

## E-administration in Algeria: challenges and opportunities

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### Abstract:

E-administration in Algeria represents a revolution in the management of public services. Its goal is to modernize the administration, enhance efficiency, and strengthen transparency. The "Digital Algeria 2025" program marks a significant step toward this digital transformation. However, challenges remain. The purpose of this study is to analyze the specific challenges Algeria faces in the implementation of e-administration, while also highlighting the opportunities that exist to modernize public services, improve administrative efficiency, and promote citizen participation. This digital transition has the potential to positively transform the relationship between the state and citizens in Algeria, paving the way for a more modern, accessible administration.

To carry out our study, we used books, articles and reviews on the one hand, and statistics relating to the digital sector in Algeria on the other.

**Keywords:** Public administration - Digitalization – Challenges-opportunities - Algeria

**Jel classification codes:** H11, H83

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## Introduction :

Technological developments related to information processing are now opening up very vast fields in terms of electronic administration. They constitute an effective lever for modernizing and simplifying procedures.

Algeria, like many countries, is facing a major challenge: modernizing its public administration to better meet the expectations of citizens and the demands of competitiveness in an increasingly digitalized world.

Since the launch of the 'Digital Algeria 2025' program, which aims to implement more than 500 digitization projects between 2025 and 2026 (<https://digitaleconomymag.com/>, s.d.), the Algerian government has been striving to integrate information and communication technologies (ICTs) into all aspects of public administration. This initiative aims to simplify administrative procedures, reduce processing times, and provide citizens with easier access to a wide range of online public services. However, implementing this digital transformation raises complex issues.

**Research question:** What are the specific obstacles that Algeria faces in deploying e-administration, and how can these challenges be overcome to fully seize the opportunities it offers?

**The underlying hypothesis** of this study is based on the idea that, despite the difficulties associated with implementing e-administration in Algeria, a strong commitment to the digitalization of public services could generate significant benefits, both for the state, administrations, and citizens.

**Previous studies on the subject:** The subject of e-administration in Algeria has attracted the interest of several researchers who have explored its various dimensions. To illustrate the relevance and depth of this subject, here are some significant works carried out by different authors:

**(Lakel, 2020):** His research focuses on the economic and social impacts of digital transformation in Algerian public administration.

**(Lounes, 2018):** In her article titled '*E-Administration in Algeria: Between Plans and Achievements*', published in 2018, Lounes explores the Algerian government's efforts to modernize public administration

through the *E-Algeria 2013* plan. She analyzes the actions taken, the achievement rates, and the obstacles encountered.

**(Blundo, 2017):** Although his work is more general, Blundo discusses the implications of e-government for governance in Africa, including reflections on the Algerian context.

**(BENFARHAT, 2023):** In his article '*Modernizing the Algerian Public Administration: Challenges and Issues*', he discusses the main challenges and issues involved in modernizing public administration in Algeria. He highlights the need to improve the interaction between public administration and citizens to meet their expectations.

**(Louaradi & Aouane, 2023):** In their article '*Implementing E-Government in Algeria to Optimize the Efficiency of Public Service*', they highlight the importance of e-government in modernizing public services in Algeria. They discuss obstacles such as delays in digitization and propose reforms in the ICT field.

**(Moulai & Mezouar, 2023):** In their study '*E-Administration Implementation in Algeria: Issues and Challenges – Case Study: Local Authorities*', they focus on the specific challenges faced by Algerian local authorities in adopting e-administration.

**Purpose of the Study:** The purpose of this study is to analyze the specific challenges that Algeria faces in implementing e-administration while highlighting the opportunities available to modernize public services, improve administrative efficiency, and encourage citizen participation. We aim to understand how the initiatives taken by Algeria can help transform the relationship between the state and its citizens within the framework of modern, inclusive governance.

**The importance of this study** lies in the need to gain a better understanding of the challenges associated with digital transformation in Algeria's public sector. By understanding the obstacles encountered and identifying the opportunities, this research will help inform public decision-makers on the best strategies to adopt in order to successfully navigate this digital transition, which is crucial for the country's future.

### **Methodology used**

This study employs a mixed-methods approach, combining documentary analysis of various books, documents, and academic articles with the analysis of statistical data related to the digital domain in Algeria. The goal is to gain a deeper understanding of the challenges

and opportunities related to e-government, using both quantitative and qualitative data.

*Data Collection:* The statistical data used in this study were extracted from reliable sources such as official reports, government studies, and academic research. These data cover key aspects of e-administration, including the use of digital technologies by public institutions and the available technological infrastructure.

*Data Analysis:* Once collected, the data underwent an in-depth analysis to identify trends. The statistical analysis allowed us to examine factors such as internet penetration rates in households, changes in mobile network coverage in Algeria, the country's score in ICT development, and the obstacles encountered in deploying e-administration services.

*Data Triangulation:* Data triangulation was employed to strengthen the validity of the results. By cross-referencing statistical data with information from existing literature, we were able to obtain a more accurate picture of the challenges and opportunities within the context of electronic administration.

This methodology provided an objective and comprehensive analysis of the realities of e-administration, while identifying the key factors influencing its implementation and effectiveness.

**Research plan:** Through our work, we will first define the concept of e-administration according to the vision of various authors. Secondly, we will look at the different objectives and advantages discussed in the literature, and then at the different stages in its implementation. Finally, we will highlight the current state of e-administration in Algeria, as well as its challenges and opportunities.

### **Firstly - Definition of e-administration**

Electronic administration, also known as e-administration or online administration, emerged in the 1990s with the rise of the Internet and new technologies. It involves using information and communication technologies (ICTs) in the public services sector to make access easier for users.

Although this concept is relatively recent, it has been defined in various ways in contemporary literature. Most of these definitions converge on a common objective: transitioning from traditional paper-based management to electronic management, replacing office procedures with the widespread use of ICT (Zine & Haffouda, 2018).

The term "e-government" is often perceived in a narrow sense, reduced to the implementation of online services on the Internet, which limits its understanding to a purely IT and technical issue. However, we will demonstrate that, on the contrary, it is a major strategic tool for transforming organizations and improving the quality of services provided to citizens (Roux, 2010, p. 20).

According to (Attaamna & Alallouch, 2004), public administration involves carrying out administrative transactions and providing public services over the Internet, allowing customers to perform their transactions without the need to travel in person, thus saving time, effort, and energy.

(Ubaldi, 2013) defines e-government as a result of New Public Management (NPM), suggesting that ICTs have contributed to innovation within the public sector, particularly in public services.

According to the OECD, e-government can be defined as the use of information and communication technologies (ICTs), particularly the Internet, to improve the management of public affairs (OECD, 2003).

### **Secondly- Objectives and advantages of electronic administration**

The aim of e-government is to provide more efficient services and fundamentally transform the way institutions operate. By introducing strategies based on information systems and technologies, e-government contributes to improving human performance and redefining administrative practices. Information technologies help overcome some of the constraints of traditional systems, such as the proliferation of documents and the complexity of administrative procedures (Alghalibi & Salih, 2010, p.25)

Moreover, e-government promotes transparency and simplifies the processing of files and requests. Through digitization, information is interconnected within the same network, making it easier for citizens to access services.

The benefits of e-government, as defined by researcher (ST-Amant, 2004, p.12 ) are as follows:

- Improved quality and accessibility of services, with reduced time for processing requests and accessing services.
- Reduced costs for both citizens and the administration.
- Acceleration of administrative procedures and simplification of tasks.

- Improvement of the external image of administrations.
- Closer connection between government and society, facilitating communication and interaction.
- Increased employee satisfaction, due to improved relationships between public authorities and citizens.
- Rationalization of costs, thanks to enhanced efficiency of administrative processes.

These benefits demonstrate how e-administration can not only improve the efficiency of public services but also create a more transparent and interactive environment, benefiting both citizens and administrations.

**Table 1: The main benefits of e-government for citizens as well as for government**

| <b>Benefits for citizens</b>                 |                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Quality and accessibility of services</b> | <ul style="list-style-type: none"><li>• Little or no travel: all procedures can be done remotely</li><li>• No waiting</li><li>• No time constraints</li><li>• A one-stop shop for requests</li><li>• Availability of information</li><li>• Comprehensive support for the request which requires the intervention of several services</li></ul> |
| <b>Request processing times</b>              | <ul style="list-style-type: none"><li>• Time savings achieved by speeding up procedures</li><li>• Personalized service</li></ul>                                                                                                                                                                                                               |
| <b>Costs of services</b>                     | <ul style="list-style-type: none"><li>• Potential for cost reduction for government customers through improved administrative procedures</li></ul>                                                                                                                                                                                             |
| <b>Benefit for the government</b>            |                                                                                                                                                                                                                                                                                                                                                |
| <b>Productivity</b>                          | <ul style="list-style-type: none"><li>• Cost rationalization</li><li>• Speeding up procedures and simplifying tasks</li><li>• Better control of the activities of the various departments</li></ul>                                                                                                                                            |
| <b>Attractiveness</b>                        | <ul style="list-style-type: none"><li>• Improvement of the external image following the rapprochement with the administrator and the companies</li></ul>                                                                                                                                                                                       |

|                        |                                                                                                                                                                                                                                                                                          |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Quality of work</b> | <ul style="list-style-type: none"><li>• Shifting of restrictive administrative tasks since they are automated in favor of real work of advice and support for administrators</li><li>• Higher employee personal satisfaction due to higher administrator-customer satisfaction</li></ul> |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Source:** Gilles, S.-A. (2005). E-Government: Framework for the evolution of online administration. *Management and information systems review*, 10(1), 15-38

### **Thirdly – The potential social and economic impact of e-administration**

E-government is by nature multi-dimensional, influencing economic and social aspects. Priorities must therefore be defined taking account of these dimensions, with an approach focused on the development of individuals. From the earliest stages, a participatory approach is essential. It is crucial to involve stakeholders and institutions to promote a common direction and stimulate a dialogue around the different options and opportunities available.

This ensures that the e-government strategy contributes to effective, integrated and inclusive governance. (Touitou, Rekima, & Boudeghdegh, 2017)

#### **1-The social impact of e-government**

Digital transformation fosters an inclusive and equitable society by reducing disparities in gender equality, technological access, and public services like education and healthcare. It empowers better public security management, enhances the coordination between economic and social policies, and ensures the fair distribution of public resources based on geographic and demographic needs. By promoting digital literacy and automating social protection systems, it bridges the digital divide and strengthens societal support mechanisms. Moreover, this transformation fosters a citizen-centric administration focused on well-being, while leveraging technology to improve governance, organizational efficiency, and service delivery across various sectors, ensuring lasting positive societal impacts.

## **2- The economic impact of e- government**

The digital transformation of administrative processes enhances efficiency and cost-effectiveness in public services through e-administration, while consolidating shared services within public administrations for better coordination. It promotes the reorganization of the civil service to optimize tasks and reduces administrative costs for both citizens and businesses. Simplified and transparent processes attract domestic and foreign investment and foster international trade by minimizing barriers and boosting competitiveness. Furthermore, it strengthens economic cooperation among national and international actors, improves financial management through rigorous allocation of resources, and enhances tax collection systems to increase public funds, contributing to a more robust and sustainable economic framework.

### **Fourthly -The phases of implementation of e-administration**

Electronic management, symbolized by the adoption and management of change, is divided into four stages of dematerialization of information and transactions within the framework of electronic administration (Roux, 2010 p.21)

**1. Availability of information online** (Level 0 of Dematerialization): This first phase consists of establishing a presence on the Web via a static portal. This portal makes information and administrative processes more transparent to the public, including employees and citizens. This stage plays the role of a brochure or traditional customer service. It allows citizens and businesses to access the necessary information without having to physically go to an agency, queue or pay bribes. It is also important that websites comply with a graphic charter consistent with the visual identity established by the government.

**2. Downloading forms to print:** The second phase allows users to download forms to print themselves, although online filling is not yet possible. This step marks the transition to a basic interaction, establishing two-way communication between the administration and its constituents, both internal and external.

**3. Submitting applications or declarations online** The third stage allows users to submit their applications or declarations online, with the possibility of sending electronic forms. This phase is often referred to as e-service or online service, when the government succeeds in providing its services via the Internet. Most governments around the world are in this phase and are preparing for the transition to the fourth stage. To do

this, they are passing or formulating new laws, simplifying procedures and legalizing new ways of doing business.

**4. The complete dematerialization of procedures** and which includes the creation of an account and a personal monitoring space, allowing users to carry out transactions and consult a personalized history.

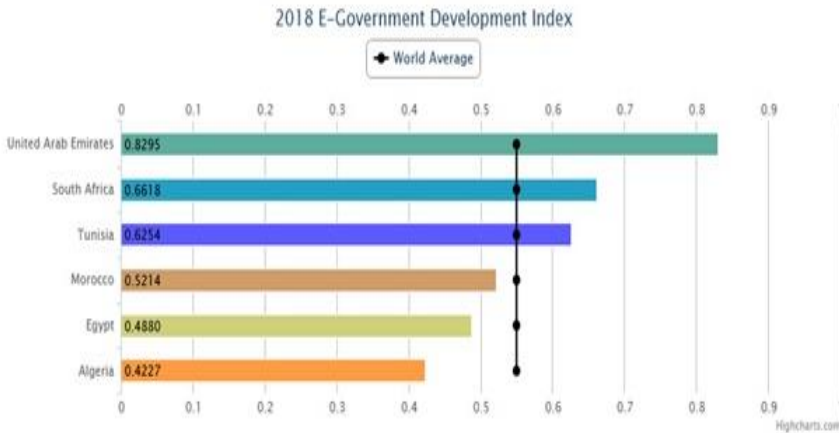
During this stage, the government is undertaking an in-depth reform aimed at transforming its relations with citizens. This strategy focuses on benefiting citizens rather than the public administration itself. To achieve this, the government is striving to reinvent and simplify administrative processes and procedures, in order to make services faster and less costly, while ensuring the interoperability of the various public bodies.

#### **Fifthly - Algeria's ranking in e-administration**

The ranking of countries in terms of e-government is based on the E-Government Development Index (EGDI) of the 193 Member States of the United Nations. The UN e-government surveys evaluate national websites and assess how e-government policies and strategies are applied both generally and within specific sectors for the delivery of essential services. The EGDI integrates three key dimensions that enable citizens to benefit from online services and information: online service delivery, telecommunication connectivity, and human capacity.

Despite these initiatives, Algeria continues to struggle in improving its e-government ranking. In 2018, with a score of 0.4227 (Figure 1), lower than the average index score of 0.55, Algeria was ranked 130th out of 193 countries. This was an improvement from the 2016 survey, in which it ranked 150th. In Africa, Algeria ranked 14th out of 54 countries.

Figure 1: Comparison of Algeria's position with some countries



Source : (E-government Survey, 2018)

Sixthly- E administration in Algeria

**1. State of play:** The state of e-administration in Algeria can be characterized by the following elements:

**1.1 Technological infrastructure:** Algeria has made significant progress in developing its technological infrastructure, particularly in terms of extending Internet access and connectivity. However, disparities remain between urban and rural areas, as well as in terms of connection quality.

**1.2 Government portals:** Algeria has set up government portals to provide online services to citizens and businesses. These portals provide access to administrative information, online forms and the submission of requests for services.

**1.3 Online services:** The online services offered by e-government in Algeria are still limited. Some services such as bill payment and access to administrative documents are available, but there is still some way to go to offer a full range of online services.

**1.4 Simplification of administrative procedures:** Efforts have been made to simplify administrative procedures and reduce bureaucracy. However, persistent obstacles such as red tape, delays in processing requests and lack of transparency are still hampering the full effectiveness of e-government.

**1.5 Awareness-raising and training:** Raising awareness of e-government among citizens and civil servants is still a work in progress. Training programs have been set up to familiarize users with online services and improve their use.

**1.6 Data security:** The security of personal data and online transactions remains a major concern. Efforts are needed to strengthen data protection, combat cybercrime and boost user confidence in e-government.

In the field of e-administration, cyber security and the protection of personal data are major issues. A number of risks need to be taken into account, including:

- **Leakage of personal data:** A security breach can expose sensitive information (tax information, health information, administrative identifiers) to identity theft, fraud and violations of privacy.

- **Cyber attacks (hacking, ransomware, etc.):** Administrations are prime targets for attacks that can steal data, disrupt services or demand ransoms, thus affecting the continuity of public services.

- **Unauthorized access to data:** Malicious users or careless employees can access sensitive information, leading to breaches of confidentiality.

- **Poor data management:** The lack of a clear policy for managing, storing and deleting data can lead to risks of leakage or misuse of sensitive data.

- **Data interception:** If data is not properly secured (e.g. without encryption), it can be intercepted during transmission, compromising confidentiality.

- **Lack of awareness and training:** Government employees who are poorly trained or unaware of good cyber security practices can increase vulnerabilities, such as human error or the use of obsolete tools.

- **Software and hardware vulnerabilities:** Systems may contain vulnerabilities that can be exploited by attackers, hence the importance of regular updates to reinforce security.

## **2. Government initiatives to modernize E-administration in Algeria**

Although progress has been made, it can be argued that e-government in Algeria is still in the development phase. Further efforts are needed to expand the range of online services, simplify administrative procedures, strengthen data security, and increase user awareness of the benefits of e-government. However, to modernize the administration, various actions have been taken by public authorities (Thales Group website, 2021).

## **2.1 Biometrics in Algeria**

Biometrics has rapidly established itself as the most relevant technology for identifying and authenticating individuals quickly and reliably based on unique biological characteristics. In Algeria, steps have been taken to integrate biometric data into all administrative documents, which facilitates better coordination between ministries. The Ministry of the Interior is collaborating with IT departments in each region to ensure this integration. Biometric registration is carried out at the municipal level, in addition to regional-level registration, covering all 547 communes.

## **2.2 Digital national register for Algeria**

Every paper birth certificate is digitized and entered into a national database. The success of this program has encouraged all relevant ministries to participate. A national database for vehicle registration has also been created. Today, these documents can be issued in any administrative division, making it easier to access and manage administrative information.

## **2.3 Unique National Identification Number (NIN)**

The implementation of the Unique National Identification Number (NIN), which was initially used for the electronic passport, is now being extended to the electronic biometric National Identity Card (CNIBE). The NIN is a key component of the national civil status register. It aims to eliminate confusion caused by spelling errors and homonyms, while facilitating access to the identification data of holders of administrative documents.

## **2.4 Electronic signature and Electronic services**

The deployment of electronic signatures and electronic services offers significant benefits to citizens and businesses. These new digital documents enable transactions to be carried out more efficiently and securely, while complying with new rules on the protection of personal data and individual freedoms.

## **3. The challenges**

Despite the efforts made by Algeria in terms of modernizing public administration, it still faces challenges:

**3.1 Insufficient use of the infrastructure put in place:** Despite efforts to develop Algeria's digital infrastructure, take-up remains low. For example, although Algeria has invested in the deployment of fiber optics and data centers, actual internet penetration and access to digital services in rural areas remain problematic. According to the Regulatory Authority for Post and Electronic Communications (RAPEC), only

around 50% of the Algerian population had regular access to the Internet in 2020.

**3.2 Weakness of the country's legal, institutional and economic environment:** The weak institutional cohesion and the lack of an appropriate legal framework for the development of ICTs hinder the progress of e-government. The country struggles to define a clear vision and establish consistent policies. For example, the law on cybercrime has been adopted, but other laws, such as those on data protection or e-commerce, are still in draft form.

**3.3 ICTs are still lagging behind in Algeria** and the failure is obvious (Fortas, 2017 p.62 ) Internet speeds remain low most of the time and connections are often slow, making it difficult for Internet users in some cities in the country to access them. The implementation of online services or online payment are not really available. The same observation applies to the internet penetration rate and access rates, which are excessive in Algeria, compared to other countries (Lounes, 2018). Thus, Ensuring that all citizens, including those in rural areas and people with specific needs, have access to online services is a major challenge

**3.4 Algeria has a major legal vacuum in the field of ICT,** Algerian legislation has not yet updated its laws to regulate new digital activities, apart from the law on the prevention and fight against ICT-related offenses (cybercrime), and the one adopted in early 2015 setting the general rules for electronic signature and certification. The other bills announced by the government have not yet seen the light of day, as is the case with the protection of personal data, e-commerce, electronic payment, the Cloud, etc. which are still not taken into account in Algerian legislation (Benaissi, 2016)

**3.5 The scarcity of human resources specialized in ICT,** partly due to the skills drain that characterized our country during the 90s and 2000s. During the period 1992-1996 alone, 3000 computer scientists left the country to settle in France, and the mass departures are increasing over the years, creating a gap that training institutes are struggling to fill. (Lounes, 2018). It is very important to train administrative staff in new technologies and digital tools to ensure effective use of online administration.

**3.6 Resistance to change and distrust of new technologies:** Resistance to change is a major psychological and cultural barrier, particularly among citizens and public employees. Many people lack

confidence in new technologies due to a lack of digital literacy and fear of cybercrime

According to a study conducted in 2019 by the national center for research in the digital economy (NCRDE), only 25% of Algerians regularly use online administrative services.

**3.7 Resource depletion due to the country's crisis.** In order to control the budget deficit, the authorities are reducing the country's capital budget every year, failing to be able to act on the operating budget. The costs associated with setting up and maintaining e-government systems can be high, which can limit the resources available for other projects.

#### **4. The opportunities**

The development of e-administration in Algeria is based on a number of key opportunities, including:

##### **4.1 Reform of the Algerian information and communication technology sector**

With the support of the World Bank, the Government embarked on a reform of the postal and telecommunications sector in 2000. Here are the main successes to date (Chettab, June 2004)

- Adoption of a pro-liberal telecommunications policy statement in 2000,

- Promulgation of the new Law on Posts and Telecommunications (Law 2000-03) of August 2000,

- Establishment of an independent regulatory entity (ARPT) operational since May 2001,

- Transformation of Telecom Algeria and Post Algeria into commercial companies,

- Granting to Orascom Telecom Algeria (OTA) in July 2001 of the second GSM license for 737 million US dollars. However, the licensing program undertaken by the government is ambitious and should be revised according to the conditions characterizing the international telecoms market.

##### **4.2 Algeria's progress in ICT development**

According to the ITU ICT Development Index 2024, Algeria obtained a score of 80.9, an increase of +4% compared to the previous year's score of 77.8. Algeria is among the 40 countries out of 170 countries covered by this study that have made the best progress. (Derrar, 2024)

Figure 2: Algeria's ranking in terms of ICT development

| Economy     | Income |       | IDI score |      |        | IDI score & group average |        | Universal Score | Meaningful Score |
|-------------|--------|-------|-----------|------|--------|---------------------------|--------|-----------------|------------------|
|             | Region | Group | 2023      | 2024 | Change | Income                    | Region |                 |                  |
| Afghanistan | ASP    | LI    | 28.9      | 33.1 | +15%   |                           |        | 27.5            | 38.6             |
| Albania     | EUR    | UMI   | 81.6      | 84.7 | +4%    |                           |        | 79.1            | 90.3             |
| Algeria     | ARB    | LMI   | 77.8      | 80.9 | +4%    |                           |        | 75.4            | 86.3             |
| Andorra     | EUR    | HI    | 87.2      | 88.8 | +2%    |                           |        | 87.6            | 90.0             |
| Angola      | AFR    | LMI   | 44.1      | 49.9 | +13%   |                           |        | 35.3            | 64.5             |
| Argentina   | AMS    | UMI   | 81.5      | 83.4 | +2%    |                           |        | 79.5            | 87.3             |
| Armenia     | CIS    | UMI   | 85.1      | 86.4 | +2%    |                           |        | 81.2            | 91.6             |
| Australia   | ASP    | HI    | 94.0      | 95.1 | +1%    |                           |        | 94.7            | 95.4             |
| Austria     | EUR    | HI    | 92.5      | 94.3 | +2%    |                           |        | 92.5            | 96.1             |
| Azerbaijan  | CIS    | UMI   | 79.0      | 80.4 | +2%    |                           |        | 77.7            | 83.1             |
| Bahamas     | AMS    | HI    | 88.5      | 89.3 | +1%    |                           |        | 86.1            | 92.5             |
| Bahrain     | ARB    | HI    | 96.5      | 97.5 | +1%    |                           |        | 100.0           | 95.1             |

Source : DERRAR, Hacene, ICT in Algeria: A rational analysis of the 2024 report of the International Telecommunications Union (ITU)

This score is higher than the world average of 74.8, as well as the average of African countries estimated at 50.3 and that of Arab countries estimated at 75.7. In terms of progression, Algeria is second among the countries of North Africa and the Arab Maghreb, after Libya (+11%), ahead of Egypt (+1), Morocco (+2%), Mauritania (+3%), Tunisia (+2%).

Following a summary study of the results of this report, the following main indicators emerge for Algeria:

- **Internet accessibility:** 71.2% of the Algerian population uses the Internet and 80.6% of households have access to the network at home.
- **Mobile connectivity:** Algeria benefits from wide coverage of 3G and 4G/LTE networks (90.8%) and the number of mobile broadband subscriptions per 100 inhabitants has reached 66.5.
- **Internet traffic:** The average mobile broadband traffic per subscription in Algeria is 78.5 GB and fixed broadband traffic is 1,948.4 GB.

These results illustrate the progress made by Algeria in the development of ICT and that it is moving resolutely towards the success of the digital transformation process undertaken as well as towards the emergence of a digital society where information technologies will be accessible to all, thus creating the conditions and the environment conducive to the development of online administration.

### **4.3 Growth of E-commerce:**

In 2023, the e-commerce market in Algeria continued to show signs of dynamism and growth, strengthening its position in the national economic landscape. According to the latest statistics, the sector's turnover has seen a significant increase, recording a growth of around 25% compared to the previous year. This positive trend is mainly explained by the increase in the adoption of digital technologies and the improvement of logistics infrastructure.

The number of businesses operating online has also seen a remarkable increase, with more than 10,000 new sales platforms launched in 2023. These have fostered competition and improved services, allowing Algerian consumers to benefit from a greater diversity of products. Among the most prominent sectors, electronics dominated the market, followed closely by fashion and food. This development reflects a change in consumer behavior, who are increasingly favoring online purchases in these categories. (<https://tidjara.dz/chiffres-cles-pour-lactivite-du-e-commerce-en-algerie-pour-2023-et-2024>, s.d.) consulted on 18/02/2025 at 5:05 p.m.

With the rise of e-commerce, many tools have been developed to facilitate access to digital services, even in less connected areas or for populations less familiar with technology. These tools and technologies could be used to make government services accessible to a wider variety of citizens, especially those who are less comfortable with digital technology.

### **4.4 Investments in infrastructure:**

In the context of total digitalization and under the leadership of the President of the Republic, the generalization of fiber optic technology to the home (FTTH) has made it possible to connect 1.5 million homes to this technology. This notable expansion reflects an impressive growth in the number of connected homes, rising from 53,000 at the beginning of 2020 to 1 million in November 2023, and reaching 1.5 million in October 2024 across the national territory.

This quantitative increase is accompanied by a qualitative improvement in the Internet speeds offered. Algeria Telecom offers discounted offers, allowing subscribers to benefit from speeds of up to 1 Gbit/s. FTTH stands out for its quality of service, meeting customer needs through the use of optical fiber from the beginning to the end of the process.

The FTTH generalization program continues with :

- Connecting unconnected homes, particularly in new neighborhoods and urban centers,
- Modernization of the copper network and migration of xDSL subscribers to FTTH.

(<https://www.mpt.gov.dz/nouveau-saut-quantitatif-et-qualitatif-en-termes-de-raccordement-a-la-technologie-ftth-plus-dun-million-et-demi-1-5-de-foyers-connectes>, s.d.) Consulted on 19/02/2025 at 6 pm

The generalization of fiber optic technology to homes (FTTH) in Algeria plays a pivotal role in supporting the development of e-administration. FTTH investments permit:

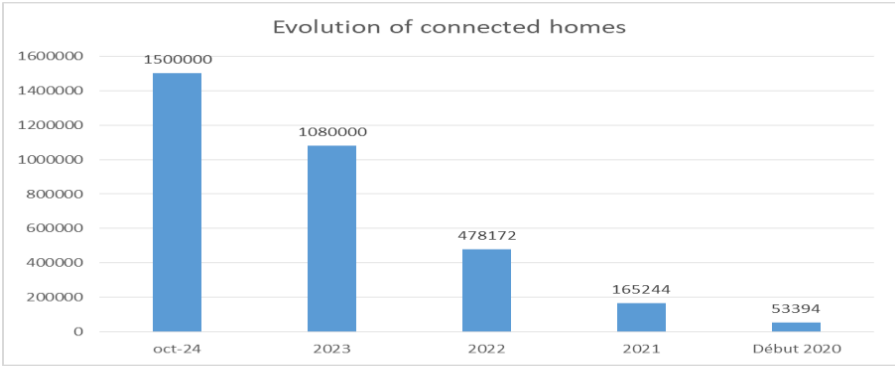
**Enhanced accessibility to online services:** FTTH ensures faster and more reliable internet speeds, which are crucial for citizens accessing e-administration platforms. Improved connectivity enables smoother interactions with online services such as submitting applications, paying bills, and retrieving documents.

**Efficient handling of administrative processes:** High-speed internet enhances the operational efficiency of government systems. It facilitates seamless communication and data sharing among administrative bodies, reducing delays and improving service delivery for citizens and businesses alike.

**Inclusion of remote areas:** By connecting unconnected homes, particularly in new neighborhoods and urban centers, FTTH helps bridge the digital divide, ensuring that even underserved communities can access e-administration services. This inclusivity strengthens the reach and effectiveness of government digital initiatives.

**Support for digital transformation goals:** Modernizing infrastructure, such as the migration from xDSL to FTTH, aligns with broader digital transformation objectives like "Digital Algeria 2025". These upgrades enable the successful implementation of ambitious e-administration projects and encourage technological innovation.

Figure 3: Evolution of connected households



Source: established by ourselves from data of <http://mpt.gov.dz>

4.5 Use of social networks:

Social networks play a central role in promoting online services. In 2022, Facebook had 22.45 million active users in Algeria, followed by Instagram with 8.6 million active users.

Social media can be a great way to promote citizen participation in public decision-making. For example, governments can organize surveys, public consultations, or online discussion forums to gather citizens' opinions on different topics. This helps to better understand their expectations and actively include them in the democratic process, thus strengthening the legitimacy of government decisions.

In addition, they can be used to offer a more responsive and personalized customer service. Many public administrations have already started using platforms like Twitter, Facebook or Instagram to quickly respond to citizens' requests, solve problems or provide information about public services. This improves the efficiency of online government services, offering quick and real-time responses.

4.6 Evolution of the penetration rate of mobile telephone networks in Algeria

Algeria recorded a net change of 5.46% in one year, going from 111.05% on December 31, 2022 to 116.50% on December 31, 2023, indicates the latest report from the Regulatory Authority for Posts and Electronic Communications (ARPCE).

"This development is due to the slight increase in the mobile phone market on the one hand and the Algerian population on the other hand," explains ARPCE, whose report was prepared according to an Algerian

population estimated at 44.22 million inhabitants and a number of households estimated at 7.37 million as of December 31, 2023.

(<https://www.aps.dz/sante-science-technologie/169457-telephonie-mobile-taux-de-penetration-de-116-5-en-2023-en-algerie> ) consulted on 19/02/2025 at 6:40 p.m.

The development of the penetration rate of mobile telephony networks in Algeria plays a key role in the development of e-government by:

**Increasing accessibility to digital services:** Mobile telephony enables citizens to access e-government services, even in rural or remote areas where fixed Internet access may be limited. This promotes wider digital inclusion.

**Facilitating administrative transactions:** Thanks to mobile technologies, citizens can carry out administrative procedures, such as paying bills or submitting documents, directly from their mobile devices, thereby reducing travel and delays.

**Promoting transparency and efficiency:** Mobile tools enable direct communication between administrations and citizens, making administrative processes more transparent and efficient.

**Supporting the development of digital infrastructures:** The increase in mobile penetration is stimulating investment in digital infrastructures, such as 4G and 5G networks, which are essential for the optimal operation of e-government services.

#### **4.7 Algeria gains eight places in the e-governance development index ranking**

The United Nations Department of Economic and Social Affairs has published its 2022 report on e-governance. Algeria has thus gained eight (08) places compared to 2020. This is a survey published every two years and based on the e-governance development index, a ranking exclusively dedicated to assessing progress in digital transformation.

(<https://desapublications.un.org/sites/default/files/publications/2022-09/Web%20version%20E-Government%202022.pdf>) consulted on 19/02/2025 at 6:50 p.m.

### **Conclusion**

In conclusion, e-administration in Algeria represents an essential revolution for modernizing public services, improving administrative efficiency and enhancing transparency. The 'Digital Algeria 2025'

program is a perfect illustration of this desire for digital transformation and modernization. However, despite significant progress, major challenges remain

The results of this study show that Algeria has significant opportunities. The progress in ICT is remarkable: with a score of 80.9 on the ICT Development Index in 2024, Algeria surpasses the global average of 74.8 and the African average of 50.3. Furthermore, 71.2% of Algerians use the Internet, and 90.8% benefit from 3G/4G coverage, demonstrating a strong foundation for digital development.

However, major challenges remain. Algeria ranks 130th out of 193 countries in e-administration (2022), despite progress since 2016. Technological disparities persist between rural and urban areas, and legal hurdles hinder the adoption of digital solutions, notably the lack of robust laws on personal data protection and e-commerce. Connectivity, although improving, often remains insufficient, and access costs are high.

To maximize the impact of this digital transition, Algeria must overcome these obstacles by investing further in infrastructure and strengthening its legal framework. These efforts, combined with greater public awareness and civil servant training, will enable the country to capitalize on initiatives such as the widespread deployment of fiber optics, which connected 1.5 million households in 2024, and the 25% growth of the e-commerce market in 2023.

These results emphasize that by addressing structural challenges, Algeria can not only improve access to public services for its citizens but also become a model for digital governance in Africa and the Arab world.

This study provides a solid foundation for decision-makers while opening up avenues for future research. Thus, other avenues could be explored, such as:

- Conducting comparative studies with other African countries that have successfully transitioned to digital governance to derive lessons and practical recommendations.
- Analyzing and proposing strategies to strengthen the legal framework around ICTs, including laws on personal data protection, e-commerce, and digital payments.

- Evaluating challenges related to data security and identifying practices to enhance user trust in e-administration systems.

To overcome the challenges, We propose the following recommendations:

First, strengthening the ICT infrastructure is essential. This includes accelerating the roll-out of fiber optics in both rural and urban areas to reduce regional disparities, as well as upgrading existing infrastructures to improve the speed and reliability of internet connections. Second, the creation of an appropriate legal framework is crucial. Introducing specific laws to govern key areas such as data protection, e-commerce, and electronic payments will provide clarity and security. Additionally, harmonizing the legal framework with international standards will foster trust among citizens and businesses. Third, human resources training plays a significant role in this digital transition. Setting up training programs for civil servants to develop their digital skills is essential, and encouraging partnerships between universities and public administrations will help bridge the skills gap. Public awareness must also be raised; launching educational campaigns to familiarize the population with online services, and offering accessible tutorials and online customer support, will help guide users. Promoting digital inclusion is another key factor. Developing public access points for digital services in remote areas, as well as offering subsidies or programs to facilitate access to ICT equipment for disadvantaged populations, will ensure no one is left behind in the digital transformation. Lastly, improving cyber security is vital for ensuring the safety of digital services. Investing in advanced technologies to protect personal data and creating a national entity dedicated to cyber security to oversee and coordinate efforts will help secure the digital ecosystem.

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