to patients or in terms of raising the efficiency of workers and health facilities, this transformation requires high financial expenditures, which makes many health institutions carefully study the extent of the economic feasibility and expected return from this digital transformation before

¹ Toufiq Abidi, Farhi Romaissa, (2025), Digital Health Care and Telemedicine: Strategies to Enhance Health Security, Algerian Journal of Human Security, Volume 10, Issue 01, p. 801.

² Naïma Mennad, mhamed Ziad, (2025), Contributions of Digital Transformation Applications to the Health Sector in Algeria: Reality and Challenges, Algerian Journal of Public Finance, Volume 15, Issue 01, p. 240.

³ Toufiq Abidi, Farhi Romaissa, previous reference, p. 801.

actually implementing it.

4. The Third section: The Reality of Digital Healthcare in Algeria and Prospects for its Development

The health sector is of paramount importance, especially with the rise of epidemics and diseases worldwide. Like other countries, Algeria has adopted a digital strategy to address current challenges. The use of technology is essential to meet citizens' needs for healthcare services and care. This section will highlight the current state of digital healthcare in Algeria and then explore the prospects for developing the Algerian healthcare system within the framework of digitalization.

4.1 First: The Reality of Digital Healthcare in Algeria

Digital transformation is a fundamental pillar for driving the national economy. This necessitates the adoption of a more dynamic digital transformation encompassing various sectors, most notably the health sector. The health sector has received increasing attention, particularly following the COVID-19 pandemic, which revealed limitations and shortcomings in the performance of the national healthcare system. Consequently, public authorities have emphasized the importance of modernizing this sector and adapting it to current environmental and technological changes.¹ It is worth

¹ Algeria adopted the "e-Algeria" project between 2009 and 2013, which saw the development of the telecommunications infrastructure and the strengthening of public services. Subsequent reforms culminated in the 2005 legislation regulating electronic signatures by establishing electronic authentication as a means of ensuring the security of digital information exchange. This contributed to the digital transformation of public administration. In 2018, a new telecommunications law was enacted, introducing significant changes to the sector. Furthermore, the legal framework was strengthened by an existing law that allows Algeria to enter the e-commerce market in the medium and long term. This law includes provisions guaranteeing the security of electronic transactions and defining the obligations of both suppliers and customers. The state has also taken measures to promote the use of electronic payments in financial transactions. These measures include agreements between Algeria Post and other institutions to allow payments via the Gold Card, and the requirement for businesses to provide electronic payment devices to reduce reliance on digital transactions. For example, citizens can now pay their electricity, gas, and water bills online through various digital platforms that offer this feature, such as the "BaridiMob" platform.

See: - Law No. 15-04 of February 1, 2015, establishing the general rules relating to electronic signatures and certifications, Official Gazette of the People's Democratic Republic of Algeria, No. 6, dated February 10, 2015.

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noting that Algeria had already launched some initiatives in the field of digital health, but the pandemic has compelled an acceleration of this transformation to ensure comprehensive healthcare is accessible to everyone, anytime, anywhere.

4.1.1- Telemedicine Project: Algeria adopted the telemedicine project in 2007. Led by the Center for Advanced Technology Development with assistance from the International Center in Canada, this project was implemented by key partners including the Hadjira Health Center, Algeria Telecom Satellite, and four hospitals: Birtraria, Hassan Badi, Ouargla, and Adrar. The project was supported by the Ministry of Higher Education and Scientific Research and the Ministry of Health and Hospital Reform. The project involved developing and expanding a telemedicine platform to include pediatric departments in the participating hospitals, which served as a small nucleus for telemedicine services.

Following the success of the initial pilot project, Algeria expanded the project and equipped the hospitals with advanced equipment and technologies. This facilitated the exchange of experiences and expertise among doctors both within and outside the country, leading to saving the lives of thousands of patients. Algeria continues its efforts to expand telemedicine technology to include all hospitals and healthcare institutions nationwide.¹

4.1.2- Dokta Platform: This is a digital health tool designed to connect patients with doctors. It facilitates the scheduling of medical appointments and the management of patient information and health records. This platform streamlines communication between doctors and patients, enhancing the effectiveness of medical follow-up and improving the quality of care provided.

- Law No. 18-04 of May 10, 2018, establishing the general rules relating to postal and electronic communications, Official Gazette No. 28, dated May 13, 2018.

- Law No. 18-05 of May 10, 2018, relating to electronic commerce, Official Gazette No. 28, dated May 16, 2018.

¹ Hayet Sereir El Hirtsi, (2022), e-health: a new perspective for improving healthcare in Algeria,” a proposed vision, Economic Studies, Volume 16, Issue 02, pp. 355, 356.

While this concept was considered before the COVID-19 pandemic as part of modernization and development efforts, the importance of this digital transformation became particularly evident during the health crisis. This was due to several factors, most notably overcrowding in waiting rooms, long appointment wait times, and the urgent need to adopt digital medical records to facilitate follow-up and coordination within the healthcare system.

4.1.3- Digitalization of the Pharmaceutical Production Sector: In a parallel development, the pharmaceutical industry and production sector has moved towards adopting digitalization across all stages of production. This aims to track the flow of medicines and monitor the inventory of pharmaceutical materials and medical supplies, especially in light of the challenges associated with drug shortages. Digitalization has emerged as a pivotal tool in regulating production and distribution processes through the adoption of digital platforms such as the REQUETEMEDIC portal, which allows for precise tracking of pharmaceutical products at the manufacturing, distribution, and storage levels.¹

4.1.4- Project to Digitize Contractual Relations with Social Security Bodies: This is being achieved through the activation of the health insurance card, within a framework of digital coordination between the social security body and health authorities, via a dedicated electronic space to regulate the contractual relationship between the two parties.²

4.1.5 - The Digital Hospital Project: This digital platform was developed based on a comprehensive health information system, which includes various data related to the sector and enables all active partners from medical practitioners in the public and private sectors to exchange information electronically, especially during periods of health crises. This platform is expected to contribute to enhancing the effectiveness of prevention and response to health disasters, in addition to contributing to rationalizing treatment expenses and improving the efficiency of managing health resources.³

¹ Sghier Ouis Benyettou, Radhia Bouchaour, previous reference, p. 373.

² Ammar Zidane, Hassan Ben Kadi, (2023), The Algerian Experience in Digitalizing the Health Sector, International Journal of Legal and Political Research, Volume 07, Issue 01, p. 164.

³ Amal Abdi, Hanan Laarouk, previous reference, p. 389.

4.2 Second: Prospects for Developing the Algerian Healthcare System in Light of Digitalization

At the end of 2022, the Algerian Ministry of Health began implementing concrete measures to accelerate the pace of digital transformation, in response to directives from the President of the Republic in this area. This coincided with the remarkable recovery from the exceptional circumstances imposed by the COVID-19 pandemic. Simultaneously, a new Minister of Health was appointed, who made digital transformation a top priority for the Ministry. A qualified team was formed to oversee the digitization process within every healthcare institution nationwide. This team, comprised of several employees, is preparing to launch and expand a range of digital platforms, considered essential tools for modernizing the healthcare sector. Key among these platforms are:

- A program for managing specialized medical appointments remotely.
- A program for managing patient flow within emergency departments.
- The new PATIENT program.
- The RH SANTE DZ program, which specializes in tracking the career paths of healthcare sector employees.

Anyone following these indicators and the efforts undertaken by public bodies in Algeria, aimed at developing the public health sector, will notice their alignment with the vision launched by the World Health Organization (WHO) regarding the future of digital health for the period 2020-2025. Algeria has responded to the organization's recommendations by working to develop health infrastructure and adopting shared applications that allow for the use, exchange, and utilization of big health data at both the national and international levels, in addition to accessing medicines, programs, and vaccines. This was clearly demonstrated during the COVID-19 pandemic.¹

5. CONCLUSION

¹ Abbas Debouchi, Lahcen Razak, (2024), Digital Transformation of the Public Health Service in Algeria: Mechanisms of Implementation and Stakes of Image Improvement, Al-Mi'yar Journal, Volume 29, Issue 01, p. 605.

The healthcare sector has witnessed significant and rapid development, particularly after the global pandemic. Countries worldwide have become more open to adopting digital transformation, especially those striving to become smart cities. Many countries have integrated digital transformation technologies into their healthcare services, achieving considerable success and returns. This has encouraged other countries, including Algeria, to take steps, launch initiatives, and make extensive investments to transition to digital healthcare systems based on artificial intelligence, telemedicine, robotic surgery, and other innovations that contribute to strengthening the digital economy and integrating it into the global system.

The most important findings can be summarized as follows:

- *The healthcare sector is one of the most vital and sensitive sectors due to its direct impact on the course of national development.

- *The World Health Organization has recognized the concept of digital health and made it a central project that it seeks to implement in various countries around the world to achieve the Sustainable Development Goals.

- * Digital transformation has become an indispensable necessity across various economic and service sectors, particularly in healthcare, due to rapid technological advancements and their direct impact on society, whose members' needs have evolved significantly in parallel with this transformation.

- * Globally, digital health indicators have recorded remarkable progress, manifested in the increased use of telemedicine, artificial intelligence technologies, and big data analytics, with expectations of further growth in the coming years.

- * Digital health focuses on the effective use of information and communication technologies to enhance and modernize various aspects of the healthcare sector.

- * The digitization of healthcare facilities contributes to overcoming many obstacles that hinder workflow within the sector, through the adoption of e-government, the deployment of modern technologies, and the creation of digital platforms that facilitate interaction between doctors and patients.

In light of the above findings, we propose a set of recommendations that will help increase the effectiveness of digitization for the development

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and growth of the healthcare sector. Among the most important are:

- * Organizing seminars and scientific conferences that promote the digitization of public administration, support healthcare competencies, and contribute to improving digital performance.

- *There is a clear need to update legislation and legal frameworks related to digital health to keep pace with the rapid development of information technologies, with a focus on enacting laws that protect the privacy and confidentiality of patients' health data.

- *Training healthcare professionals is essential. Providing specialized training programs for healthcare practitioners is crucial to familiarize them with the latest digital health technologies and telemedicine tools, thereby enhancing the quality of healthcare and ensuring the delivery of safe and effective services.

- *Ensuring the security and protection of personal data collected by artificial intelligence systems, while allowing access only to authorized individuals.

- *Requiring healthcare institutions to prepare regular reports detailing the level of digitalization implementation within their facilities, along with a comprehensive evaluation, in conjunction with monitoring and oversight by relevant authorities.

- *Launching specialized digital journals and establishing academic programs in universities focused on digital health.

- *Developing a secure national information platform aimed at safeguarding patients' personal data, protecting the information of healthcare professionals, and securing the financial data of healthcare institutions and hospitals.

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