

## **Digital Administration as an Entry Point for Public Utility Reform: Toward Institutional Performance and Service Quality) A Case Study of Health Institutions )**

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### **Abstract:**

The rapid technological transformations, particularly those ushered in by the digital revolution, have profoundly reshaped the landscape of contemporary public administration. Digital governance has emerged as a strategic alternative to the traditional administrative model, aiming to enhance institutional efficiency, transparency, and the quality of service delivery. This shift is particularly significant in the healthcare sector, given its direct connection to citizens' well-being and the imperative of ensuring equitable access to effective care. Digital health management enables better resource allocation, facilitates remote service provision, and simplifies administrative procedures-contributing to performance improvement and the reduction of disparities. Nonetheless, this transition continues to encounter legal, structural, and human challenges. Assessing the effectiveness of this transformation within health institutions is therefore essential to understanding its role in restructuring public service and aligning it more closely with citizens' needs.

**Keywords:** Digital administration, public sector efficiency, administrative modernization, legal framework, digital transformation challenges, Health Institutions.

### **INTRODUCTION:**

In the context of the accelerated structural transformations the world is experiencing due to advanced technological developments-particularly those associated with the digital revolution-digital administration has become an inevitable strategic orientation. It is driven by the imperatives of institutional modernization and achieving administrative efficiency. This trend is especially evident in the health sector, which represents one of the most vital public utilities directly linked to citizens' lives and quality of life. The adoption of digital administration within the healthcare system has

become a pressing necessity to enhance institutional performance across hospitals and health administrations.

This is achieved through the automation of procedures, improved accessibility to medical services, and more effective governance and oversight. Digital healthcare management contributes to reducing territorial disparities, providing remote health services-especially in underserved areas-and reinforcing transparency in the management of medical and financial resources, while promoting accountability at all levels of health decision-making. Despite the many advantages of digitalization in the health domain, this structural shift faces numerous legal, regulatory, and infrastructural challenges. Furthermore, there is a shortage of digital competencies in some health institutions.

This necessitates the adoption of a gradual and conscious approach that considers the specificities of the healthcare system and is based on strategic planning, legal and regulatory reform, and the training of human resources in digital health technologies. Accordingly, this research issue will be addressed through two main axes that aim to comprehensively examine the dimensions of digital transformation in relation to the performance of public services, particularly within the healthcare sector:

**Axis One: Digital Transformation and Public Administration – A Conceptual Approach.**

This axis seeks to analyze the impact of digitalization on the quality of public services by examining the structural changes affecting traditional management models, and by demonstrating how digitalization has become a tool for simplifying procedures and enhancing efficiency and transparency in public service delivery.

**Axis Two: Assessing the Effectiveness of Digital Governance in Enhancing Institutional Performance and Achieving Modern Quality Standards.**

This axis involves a case-based analysis of the manifestations of digitalization within healthcare institutions, aiming to measure its impact on improving administrative performance, the quality of healthcare services, and their accessibility to citizens, while focusing on the legal, structural, and human challenges associated with this transition.

**Axis One: Digital Transformation and Public Administration – A Conceptual Approach to the Impact of Digitalization on the Quality of Public Services.**

Over the past decades, information and communication technologies have asserted themselves as a central component across various spheres of activity within both private organizations and public administrations. They have become indispensable pillars in administrative management and

organizational processes. Among the most prominent mechanisms employed for the reform and modernization of public administration is **e-governance**, which integrates modern digital tools with the aim of enhancing the quality of the relationship between the administration and the citizen. As a strategic instrument, e-governance contributes to fostering positive interaction between the administration and service recipients, and to establishing the foundations of more effective and transparent public governance.<sup>1</sup>

This orientation is not merely a technical choice, but rather a **strategic shift** toward a modern management model grounded in the principles of **efficiency**, **transparency**, and the **fight against bureaucracy**. Digital governance, through its technological mechanisms, seeks to advance the public interest by improving the quality of public services, streamlining administrative procedures, and strengthening the trust between citizens and the administration. Moreover, it is closely aligned with the objectives of **good governance**, particularly by reducing opportunities for corruption and reinforcing the principle of accountability.

Accordingly, understanding the conceptual relationship between digital transformation and the quality of public service requires an in-depth analysis of the structure of digital administration and its impact on redefining the role of the civil service within an evolving legal and regulatory framework.

### **First: Digital Governance – Theoretical and Conceptual Foundations.**

Given the relative novelty of the topic of digital governance and the growing academic interest it has attracted in contemporary legal and administrative studies, it is now regarded as one of the prominent fields within administrative law. This is due to the advanced technological mechanisms it provides, which enable public administration to perform its functions with greater efficiency, within a framework that serves both individual and collective interests. This model of governance has become a central pillar in the process of reforming public services and modernizing methods of service delivery, relying on intelligent digital tools that ensure performance quality and timely execution.<sup>2</sup>

Building upon the above, this section aims to frame the concept of digital governance through two methodological levels:

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<sup>1</sup> **Fatima Atjar**, Du rôle du numérique dans la communication organisationnelle de l'administration marocaine des douanes et impôts indirects, Impacts sociétaux et développements du management des technologies organisationnelles Par Bertrand Mocquet, Chrysta Pélissier et Sabine Cotreaux Management des technologies organisationnelles 2021/2 N° 13 Les Presses des Mines, p 105.

<sup>2</sup> **Yann Algan, Maya Bacache-Beauvallet et Anne Perrot**, Administration numérique, Notes du conseil d'analyse économique 10 nos par an, Conseil d'analyse économique, p 1-2.

First, by examining the prevailing definitions of the concept and identifying its key characteristics;  
Second, by highlighting the advantages that make this model superior to the traditional administrative model in terms of efficiency and effectiveness.

### **A. Definition of Digital Governance:**

Academic definitions of digital governance vary depending on the perspective from which this model is approached. However, most studies agree in viewing it as an integrated information system employed to manage administrative affairs and public services through digital means based on modern communication technologies.

Digital governance is also defined as the ability of administrative institutions to manage their activities and resources-both internally and externally-via digital platforms, in an effective,<sup>3</sup> cost-efficient manner, while ensuring service quality and accelerating decision-making processes.<sup>4</sup>

Digital governance represents a strategic transformation that goes beyond the mere use of technological tools. It redefines the administrative management model in a way that is more adaptable to digital transformations and more responsive to the requirements of transparency, speed, and efficiency.

In the field of administrative services, digital transformation also enables innovation at the level of the service itself. Moving beyond mere formal digitization (i.e., document dematerialization), which primarily aims to reduce administrative costs, digitalization is leading governance toward a new model- “Government as a Platform”-in which citizens and public services interact within an integrated and dynamic digital environment.

The core driver behind this transformation lies in the capacity of digital platforms to collect and process vast volumes of data, enabling the delivery of new, user-centered services tailored to the evolving needs of the public.<sup>5</sup>

In the Algerian context, the adoption of this approach is relatively recent. In 2018, the Ministry of the Interior designated the year as a milestone for digital governance by launching the "e-

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<sup>3</sup> **Ben Kacem, T.** (2017). *The Role of E-Governance in Improving Service Quality in Public Hospital Institutions*. Journal of Finance and Business Economics, University of Martyr Hamma Lakhdar – El Oued, Algeria, **Vol. 2**, No. 2, December, p. 27.

<sup>4</sup> **Rabhi, L., & Ouchen, H.** (2018). *E-Governance as an Entry Point for Health Sector Governance*. In *Health Policy in Algeria* (Collective Work), University of Oran – Mohamed Ahmed, Social Law Laboratory, Second Semester, p. 249.

<sup>5</sup> **Yann Algan, Maya Bacache-Beauvallet et Anne Perrot**, op, cit, p 1.

Municipality" projects and completing a unified municipal network-emphasizing that digital administration constitutes a strategic necessity for all public institutions.<sup>6</sup>

It is worth noting that most of the existing definitions of e-governance stem from the field of administrative sciences and revolve around the transition from traditional administrative systems to modern digital models. This is largely due to the absence of a dedicated legal framework that governs the principles and rules of digital administration.<sup>7</sup> Hence, e-governance is best understood as a modern technological tool designed to embody the principles of good governance.

### **B. Key Characteristics:**

E-governance represents a modern administrative model that allows for the efficient execution of administrative functions by reducing time, cost, and effort. These features have led many countries to adopt this model in light of its multiple advantages over traditional administration.

It relies on digitized documentation and enables remote service delivery, unconstrained by time or place, thereby accelerating workflows and enhancing citizen satisfaction. Moreover, it promotes transparency and curbs administrative corruption through technologies that ensure structured data management and ease of access.

These transformations align with the evolution of administrative law, as digital governance reflects the practical implementation of good governance principles. As such, it constitutes an effective strategic tool within the framework of the rule of law and institutional governance.

### **C. Principles of E-Governance:**

E-governance is grounded in a set of principles and objectives, which include:<sup>8</sup>

- a) Providing optimal services to citizens, especially in areas such as healthcare and medical assistance.
- b) Focusing on results, by transforming ideas into concrete, measurable outcomes.

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<sup>6</sup> **Gates, B.** (1998). *Informatics After the Internet: The Road Ahead* (R. Abdelsalam, Trans.). National Council for Culture, Arts and Letters, *World of Knowledge Series*, Kuwait, Issue No. 231, p. 149.

<sup>7</sup> **Kurdi, A. S.** (n.d.). *Key Principles of E-Governance*. [Online Article]. Retrieved from: [Please provide the full URL for accurate citation]/ www: <http://kenanaonline.com/users/ahmedkordy/posts/129026>, le 26/03/2025, H 21:30.

<sup>8</sup> **Tala, L.** (2020). *Mechanisms for Improving and Modernizing Public Service: E-Governance as a Model*. In *Public Service and Mechanisms for Its Advancement in Public Administrations: Theoretical Approaches and Local and Global Experiences*, Vol. 1, p. 121.

- c) Ease of use and universal accessibility, ensuring that all patients, employees, citizens, and healthcare workers can benefit from digital services.
- d) Cost reduction, by optimizing administrative resources and operational expenses.
- e) Continuous change, emphasizing adaptability and ongoing improvement in service delivery and internal processes.

## **Second: Foundations of Digital Transformation in Public Service.**

To achieve the objectives of e-governance, health institutions must consider a number of fundamental prerequisites:

### **A. Requirements for Implementing E-Governance.**

These requirements are both internal and external, and can be summarized as follows:<sup>9</sup>

1. **Digital Infrastructure:** The availability of advanced wired and wireless communication networks is essential to ensure effective connectivity between administrative institutions on one hand, and between these institutions and the public on the other.

2. **Electronic Tools:** The provision of modern digital technologies-such as computers, smartphones, and functional websites-is vital. Additionally, information systems must be designed to allow for continuous updates in line with technological advancements.<sup>10</sup>

3. **Training and Capacity Building:** Specialized training programs must be implemented for both public employees and citizens, in order to enhance engagement with the digital transformation and facilitate the use of e-governance tools.

4. **Legal and Regulatory Framework:** The establishment of supportive legal instruments and regulations is necessary to legitimize digital governance, define its legal implications, and ensure its procedural enforceability and legal credibility.

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<sup>9</sup>Manzer, S. (n.d.). *E-Governance as a Contemporary Administrative Approach to Promoting Public Service*, Vol. 2, No edition, No publisher, p. 124.

<sup>10</sup>Al-Zaarir, R., & Al-Taleb, G. (2019). *E-Governance and E-Marketing for Contemporary Business Organizations*, 1st ed., Al-Barouni Scientific Publishing and Distribution, Amman, Jordan, p. 36.

**5. Cybersecurity and Data Confidentiality:** Effective mechanisms must be developed to safeguard information and data from cyber threats and to guarantee the privacy of digital transactions.

**6. Institutional Competitiveness Enhancement:** Public institutions-particularly in-service sectors such as health-must undergo restructuring to align with modern governance logic, where administrative performance is linked to competition and service quality.<sup>11</sup>

### **B. Challenges of E-Governance and Factors of Success:**

E-governance in public institutions faces a number of challenges that hinder the achievement of strategic objectives and delay the implementation of various digital services. These challenges may be classified as follows:

#### **1. Obstacles to Implementing E-Governance:**

E-governance faces several hindrances that reduce its effectiveness, most notably:<sup>12</sup>

- a) **Administrative and organizational barriers:** such as complex administrative structures and weak coordination between departments.
- b) **Technical difficulties:** related to underdeveloped digital infrastructure and failure to keep up with technological advancements.
- c) **Human obstacles:** including a lack of technical expertise and disparities in digital skills among employees and citizens.
- d) **Resistance to change:** demonstrated by adherence to traditional models and bureaucratic inertia.
- e) **Legal and regulatory issues:** the absence of clear legal provisions to regulate digital transactions and ensure their legitimacy.

Despite Algeria's efforts to adopt information and communication technologies, the level of investment in e-governance remains limited in comparison with the progress achieved by many other countries.

#### **2. Success Factors of E-Governance:**

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<sup>11</sup>Lamia Tala, *op. cit.*, p. 117

<sup>12</sup>Lakhder Rabehi and Aicha Lakhel, *op. cit.*, p. 247

For a successful digital transformation in public administration, the following conditions must be met:

- a) Involving all local stakeholders in the development of digital services, to ensure institutional coordination and coherence.<sup>13</sup>
- b) Moving from partial to full reliance on digital systems for the execution of daily tasks.
- c) Embedding transparency between decision-makers and users to foster trust and improve the working environment.
- d) Documenting institutional activities and outcomes, and establishing a comprehensive data infrastructure to enable evidence-based decision-making.<sup>14</sup>

Thus, the implementation of e-governance does not merely rely on integrating digital tools, but requires a fundamental reconfiguration of the administrative structure and work methods. In this regard, the reform of traditional management systems becomes essential, to align with the principles of modern digital health governance.

Digital health governance represents a contemporary model of administrative organization that has asserted itself as a strategic mechanism, profoundly impacting the functions and traditional structures of public health administration. This influence extends beyond the use of digital tools, encompassing the very essence of administrative practice. It is now widely accepted that classical administrative models, which were once suited to earlier environments, are no longer sufficient-nor appropriate-in today's dynamic digital environment, which is based on speed, interaction, and informational integration.

In this context, there is an urgent need to transition from traditional management methods to a modern model that responds to the requirements of e-health governance. This necessitates a comprehensive reengineering of existing administrative systems, including the redesign of processes, procedures, and organizational structures according to a digital approach grounded in the principles of efficiency, transparency, integrity, and equality.

The ultimate objective of this transformation is to create a digital administrative environment capable of delivering fast, accurate, and cost-effective public services, which help reduce bureaucratic

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<sup>13</sup> Manzer, S, *op. cit*, p142.

<sup>14</sup> Al-Zaarir, R., & Al-Taleb, *op. cit*, p35.

burdens and strengthen trust between the administration and the citizen-in line with the principles of good governance and the rule of law.

## **Axis II: Assessing the Effectiveness of Digital Governance in Enhancing Institutional Performance and Meeting Modern Quality Standards – A Case Study of Healthcare Institutions.**

Digital governance constitutes a modern strategic tool increasingly adopted by healthcare institutions to enhance performance and align with quality standards. By leveraging technologies such as artificial intelligence and cloud computing, digital governance enables greater efficiency, enhanced transparency, and faster responsiveness to dynamic challenges. It also contributes to improved patient satisfaction and reduced resource waste.

The effectiveness of digital governance extends beyond the technical dimension to encompass cultural and institutional transformation. The success of this digital transition requires adequate infrastructure and a qualified human capital base. This section aims to assess the impact of digital governance on improving the performance of healthcare institutions and their alignment with international quality standards.<sup>15</sup>

Certainly. Below is a professional, academic, and legal-style English translation of your text, with precise terminology suitable for legal and governance-related contexts:

### **First: The Legal Principles of E-Governance in the Health Sector (An Analysis of Law No. 18-11 and its Implementing Regulations).**

The health sector is among the most vital areas impacted by the wave of digital transformation, which has necessitated the adoption of e-governance principles to ensure the delivery of efficient, rapid, and transparent healthcare services in accordance with modern quality standards and the provisions of Law No. 18-11 concerning public health.

This law, through its various articles, enshrines a set of principles that lay the foundation for digital governance within the healthcare system. These principles can be summarized as follows:

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<sup>15</sup> **Khaled Mamdouh Ibrahim**, *The Legal Regulation of Digital Data in Cyberspace (Cloud Computing)*, Dar Al-Fikr Al-Jami'i Publishing, 1st Edition, Alexandria, 2022, p. 5.

1. **Efficiency and Quality of Service:** Healthcare institutions are obligated to provide services promptly and at minimal cost, while adhering to quality standards, as stipulated in Article 272 of Law 18-11.
2. **Effectiveness and Equity:** These refer to achieving patient satisfaction and ensuring equal access to treatment. Article 3, paragraph 1, affirms that “the objectives in the field of health are to protect citizens’ health by ensuring equal access to healthcare and the continuity of public health services and health security.”
3. **Transparency:** This involves guaranteeing citizens’ right to access health information, promoting institutional openness within healthcare facilities, and reinforcing the principle of health communication as an integral component of the right to health.
4. **Participation:** Citizens are to be involved in the evaluation and monitoring of healthcare services, whether through electronic mechanisms or interactive platforms that enable them to express opinions and provide feedback.
5. **Responsiveness:** This refers to the healthcare facility’s ability to swiftly and effectively respond to citizens’ health needs with readiness and agility.<sup>16</sup>
6. **Accountability:** Effective mechanisms for oversight and accountability are to be established. Article 189 provides for the creation of a corps of health inspectors affiliated with the external services of the Ministry of Health, vested with the authority to investigate and report violations.
7. **Rule of Law:** This underscores the institutional and regulatory nature of healthcare provision. Article 12 mandates the state to enact effective legal instruments governing the operation of the healthcare system.
8. **Anti-Corruption:** Through the development of an integrated digital health system that promotes integrity and transparency, the law aims to curb malpractice by means of electronic tracking systems and the digital authentication of transactions.<sup>17</sup>

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<sup>16</sup>In this regard, **Article 17 of Law No. 18/11** stipulates the following: “The State shall undertake to promote communication and information and to enhance them in the field of health”. **Law No. 18-11** dated 18 Shawwal 1389 AH, corresponding to 02 July 2018, concerning health, published in the Official Gazette No. 46, issued on 29 July 2018; as amended and supplemented by Ordinance No. 20-02 dated 30 August 2020, published in the Official

<sup>17</sup>In this context, the Algerian legislator introduced, in **Chapter Eight of Law No. 18/11**, titled “Penal Provisions”, a set of criminal sanctions. The Algerian Penal Code (Criminal Code) provides for penalties applicable to any person violating the provisions of the Health Law, specifically in **Articles 400 to 414**.

## **Second: Practical Applications of E-Governance in the Health Sector.**

The integration of e-governance into the healthcare domain represents a pivotal step toward modernizing the healthcare system. This orientation has materialized through various practices, which can be categorized as follows:

### A. Areas of Application:<sup>18</sup>

#### 1. General Domains:

These are areas common across all public sectors, indirectly influencing the health sector, such as:

- a) Enhancing the Quality of Health Services: Through the internal organization of relationships between public hospital institutions and community health establishments, as stipulated by Executive Decree No. 07-140, which enshrines quality as a fundamental principle of the healthcare system.
- b) Improving General Performance: The application of e-governance contributes to the development of healthcare facility performance by introducing tools for electronic analysis and planning, and adopting total quality management (TQM) approaches in administration.

#### 2. Specific Domains:<sup>19</sup>

These refer to the technical and direct areas arising from the implementation of information and communication technologies (ICTs) within healthcare facilities, including:

- a) Telemedicine: The provision of medical consultations and services via electronic platforms, eliminating the need for direct contact between physician and patient, thereby improving healthcare accessibility in remote areas.
- b) E-Health: The comprehensive use of information and communication technologies across various healthcare services, including appointment scheduling, therapeutic follow-up, and electronic medical records.

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<sup>18</sup>Rabhi, L., & Ouchen, H, op, ccit, 158.

<sup>19</sup>Ben Saleh wisam and El-Hadi Bouqalaoul, *Obstacles to the Implementation of E-Government in the Health Services Sector: A Case Study of the Public Hospital Institution Abdelrazak Bouhara – Skikda*, First National Conference on Health Management and the Improvement of Health Services in Algeria: Between Management Challenges and Funding Stakes – *Hospitals as a Model*, April 10–11, 2018.

- c) Remote Health care: A broader concept than telemedicine, encompassing health education, psychological support, and collective medical communication.
- d) Mobile Health (M-Health): The use of mobile applications to improve access to healthcare in isolated regions and deliver regular services to underserved populations.

#### B. Impacts of E-Governance Implementation in Healthcare Facilities:<sup>20</sup>

The digitization of healthcare services has brought about profound transformations in the administration of healthcare institutions. The most notable impacts include:

1. **Improved Accessibility**: Facilitating citizen access to health services at any time and from any location, particularly in remote regions.
2. **Cost Rationalization**: Reducing administrative and paperwork-related expenses, while activating smart monitoring systems for more effective resource allocation.
3. **Enhanced Service Quality**: Through smart devices and accurate databases that enable real-time health monitoring and improved therapeutic intervention.
4. **Development of National Databases**: Including patient data, healthcare providers, and institutions, thereby enhancing statistical analysis and decision-making capabilities.<sup>21</sup>
5. **Operational Efficiency**: Improving communication among medical teams, minimizing medical errors, promoting medical research, and facilitating academic training and continuing education.

Therefore, the governance of the health sector in alignment with the principles of good governance within a civil state cannot be achieved without the positive deployment of e-governance, coupled with robust electronic oversight. This requires the clear delineation of authorities, responsibilities, and powers, along with the implementation of oversight systems that encompass efficient and effective monitoring procedures and methods.<sup>22</sup>

Advantages of E-Governance in Health:

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<sup>20</sup> Ben Saleh wisam and El-Hadi Bouqalaoul, *op. cit.*, p. 9.

<sup>21</sup>In this regard, the following may be added: the establishment of an **information system for physicians, patients, and supporting institutions**; the use of **email for communication**; conducting **research on patients** and performing **hospitalization rate tests**; and the creation of **laboratories for training in collective decision-making**. (See: *Farid Ragheb Al-Najjar, Hospital and Pharmaceutical Company Management, (2007): Approaches to International Quality Standards and Balanced Scorecards, Integration of Treatment and Medication (1st ed.)*. University Publishing House for Printing and Distribution, Alexandria.p 21.)

<sup>22</sup> Ra'kez Al-Zarareer and Ghassan Al-Taleb, *op. cit.*, p. 49.

The benefits are manifold and extend to all healthcare professionals, including:<sup>23</sup>

- Increased efficiency and effectiveness of operations
- Improved communication among healthcare service stakeholders
- Bridging of geographic distances
- Enhanced decision-making processes
- Reduction of time and effort losses
- Decrease in medical errors<sup>24</sup>
- Advancement in medical research and statistical operations
- Greater reliability in healthcare provision

Furthermore, ICT-based medical systems can be developed to simulate remote surgical activities in clinical practice, academic training, medical guidance for students, diagnostics, treatment, and the structuring and transfer of integrated electronic health records. Certainly.

### **Third: The Legal Framework for Digital Governance – Between Legislative Gaps and the Requirements of Legitimacy (A Comparative Study with French Legislation).**

The protection of personal data has become a fundamental legal requirement for the development of digital services within public health institutions. The legal framework governing digital governance represents one of the essential pillars in constructing a modern administrative model grounded in legal legitimacy. As such, it constitutes a subject of significant scholarly and methodological interest in the trajectory of digital transformation within the public sector.

This framework confers a binding character upon the transformation process, ensuring adherence to legal principles and regulating the actions of digital administration within clearly defined and controlled boundaries-whether in relation to administrative contracts, licenses, or mechanisms for electronic grievance procedures.

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<sup>23</sup> Saed IBRAHIM, Impact of information and communication technology on healthcare in centers in the west bank palestine,2013(Ah-Najah National University items/https: nepository.najah.edu) le 12-3-2024 a 23h47.

<sup>24</sup>Intisar AMAL sayed, Nehal A, AL. sayd, the impact of information and communication technology on medical teaching and learning environment, journal in international IJCSNS information et de sécurité des réseaux, vol20, N8, Iraq, aout 2020, p146.

Moreover, it plays a vital role in structuring relationships within the digital environment by delineating the reciprocal rights and obligations between the administration and the service recipient (the patient), particularly regarding the protection of privacy, confidentiality of data, and the legal admissibility of digital evidence.

In addition, this framework reinforces the principle of digital legal security, which ensures both stability and trust in electronic administrative transactions. It also opens the door for judicial oversight over digital administrative actions, thereby ensuring that such actions comply with the principles of legality and serve the public interest within a digital environment governed by the rule of law.

#### Comparative Perspective: The French Legal Framework

France has taken significant strides in establishing a comprehensive legal framework for digital governance in the health sector. This includes:

- a) The General Data Protection Regulation (GDPR), which is directly applicable across the European Union and reinforces strict safeguards for personal data in digital health services.
- b) The French Data Protection Act (Loi Informatique et Libertés), as amended, which tailors GDPR provisions to national contexts and empowers the CNIL (Commission Nationale de l'Informatique et des Libertés) to enforce digital legality in the healthcare domain.
- c) The Digital Republic Act (Loi pour une République Numérique), which emphasizes transparency, data portability, and the right to explanation in automated decisions—an essential guarantee in e-health governance.
- d) The Public Health Code (Code de la Santé Publique), which regulates telemedicine, e-prescriptions, and digital patient records under strict confidentiality rules.

In contrast, many legal systems—including the one under discussion—are still grappling with legislative gaps in adapting traditional public law concepts to digital environments. This underscores the need for legal modernization, including new regulatory instruments that specifically address the peculiarities of digital administration in healthcare.

Thus, a robust legal framework that balances technological advancement with fundamental rights is imperative to ensure a lawful, ethical, and efficient digital health governance model.

#### **A. The Legal Framework for Personal Data Protection as a Guarantee for Digital Governance: A Review of the French Legislative Modernization.**

In its effort to harmonize national legislation with the new European legal framework on personal data protection, France-albeit with some delay-implemented a set of key European legal instruments. These include:

Regulation (EU) 2016/679<sup>25</sup> on the protection of individuals with regard to the processing of personal data (commonly known as the General Data Protection Regulation, or GDPR), and directive (EU) 2016/680 concerning the processing of personal data for the purposes of law enforcement. Both instruments entered into force on 25 May 2018. However, the corresponding French legislative proposal was only submitted in December 2017, and it was not adopted until 20 June 2018, under Law No. 2018-493, which applied retroactively to 25 May 2018.

This legislation aimed to align the French Data Protection Act of 6 January 1978 (Loi Informatique et Libertés) with European developments. It introduced structural changes by reorganizing the responsibilities and powers of the Commission Nationale de l'Informatique et des Libertés (CNIL) in the areas of oversight and enforcement. Notably, it marked a shift from prior control (ex ante) to subsequent control (ex post), while maintaining the requirement for prior authorization in the processing of sensitive data.

Moreover, the law significantly enhanced CNIL's disciplinary and sanctioning authority, raising the upper limit of administrative fines from €150,000 to €10 million, or 2% of the global annual turnover of the offending organization-rising to 4% in cases of repeated violations.

This legal framework was further consolidated by the issuance of a key implementing decree, Decree No. 2018-687<sup>26</sup> of 1 August 2018, which provided more detailed provisions regarding the regulatory and procedural aspects of personal data protection in digital environments. The Digital Republic Law and the Informational Autonomy Principle.

Article 54 of the Digital Republic Law (Loi pour une République Numérique), enacted on 7 October 2016, amended Article 1 of the 1978 Data Protection Law. It introduced the principle of user control over their personal data, essentially enshrining the right to informational self-determination

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<sup>25</sup>Union Européenne, la réglementation générale sur la protection des données-RGPD, <https://www.cnil.fr/fr/reglement-europeen-protection-donnee>, 06 /04/2024, 01 :32. In this context, Directive 95/46/EC, commonly known as the Data Protection Directive/, was the primary legislative act that established the fundamental framework for the protection of personal data within the European Union prior to its replacement by the General Data Protection Regulation (GDPR) in 2018. The Directive required transposition into the national laws of Member States, meaning that each EU country had to enact its own legislation in accordance with its provisions. This Directive was replaced by Regulation (EU) 2016/679, the General Data Protection Regulation (GDPR), which entered into force on 25 May 2018, providing a more comprehensive and modernized legal framework for data protection across the European Union.

<sup>26</sup> **Antoine Fouilleron, Jean-François Monteils, et autres**, Chronique de l'administration, Les données publiques Revue française d'administration publique 2018/3 N° 167 Institut national du service public, p 660.

(autoformation), which affirms the individual's autonomy in the management and consent of personal data use. Special Application in the Health Sector, Under the GDPR, as applied in France-particularly in the healthcare sector-health data are classified as a special category of personal data. These include any information relating to an individual's physical or mental health, as well as healthcare provision, which may reveal the medical condition of the individual.

The processing of such data becomes legally valid only if the patient provides free, informed, and explicit consent, without coercion or undue influence. Once such consent is obtained, the handling of personal health data under the GDPR is considered compliant with legal standards.<sup>27</sup>

This legislative architecture underscores the centrality of personal data protection as a cornerstone of legitimate digital governance. In the French model, legal safeguards ensure that digital transformations in the public health system are rights-based, transparent, and enforceable, thereby enhancing trust, security, and compliance in the digital management of health services.<sup>28</sup>

## **B. The Legal Foundations of Digital Governance in Algeria: Developments, Challenges, and Strategic Outlook for Information Security.**

Algeria is witnessing growing efforts to consolidate digital governance within its legal framework, in alignment with the ongoing digital transformation of the public sector. The Algerian legislator has enacted several key legal instruments supporting this direction, notably the Civil Code (Law No. 05-10)<sup>29</sup>, the Law on Electronic Signature and Authentication (Law No. 15-04)<sup>30</sup>, the Law on Personal

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<sup>27</sup> **In this regard, and to summarize the foregoing, the applicable law in France includes the following provisions:** Law No. 78-17 of January 6, 1978, relating to data processing, files, and individual liberties, as amended by the General Data Protection Regulation (GDPR) and the Digital Republic Act of 2016; Decree No. 2019-536 of May 29, 2019, concerning the implementation of the Data Protection Act; Law No. 2016-41 of January 26, 2016, on the modernization of the French health system; Law No. 2019-774 of July 24, 2019, on the organization and transformation of the health system and other legal provisions; as well as the Penal Code, the Public Health Code, and the Civil Code. **Loi n2019-774** du 24 juillet 2019, relative à l'organisations et à la transformation du système de santé, journal officiel, 26 juillet 2019.

<sup>28</sup> **AdélaLutum**, innovation en santé/ numérique/intelligence artificielle table ronde, ED l'institut, droit et santé, de l'université de paris cité, dans (JDSAM), vol3, n33, 2022, France, p58.

<sup>29</sup> **Ordinance No. 75/58** dated 20 Ramadan 1395 corresponding to 20 September 1975, concerning the Penal Code, published in the Official Gazette No. 78 of the year 1975, as amended and supplemented by Law No. 05/10 dated 13 Jumada al-Awwal 1426 corresponding to 20 June 2005, published in the Official Gazette No. 44 of the year 2005, and further amended and supplemented by Law No. 07/05 dated 25 Rabi' al-Thani 1428 corresponding to 13 May 2007, published in the Official Gazette No. 31 of the year 2007.

<sup>30</sup> **Law No. 15/04** dated 20 Rabi'al-Thani 1436 corresponding to 10 February 2015, establishing the general rules applicable to electronic signature and authentication, published in the Official Gazette No. 06, issued on 10 February 2015

Data Protection (Law No. 18-07)<sup>31</sup>, and the Law on the Prevention of ICT-related Crimes (Law No. 09-04)<sup>32</sup>.

The latter establishes a legislative system combining technical prevention mechanisms with legal procedures. It provides for the creation of a national authority for the prevention of cybercrime, regulates digital inspection procedures, and promotes international judicial cooperation. Internet service providers are also legally obligated to retain digital data and provide it upon judicial request.<sup>33</sup>

Regarding information security, Algeria has adopted legal mechanisms to criminalize offenses against digital systems, including unauthorized access and data manipulation, as defined in Articles 394 bis 01 and 394 bis 02 of the Penal Code.<sup>34</sup> The legal framework also acknowledges the multiplicity of definitions surrounding cybercrime and emphasizes the need for legislative evolution to ensure the confidentiality and security of health data.

Furthermore, Algeria has adopted the international ISO 27001 standard for information security management. Despite this, the country ranks moderately on the global scale and ninth in the Arab world. This reality highlights the urgent need for a comprehensive national information security strategy that encompasses all critical sectors and is rooted in the principles of transparency, equality, and digital justice.

## Conclusion:

Through the conceptual, practical, and legal exploration of digital governance in Algeria, it becomes evident that digital transformation is no longer a mere administrative trend but a strategic necessity for modernizing public administration and enhancing institutional performance. Despite numerous initiatives—particularly in the health sector—true efficiency and effectiveness remain

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<sup>31</sup> **Law No. 18-07** dated 25 Ramadan 1439 AH, corresponding to 10 June 2018, concerning the protection of natural persons in the processing of personal data, published in the Official Gazette No. 34, issued on 10 June 2018.

<sup>32</sup> **Law No. 09-04** dated 14 Sha 'ban 1430 AH, corresponding to 5 August 2009, establishing the specific rules for the prevention and combatting of crimes related to information and communication technologies, published in the Official Gazette No. 47, dated 16 August 2009. The law comprises 19 articles distributed across chapters, with its provisions derived in part from international conventions, particularly the Budapest Convention on Cybercrime.

<sup>33</sup> **Presidential Decree No. 19-172** dated 06 June 2019, establishing the composition, organization, and operational procedures of the National Authority for the Prevention and Combatting of Crimes Related to Information and Communication Technologies, published in the Official Gazette No. 37, issued on 09 June 2019; as amended and supplemented by **Presidential Decree No. 21-439** dated 07 November 2021, concerning the reorganization of the National Authority for the Prevention and Combatting of ICT-related Crimes, published in the Official Gazette No. 86, issued on 11 November 2021.

<sup>34</sup> See Article 394 bis 2 of the same law, which stipulates the offenses related to the violation of the confidentiality, integrity, and security of data within the system. Also refer to **Law No. 15-04** dated 10 November 2004, amending and supplementing **Ordinance No. 66-155 establishing the Penal Code**, with a subsequent amendment introduced by Law No. 06-23 dated 20 December 2006, which outlines the acts constituting an attack on the information system.

contingent upon the existence of a clear, integrated legal framework that institutionalizes digitalization as a sustainable administrative tool rather than a temporary solution.

Field evidence confirms that digitization contributes to improving service quality, streamlining procedures, and promoting transparency. However, the current reality of Algerian healthcare institutions reveals discrepancies in implementation levels and notable weaknesses in the legislative and regulatory structure. Therefore, it is essential to harmonize technical vision with legal ambition in order to activate digital governance in full alignment with the principles of good governance.

Based on the analysis, the following key findings can be drawn:

1. Digital transformation has positively impacted the quality of healthcare services, especially in managing patient records, appointment scheduling, and emergency care.
2. There is an absence of legislation that defines digital governance as an integrated concept; regulatory texts mandating digital practices within public institutions are lacking.
3. Weak institutional coordination among stakeholders involved in the digital transition affects policy coherence and synergy.
4. The legal framework for protecting digital data in healthcare institutions remains limited, despite the significant risks to information security and personal privacy.
5. There is a stark disparity in digital adoption between urban and interior regions, primarily due to infrastructure gaps and insufficient technical equipment.

In light of these findings, the following recommendations are proposed:

1. Develop a national legal framework for digital governance that outlines its principles, objectives, and mechanisms, while mandating digital transformation across public institutions.
2. Revise sectoral laws—such as those governing health, public procurement, and civil service—to incorporate digitalization into their regulatory texts.
3. Strengthen legal protection for digital data by updating the Personal Data Protection Law in accordance with international standards such as the GDPR.
4. Establish an independent regulatory authority to oversee the implementation and performance evaluation of digital policies, particularly in critical sectors like health and education.
5. Expand digital infrastructure in remote regions and local hospitals to ensure equitable access to digital services.

6. Provide specialized training for administrative and medical personnel in digital competencies to support effective digital transition.
7. Adopt digital transparency as a criterion in performance evaluation systems, linking career advancement to the level of engagement with digital tools.

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