

Assessing the reality of e-government in Algeria: Towards an Effective Algerian E-Government Strategy

A case study of Algérie Poste company

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Abstract:

This study aims to assess Algeria's progress in the field of e-government work by assessing Algeria's readiness for the application of e-government by locating it among international indicators. Assessing the modernization of Algeria's postal sector by locating it among international indicators and determining the impact of e-government adoption on improving the quality of Algeria's postal services

The study concluded that all the indicators are good but not enough to make Algeria ready to implement e-government in its various sectors, especially Algérie Poste. There is also a positive impact of e-government adoption on improving the quality of Algeria's postal services. Furthermore, Algérie Poste adopts an effective E-Government Strategy.

Keywords: e-government; e-readiness; international indicators; Algeria's postal services; Algérie Poste E-Government Strategy

JEL Classification Codes : L96, L98, M15

الملخص:

تهدف هذه الدراسة إلى تقييم مدى تقدم الجزائر في مجال العمل الحكومي الإلكتروني من خلال تقييم مدى جاهزية الجزائر لتطبيق الحكومة الإلكترونية من خلال تحديد موقعها ضمن المؤشرات الدولية، وتقييم مدى جاهزية بريد الجزائر من خلال تحديد موقعه ضمن المؤشرات الدولية وتحديد أثر الحكومة الإلكترونية على تحسين جودة الخدمات البريدية في الجزائر. وخلصت الدراسة إلى أن جميع المؤشرات جيدة ولكنها ليست كافية لجعل الجزائر جاهزة لتطبيق الحكومة الإلكترونية في مختلف قطاعاتها خاصة بريد الجزائر، كما أن هناك تحسن ملحوظ في جودة خدمات بريد الجزائر نتيجة تبنيه للحكومة الإلكترونية، إضافة إلى اعتماد بريد الجزائر إستراتيجية فعالة للحكومة الإلكترونية.

كلمات مفتاحية: الحكومة الإلكترونية، الجاهزية الإلكترونية، المؤشرات الدولية، الخدمات البريدية الجزائرية، استراتيجية الحكومة الإلكترونية لبريد الجزائر.

تصنيفات JEL: L96، L98، M15

1. Introduction

More recently, new sectors have been gaining attention, including those that involve government, such as government-to-business (G2B) and government-to-citizen (G2C). (Davison, Wagner, & Ma, 2005, p. 280). As compared to the traditional government mechanisms, the electronic government has shown extensive utilization of communication technology; the relatively easiest tool to organize information; employed and analyzed by several agents, and the informal character of the online settings. In e-government, government websites interact with modern and efficient technological infrastructure (Soufiane & Ibrahim, 2018, p. 52). Furthermore recognizing that ICT improves the transparency of government management to minimize corruption, facilitates citizen participation, and improves management through e-services, the United Nations identifies e-government among the sustainable development objectives necessary to support the implementation of Agenda 2030 (Bayona-Oré & Morales Lozada, 2021, p. 733). For instance, Osbourne and Gaebler (1992) proposed that citizens should be regarded and treated as customers (Davison, Wagner, & Ma, 2005, p. 281)

The application of the e-government in Algeria requires the availability of many possibilities to provide a distinct service to the citizen, and to achieve an appropriate level of performance for public administration organizations (government), hence to find out how far Algeria is progressing, it is necessary to locate its indicators on the international map.

Algérie Poste is one of the most popular institutions affected by this development, as Algérie Poste has made a qualitative leap in its services as a result of relying on electronic management. To determine the progress of Algeria's postal sector, it is necessary to determine its position within the international indicators.

Research problem:

Based on the above discussion, our research questions are:

What are the reality and requirements of the application of e-government in Algeria? How ready is the government's electronic work in Algeria? What is the classification of Algérie Poste ranking among international indicators? What is the Impact of e-government on improving the quality of Algeria's postal services? Is Algérie Poste adopting an effective e-government strategy?

Research hypotheses:

This study is based on the following assumptions:

1. There is significant progress in Algeria's ranks according to the EGDI index, Index of Internet use in Algeria (IDI), UNCTAD B2C E-commerce Index 2018, and Sustainable Development Goals Index.
2. There is significant progress in Algérie Poste ranks according to the

international indicators :(IPD2) and the Universal Postal Union Express Mail Ranking Index.

3. There is a positive impact of e-government adoption on improving the quality of Algeria's postal services.
4. Algérie Poste adopt an effective e-government strategy.

Objective's study:

In light of the research problem and its importance, we seek to achieve the following objectives:

- Evaluation of the Algerian E-Project (2008–2013)
- Assessing Algeria's readiness for the application of e-government by locating it among international indicators.
- Assessment of the modernization of Algeria's postal sector by locating it among international indicators and determining the impact of e-government adoption in improving the quality of Algeria's postal services.
- Highlighting the content of the effective Algérie Poste E-Government Strategy

Research methodology:

The analytical descriptive approach that describes the studied phenomenon has been used both quantitatively and qualitatively, by gathering and classifying information about Algeria's e-government indexes and Algérie Poste-e-government indexes and locating them among international indicators, to arrive at results that contribute to understanding the reality and outlooks.

2.Literature review:

Different conceptual definitions of e-government have been advanced. Analyzing these definitions, however, reveals several common words: ICT use, the internet, services, citizens, effectiveness, and efficiency, among others.(Bayona-Oré & Morales Lozada, 2021, p. 733) . The electronic government refers to the government's use of technology, particularly web-based Internet applications, to enhance the access to and delivery of government information and services to citizens, business partners, employees, other agencies, and government entities. (Soufiane & Ibrahim, Factors Affecting the Adoption of electronic government in Algeria: A proposed framework, 2018). In line with this, electronic government is defined as the use of communication technologies and information in government to be able to offer public services to enhance administrative efficiency and effectiveness and also to endorse the value of democracy. (Ali & Anwar, 2021, p. 49), Furthermore, e-governments should encourage digital loyalty, i.e., the preference of citizens to use digital services over other forms (e.g., counters, mail, fax, telephone), since digital services should be much cheaper to provide. (Davison,

Wagner, & Ma, 2005, p. 283), It also refers to the term "umbrella," which includes all uses of ICT in the public sector. (International Telecommunication Union, pp. 7-9). Jayashree et al have revealed that electronic government is a mechanism the government uses to operate and endeavors to obtain efficient communication with businesses and people. (Soufiane & Ibrahim, 2018, p. 52). According to the World Bank 2015, "e-government refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that can transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions. (Siddiqui & Mehmood, 2021, p. 11)

E-government goals: The goals of electronic government vary by country. Generally, electronic governments' goals are defined locally according to the political leadership of every government. Furthermore, key recognized stakeholders affect these electronic governments' goals in numerous countries. Moreover, every government should be able to support an international cooperation initiative in terms of electronic government in order to be able to improve efficiency, accountability, and transparency at all stages of government. (Ali & Anwar, 2021, p. 49)

Using e-government, governments expect to improve performance and output, expecting to achieve the following goals: (International Telecommunication Union, pp. 7-9) :

- Collect data online to reduce data entry costs and automate error verification.
- lowering the costs of communicating with citizens; significant data sharing within one government; significant data sharing between multiple governments and other parties such as stakeholders (international agencies, private sector institutions); and extensive and simple data reuse
- reducing government deployment and distributing costs through electronic distribution.

There are three main objectives for measuring e-government at the national level: establishing a real political administration. Adopting a unified strategic plan common to all ministerial departments establishing organizational structures headed by the prime minister with the cooperation of all ministerial departments that have political influence. (Soufiane & Ibrahim, Factors Affecting the Adoption of electronic government in Algeria: A proposed framework, 2018, p. 36)

The World Bank (2006) states that the primary aim of e-government is to fundamentally alter government relations with individuals, corporations, and other government entities. (Kabbar, 2021, p. 23)

3. Assessing the reality of e-government in Algeria:

3.1 E-Algeria Project (2008-2013):

The Algeria E-Project 2013 is part of the initiatives and development projects adopted by the Algerian government to achieve sustainable development in various aspects of life, to be part of the emergence of the Algerian science and knowledge society, which aims to create a comprehensive and sophisticated electronic system and to disseminate the use of modern technologies through the promotion of the information system in the sectors of telecommunications, banking, public administration, and education, making it better and simpler for citizens by making its services available on the Internet for the benefit of citizens. Companies and departments become an interactive means of communication between government and civil society.

3.1.1. Hubs of Algeria's e-project:

The December 2008 document is the first sign of an integrated program to be implemented in Algeria. It is considered the core of building the information society and moving the digital economy in Algeria, reducing bureaucracy in dealings. In addition to increasing the effectiveness of the performance of national administrations, this document is a program planned until 2013, and includes a comprehensive strategy through key axes and special objectives to ensure the success of this program, which we will review in the following table the most important topics included in the document:

Table 1: Hubs of Algeria's e-project (2008-2013)

Axis	Content
Speeding up the use of information technology and communication in public administration	-Focus on the introduction of technologies in public administration, resulting in a change in the methods of organization and work, adapting the public service of the citizen, and encouraging communication between the administration and the citizen. -Improving the decision, making process by completing the information infrastructure, developing electronic services for citizens, and completing internet networks, intranets, and extranets.
Accelerating the use of information technology and communication in companies	Integrating information technology into the economic sector and supporting the acquisition of these technologies by company.
Development of mechanisms and incentive measures to enable citizens to benefit from equipment	Circulating the internet access process allowing every citizen across the national territory to benefit from public services through the Internet. -Provide personal computers and fast flow connections in

and networks	addition to the configuration to use them.
Driving the development of the digital economy	<p>Creating the right conditions for the intensive development of the media and communication technology industry by continuing the national dialogue between the government and companies.</p> <p>Providing all the possibilities to value scientific, technical, and national efficiency in the fields of software production and the provision of services in the field of information technology</p>
the improvement of human skills	<p>Strengthening infrastructure and widespread access to ICTs must be accompanied by substantial measures for training and development of human skills to generalize the use of ICTs and ensure ownership at all levels. To achieve this major objective, two specific sub-objectives are targeted:</p> <ul style="list-style-type: none"> • Integrating the high education and professional formation domains with the information and communication technology field • Information and communication technology training for all social segments
Strengthening research, development, and innovation	<p>This is in response to Algérie Post's proposal for a remote training process called "Tranipost," which requires the possession of a computer and a link line to the Internet and e-mail in order to ensure the formation of 5 hours per day over an 8-week period in several areas.</p>
Adjusting the level of the national legal framework	<p>Creating a climate of trust that encourages the establishment of electronic management requires the establishment of an appropriate legislative regulatory framework.</p>
information technology and communication	<p>The main goal of this axis is to demonstrate the importance of ICTs in improving citizens' quality of life and contributing to the development of the country's socioeconomic structure. To that end, the following sub-objective was defined:</p> <ul style="list-style-type: none"> • Elaborating and realizing a communication plan on the Algerian information society. • Creating an associative fabric that will function as a continuation of government efforts
Valorization of international cooperation	<p>International cooperation with other countries in the field of ICT can be characterized by the important number of projects, particularly with the European Union in the frame of MEDA II. The major goal of international cooperation is to develop and upgrade Algerian technology and knowledge as well as to project the country's image.</p> <p>This objective has two sub-objectives:</p> <ul style="list-style-type: none"> • Actively participate in the international initiative and dialog. • Make strategic alliances to advance and promote technology.
Evaluation mechanisms	<p>-Identify indicators for follow-up and evaluation, allowing us to measure the impact on development, updated by technology, and conduct periodic evaluation of the implementation of the Algeria e-scheme.</p>

Organizational procedures	-The actual implementation of the strategic plan is organized thanks to effective framing and permanent follow-up. -A ministerial committee called the "Electronic Committee" is formed under the chairmanship of the prime minister and includes ministers in this field to follow up and provide support.
Financial resources	-This project is huge, and it is impossible to provide financial support from a single source, so all sources of funding must be well exploited and attached to an accurate financial assessment.

Source: based on: Kohl Mohamed, Electronic Government Status in Algeria, Issue 55, 2016 Global Islamic economics magazine, p 89.

-IDOUGHI, D., & ABDELHAKIM, D. (2013). Towards an Algerian E-Government Strategy and Achievements. *International Journal of eBusiness and e-Government Studies*, 5(1), pp 90-94

3.1.2. Evaluation of the Algeria Electronic Project: (2008-2013)

The Algerian state has made many efforts to move towards a knowledge-based information society, relying on many initiatives and legislation supporting this endeavor in various fields and sectors, where we see indicators of modern technologies that indicate the efforts of the Algerian state through the contribution of Algeria's E-Project 2013. This is an ambitious project that requires accuracy, objectivity, and seriousness to implement, but Algeria But Algeria was late in using technology, and the circulation of information that is the basis for building an information society is summarized at the following points: (Ghazal, 2004)

- Algeria is still far from global standards in the use of technology and access to information. The lack of coordination between departments that have not yet emerged from their position, while the modernization of e-management must be done in a consistent form among all stakeholders.
- There is a digital gap in several aspects: technology infrastructure in management, education, health, the economy, trade, justice... This content gap affects the actual application of the e-government project.
- Lack of recruitment of qualified specialists who need ongoing training courses.
- The absence of serious sociological studies to study national phenomena, although human resources are available with advanced competencies, are not exploited because there is no stimulating climate for teamwork to achieve development take-off.
- Mentalities that have not yet responded to modern technologies, Algerian society is not ready to deal electronically, because of the lack of awareness of the importance of applying e-government or not adapting and responding to certain methods.

- Algerian families suffer from a significant lack of technological processing, due to their high prices and high internet subscription.

3. 2. Algerian E-readiness: Like other countries, Algeria has striven to increase electronic readiness, and the reality of electronic readiness in Algeria can be diagnosed through a range of indicators:

3.2. 1.The E-Government Development Index (EGDI): Mathematically, the EGDI Index is the weighted average of normalized scores on the three most important dimensions of e-government, namely: (Zhenmin, 2020, p. 231)

- **The scope and quality of online services are quantified as the Online Service Index:** It assesses the maturity of a country's e-government websites, including its national website and related portals, and related websites from departments such as education, labor, social services, health, economy, and the environment. (Kabbar, 2021, p. 23)

- **The status of the development of telecommunication infrastructure, or the Telecommunication Infrastructure Index (TII),** assigns a ranking to a country's telecommunications infrastructure based on five factors: Internet customers, fixed telephone lines, smartphone subscribers, fixed Internet subscriptions, and fixed broadband services. (Kabbar, 2021, pp. 23-24)

- **Inherent human capital, or the Human Capital Index (HCI):** This index is an indicator of the literacy of the population and their ability to use it. The literate population is considered able to use ICT tools. (Nabil & Abdelhakim, 2014, p. 1). HCI is calculated using four components: adult literacy rate, expected years of schooling in the country, the mean years of schooling, and the gross enrolment ratio of the citizens. (Siddiqui & Mehmood, 2021, p. 14). Each of these indices is a composite measure that can be extracted and analyzed independently

The EGDI indicator is calculated according to the following equation:

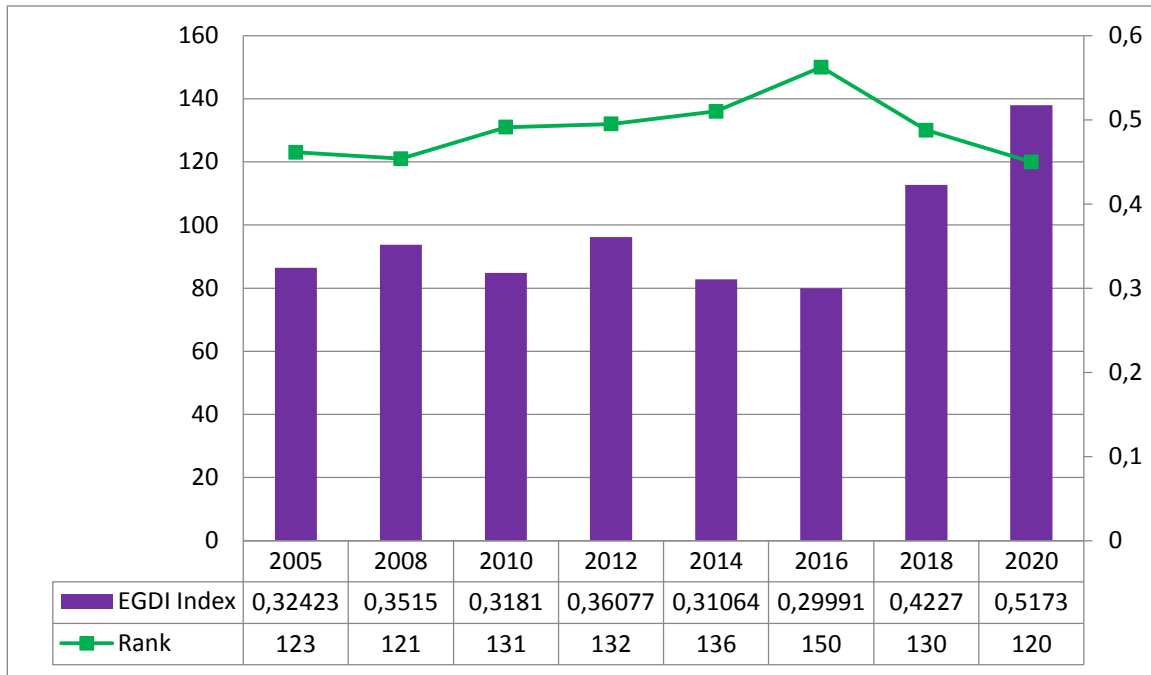
(Nabil & Abdelhakim, 2014, p. 1)

$$(EGDI) = (0.34 \times \text{online Service Index (OSI)}) + (0.33 \times \text{Telecommunication Infrastructure Index (TII)}) + (0.33 \times \text{Human Capital Index (HCI)})$$

The EGDI index is used to measure the readiness and capabilities of national departments to use communications and information technologies to provide public services. It is based on an assessment of the presence of the Internet in countries, where it evaluates local websites and the extent to which e-government policies and strategies are applied in certain service sectors.

Figure 1 shows the evolution of the EGDI index and e-government rankings for Algeria during the period (2005–2020).

Figure 1: the development of the EGDI index and e-government rankings for Algeria during the period (2005-2020)



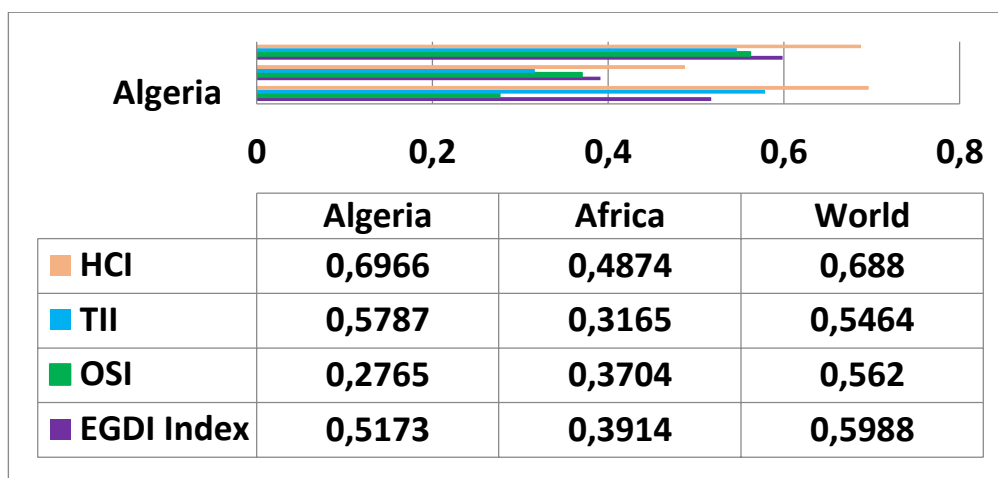
Source: United States department of economic and social affairs Division of public institutions and digital government. UN E-Government Knowledgebase.2021

www.publicadministration.un.org/egovkb/en-us/Data/Country-Information/id/3-Algeria consulted the: 20/01/2021 à 23:55

Soudani ahlem, Najah Assia, Assessing the reality of e-government in Algeria and Tunisia - a comparative study during the period (2003-2020), Journal of Business and Trade Economics, Volume 6, Issue 2, 2021, page 65-87

After being ranked 136th in 2014 by the E-Government Development Index EGDI, Algeria moved from 150th place in 2016 to 130th place in 2018 and 120th in 2020, due to the improvement in the value of EGDI sub-indices.

Figure 2: The EGDI Sub-Index Value by 2020 Report



Source: Zhenmin, L. (2020). United Nations E-Government survey 2020. p p 273-274

From the above figure, the human capital index (HCI) in Algeria is high (more than 0.5) compared to the other two indicators, while the index (OSI is less than 0.5), which means a decrease in internet service, while the index TII is more than 0.5. Thus, it can be said that Algeria, according to its performance in the development of e-government, generally recorded a positive performance in 2020 compared to 2018 (see figure 1) and is among the 31 countries that joined the high e-management development index group, up from the middle countries in 2018, so Algeria has achieved the highest value for EGDI in 2020 with a value of 0.5173, which is more than the Africa EGDI index and less than the world EGDI index.

3.2.2. The ICT Development Index: is an index published by the International Telecommunication Union (ITU) and designed to help assess and compare the state of development of information and communication technologies within and between countries. The goal was to chart changes in ICT development over time.

Table 2: ICT Development Index (IDI)

Year	2010	2012	2013	2015	2016	2017	2018	2019
Rank	114	114	114	113	106	102	did not publish	
IDI value	2.99	3.30	3.42	3.71	4.32	4.67		

source: Report on international indicators related to the postal and telecommunications sector, <https://www.mpt.gov.dz/ar/content/classement-mondial> , p 09, consulted on 25 /02/ 2022, at 22:00

From the table above, it is clear that the value of the IDI index is increasing during (2010-2017), and Algeria's ranking by this index has improved from 114 in 2010 to 102 in 2017, indicating the remarkable development of information and communication technologies in Algeria. The publication of the arrangement for 2018 and 2019 was canceled due to the proposal of a new methodology for the IDI initiative for 2018, It has been difficult to collect data on the new IDI for many countries.

3.2.3. The Index of Internet Use in Algeria:

Table 3: The Evolution of the Number of Internet Users in Algeria (2013–1st Six Months of 2020)

Year	2013	2014	2015	2016	2017	2018	2019	1st Six Months 2020
Internet subscribers (fixed phone)	1283420	1599538	2262259	2859551	3202505	3063835	3580456	367925
Internet subscribers (mobile phone)	308019	8509053	16684697	25692619	31460534	39860900	36911428	36967783

Total Internet subscribers (fixed and mobile)	1591439	10108591	18946956	28552170	34663039	42924735	40491884	40643709
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Source: Internet indicators, Ministry of Post and Telecommunications, 12/01/2021, available at: <https://www.mpt.gov.dz/ar/content/Indicators-Technologies-Media-Communication>
 -Development Report for the Telephone and Internet Market in Algeria for the first six years 2020, Ministry of Post and Information and Communication Technologies, 09/01/2021, available at : <https://www.mpt.gov.dz/ar/content/indicateurs>

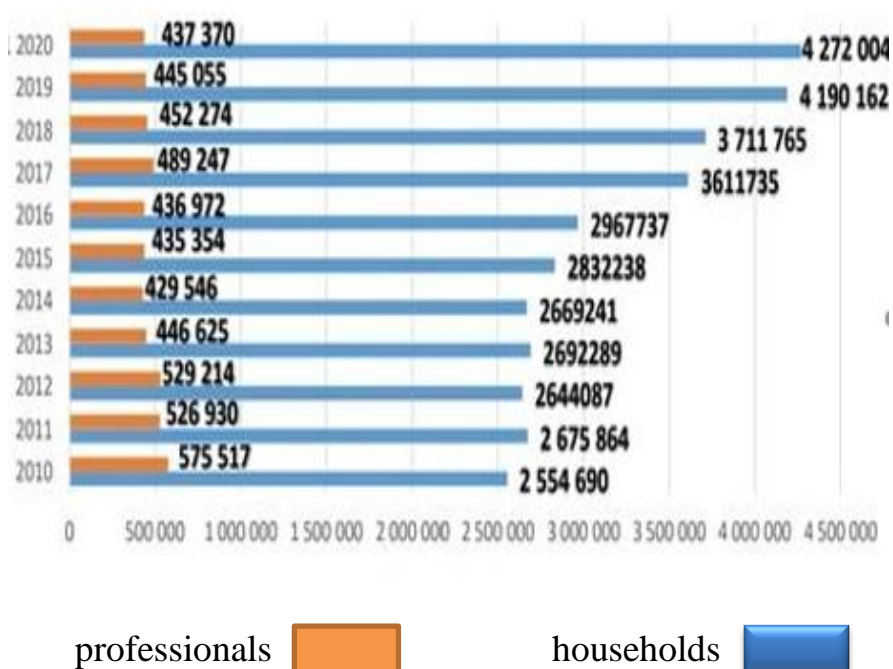
From the above table, we note the evolution of the number of Internet users during the first six-party period of 2020, jumping from 15.91 million in 2013 to 40.64 million at the end of the first six months of 2020, which has contributed to This quantum leap has brought about the dramatic rise in the number of mobile internet subscribers, who accounted for more than 34.66 million in 2017, demonstrating Algerians' awareness of the importance of the role played by the Internet in all aspects of their studies, economic, social, and cultural.

3.2.4. Algerian mobile phone user index:

The study of the number of telephone users in Algeria is based on two main pillars: analysis of the development of fixed-line users and analysis of the development of mobile users.

- **Fixed telephone network:** Algeria's telecommunications market is growing significantly, particularly in the field of fixed telephones, by improving the quality of service provided and continuing to increase the number of subscribers since 2010, as shown in the following figure:

Figure 3: The number of fixed-line users in Algeria has evolved (2010-2020).

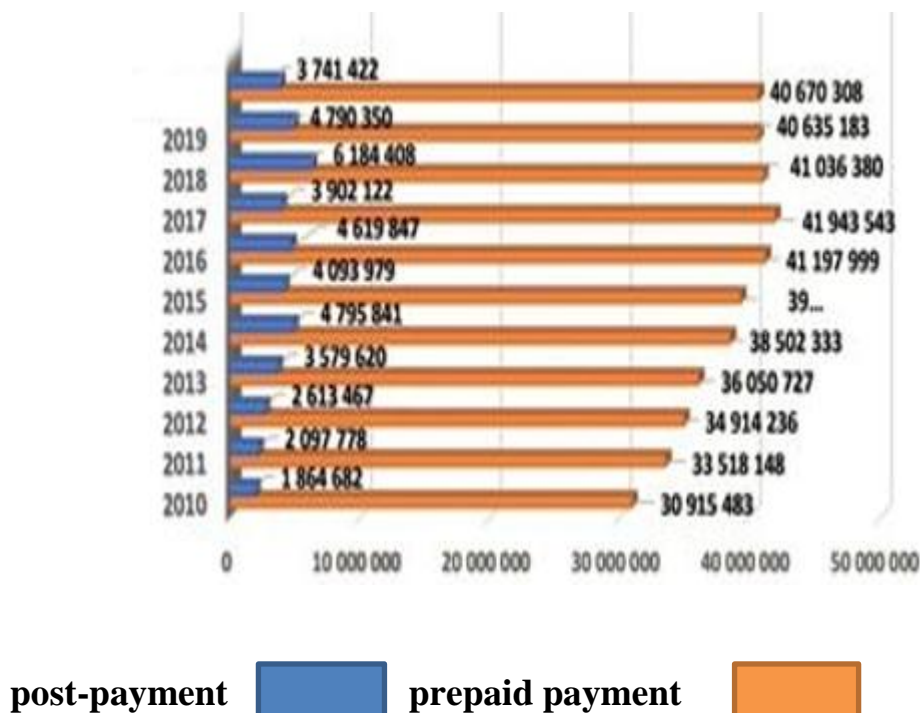


source: Development Report for the Telephone and Internet Market in Algeria the first six months of 2020, Ministry of Post and Information and Communication Technologies, 09/08/2021, available on: <https://www.mpt.gov.dz/ar/content/indicateurs>

From the figure above, the evolution of the number of fixed-line subscribers in Algeria during the period (2010– the first six months of 2020) has fluctuated, rising from 2010 to 2012, gradually declining in 2013, and reaching its lowest level in 2013. In 2014, with a common of 3098787, rising again in 2015 and 2016, achieving the largest number of subscribers in the last year, returning to 3130090 in 2017 but generally exceeding 3 million during the period, and the number of subscriptions In recent years, fixed-line has tended to grow positively, moving from 4164039 in 2018, to 4635217 in 2019, to 4709374 in the first six months of 2020. As a result, the previous data reflects Algeria's possession of a significant telephone network.

- **Mobile network:** The number of mobile phone users in Algeria has increased sequentially, and the following form summarizes the evolution of the number of mobile phone users by payment method in Algeria during the first six-party period 2020.

Figure 4: The number of mobile phone users by payment has evolved in Algeria (2010-2020).



Source: Development Report for The Telephone and Internet Market in Algeria for The First Sixth 2020, Ministry of Post and Information and Communication Technologies, 09/01/2021, available on: <https://www.mpt.gov.dz/ar/content/indicateurs>

The figure above shows that mobile services improved markedly during the years 2010 to the first six months of 2020, characterized by a continuous increase in the number of mobile subscribers, from about 32.78 million to about 44.41 million people, with a growth rate of 35.48% between 2010 and the first six years of 2020.

With regard to the method of payment, prepaid contributions account for the largest share, by a significant margin compared to the post-payment method, which does not exceed 3,741 million during the first six months of 2020, compared to 40,670 million prepaid subscribers during the same period, illustrating the significant difference in the number of subscribers. From the previous analysis of the number of fixed and mobile subscribers, there is a large disparity between the numbers of fixed and mobile subscribers, with a higher demand for mobile phone usage compared to fixed.

3.2.5. UNCTAD B2C E-commerce Index 2018

Table 4: UNCTAD B2C E-commerce Index 2018

Year	Rank	Percentage of people using the Internet	Share of individuals with account	Secure Internet servers normally.	Postal reliability degree
2019	107	60	42	40	10
2018	111	43	43	41	18
2017	97	43	50	31	26
2016	95	18	6	37	68

Source: Report on international indicators related to the postal and telecommunications sector, <https://www.mpt.gov.dz/ar/content/classem-mondial> , p 09, consulted on 25 /02/ 2022, at 22:00

Based on the table above, Algeria was ranked 107th out of 152 countries according to the 2019 B2C World E-Commerce Index, established by the United Nations Conference on Trade and Development (CNUCED), bringing Algeria four places up compared to the 111th place it ranked in 2018 in the B2C e-commerce index.

3.2.6. The Sustainable Development Goals Index:

Since its launch in 2015, Agenda 2030 has provided a blueprint for shared prosperity in a sustainable world, where all people can lead productive, vibrant, and peaceful lives on a healthy planet. In less than a decade, we will be in 2030 and we must ask ourselves whether it is our actions today that determine the conditions for achieving the Sustainable Development Goals. (Ministry of Post and Telecommunications, Report on international indicators related to the postal and telecommunications sector, 2021, p. 8)

The SDGs report provides some basic information to answer this question. The SDGs report is an estimate that each year provides an overview of implementation efforts around the world and highlights areas where progress has been made and those for which further action is needed. The Sustainable Development Report (including the SDGs index and dashboards) complements the official SDGs indicators, which have been developed as part of monitoring the implementation of the Sustainable Development Goals. (Ministry of Post and Telecommunications, Report on international indicators related to the postal and telecommunications sector, 2021)

Table 5: The Sustainable Development Goals Index

Years	2016	2017	2018	2019	2020	2021
Rank	83	64	68	53 /162	56 /166	66 /165

Source: Report on international indicators related to the postal and telecommunications sector, https://www.mpt.gov.dz/ar/content/classem-mondial_p_08, consulted on 25 /02/ 2022, at 22:00 -Sachs, J., Kroll, C., Lafortune, G., Fuller, G., & Woelm, F. (2021). Sustainable development report 2021. Cambridge University Press. P 11

Based on the table above, 85 indicators (out of 226 indicators) In 2020, Algeria ranked 56th out of 166 countries surveyed with a regional score of 100/72.3 and has always ranked first in Africa and the Arab world. Algeria was ranked 83rd in the 2016 edition of the same report (fifth in Africa and eighth in the Arab world), 64th in the 2017 version (first in Africa and the Arab world), and in 2018, Algeria ranked 68th (first in Africa and second in the Arab world), while in 2019, Algeria ranked 53rd.

3.2.7. E-gov and its cross-functional applications

As part of the implementation of e- administration and cross-functional applications, the MPTIC has initiated several projects in collaboration with other government departments. These projects mainly revolve around: (Ministry of Post and Telecommunications, E-gov and its cross-functional applications, 2022)

➤ Electronic procurement portal (e-procurement):

This project aims at implementing a system for the digitization of procurement procedures according to the provisions of presidential decree n°15-247 of September 16th, 2015, on the regulation of procurement and public service delegations.

This tool will be provided to central and local administrations as well as to public bodies. It shall include the various steps of the process of public procurement, mainly information, call for tender, postulation, sending the file's elements, selection, and granting.

➤ Mise à niveau du portail El-Mouwatine :

The launch of the upgrade project of the El-Mouwatine portal responds to many requirements such as, inter alia, the: (Ministry of Post and Telecommunications, E-gov and its cross-functional applications, 2022)

- integration of the new techniques that emerged enabling to improve the portal's visual aspect;
- the advent of smartphones, tablets, etc, and their great success among citizens compels the adaptation of content to these new terminals;
- evolution of users' needs requires to rethink the architecture through the focus on citizens;
- increase of online services offered by all public administrations requires to set up "El-Mouwatine" as a federating portal for all e-services.

4. Case study of Algérie Poste

4.1. Algérie Poste at a glance:

« Algérie Poste" is an EPIC « Public Establishment of an Industrial and Commercial Nature ». It has been created within the framework of the Post and telecommunications sector restructuring, process, through Law No 2000-03 of August 05th, 2000, setting general rules, about post and telecommunication. Algérie poste was established by decree No. 02/43 of January 14th, 2002. Algérie poste aims to ensure a public service mission throughout the national territory, it is also in charge of the exploitation and financial and postal provision services.

Table 6: Algérie Poste Statistics

Years	The number of post offices	The number of postal accounts (unit:1 million)	Sales (billion DA)
2010	3398	13,5	08,27
2011	3454	15	07,84
2012	3494	16,2	08,44
2013	3559	17	08,23
2014	3633	18,08	08,42
2015	3678	19,11	10,62
2016	3755	20,044	13,20
2017	3824	20,43	13,29
2018	3907	22,064	11,82
2019	4000	22	12,01
2020	4053	23,0709	10,86
2021	4106	24	-

Source: soudani ahlem, Assia Najah, Electronic Management as a Mechanism for The Modernization of The Algérie Poste Foundation, a research paper presented to the National Forum on the first default on applications of e-management and ways to secure them in Algerian institutions - the reality of application and bets of the future - which took place 05 January 2021 at the University Center Ahmed Ben Yahia Al-Wanscherisi - Tesemselt.

-Postal and Electronic Communications Control Authority, Annual Report, 2020, p 17.

From the above table, Algérie Post's sales have risen at a slow pace in the last 10 years with the increasing number of current postal accounts, the direct reason for demographic growth, and some of the facilities provided by Algérie Poste to open the account. Algérie Poste is available on a large postal network of more than 4,000 agencies. The secret of these positive results is the use of digitization in the internal management of Algérie Poste and the change of its information system to a new system that is very secure and effective through the application of electronic management techniques in addition to the approach to neighborhood policy.

4.2. Achievements of Algérie Poste in 2021: (Ministry of Post and Telecommunications, 2022)

- The completion of the study on the development of an electronic ticketing platform for various demonstrations, however, given the complexity of the project, the option of including an electronic payment unit for Algérie Poste was put at the disposal of the institutions.
- Completion of technical developments that allow electronic payment of rentals of justice housing.
- Signing agreements with the Ministries of National Education, Higher Education, and Scientific Research to encourage electronic payment of examination fees and registration rights.
- Completion of the technical development of the fee exemption project for postal financial services applicable to vulnerable groups
- launching an Algerian water bill collection service at the postal level for the benefit of four loyalty units in Adrar, Biskra, Jjelfa, and Wargla.
- Concerning the activity of letters and parcels, an agreement was signed between Algérie Poste and the National Rail Transport Corporation complex for the transport of postal transmissions.
- Concerning the postal service, the construction of 6 of the 28 registered post offices has been completed, and 117 restoration or re-establishment programs have been completed out of 124 registered post offices.

4.3. Assessment of the modernization of Algeria's postal sector:

4.3.1. Algeria's postal sector ranked among the main international indicator

IPD Integrated Postal Development Index (IPD2)

The Universal Postal Union's (UPU) Integrated Postal Development Index provides an overview of postal development worldwide. Data analysis provides a standard performance score of 0 to 100 for the four dimensions of postal development: Reliability, accessibility, convenience, and flexibility, as well as a reference to the

relative performance of mail worldwide, the Integrated Postal Development Index highlights ways to stimulate postal development and increase the efficiency of postal infrastructure. (Ministry of Post and Telecommunications, Report on international indicators related to the postal and telecommunications sector, 2021, p. 5)

Thus, it becomes a unique tool for policymakers, regulators, designated operators, and others in the sector who want to understand the role postal services can play in the era of e-commerce.

The 2IPD is a comparative indicator of postal development around the world. It is a composite index that summarizes information about the performance of postal operators in 168 countries. As such, the 2IPD is a unique tool for analyzing the state of the postal sector. Thanks to its wide geographic coverage and the depth of its underlying data, this index appeals to a multitude of stakeholders, from policymakers and regulators to postal operators and wider postal sector players (Postal development report, 2021, p. 6)

The 2IPD is built on four pillars: **reliability, reach, relevance, and resilience**, which are in turn sustained by a variety of sub-indicators. (Ministry of Post and Telecommunications, Report on international indicators related to the postal and telecommunications sector, 2021, p. 5)

Table 7: IPD Integrated Postal Development Index (IPD2)

Year	2017	2018	2019	2020	2021
Classification	107 /170	124 / 173	119 /172	73 /170	81/ 168
Index value	26.66	20.06	20.05	37.97	30.02

Source: Report on international indicators related to the postal and telecommunications sector, https://www.mpt.gov.dz/ar/content/classem-mondial_p_05, consulted on 25 /02/ 2022, at 22:00

-Postal development report 2021, Taking stock of a new reality, UPU, P 14

From the above table, Algérie Poste ranked 73rd globally out of 170 countries in 2020, and ranked 119th in 2019, with 46 orders in one year, the most progress in postal development, according to the latest annual report of the Universal Postal Union.

The Universal Postal Union Express Mail Ranking Index:

It is an indicator of the performance and quality of service in terms of express mail. Algeria's post sector express mail specialist, EMS operator, has performed well in 2019 and 2020 with steady progress for all indicators, allowing it to be ranked 37th in 2019 by the Universal Postal Union, 19 and then 16th in 2020 out of 198 member states of the EMS cooperative, according to the latest union report, i.e., Algeria progressed by 47 places between 2018-2020.

Table 8: The Universal Postal Union Express Mail Ranking Index

Years	2016	2017	2018	2019	2020
Rank	158	96	63	37 /198	16

Source: Report on international indicators related to the postal and telecommunications sector, [https://www.mpt.gov.dz/ar/content/classem-mondial p 05](https://www.mpt.gov.dz/ar/content/classem-mondial-p-05), consulted on 25 /02/ 2022, at 22:00

The table above shows that the reorganization of postal activity, particularly with regard to EMS Express mail, revolves around the following aspects:

- Participation of private customers in transportation and distribution.
- Using information and communication technologies to track transmissions and restore distribution manuals
- establishing electronic logistics floors and expanding e-mail distribution (e-commerce);
- Digitizing mail and displaying e-mails in the name of the poste.DZ domain;
- promoting hybrid mail and displaying certification and time stamp services (recommended e-mails, telegrams, Barki@tic, electronic summonses, etc.).
- Create an electronic file of addresses and put it on the line so that the public, departments, and interested bodies can see it.

4.3.2. The impact of e-government adoption on improving the quality of Algeria's postal services

In recent years, there has been a rapid qualitative leap in the emergence of new services for Algérie Poste as a result of the development of user taste and the exploitation of the Internet with its applications and the spread of the acquisition of smartphones. As part of the modernization of its operations, Algérie Poste provided many services:

- **Mobile post offices:** Recruiting all equipment for residents of isolated places from internet-equipped vehicles to receive all operations, such as a post office
- **Reconnecting post offices to the information and communication networks:** by repositioning the structure of the information network to ensure better service, each current postal account holder can benefit from all services at any point at home on the same terms and pricing.
- **Development of cash services:** by circulating electronic payment methods using automatic machines (GAB, TPE electronic payment devices) and paying over the Internet, and using mobile phones by downloading the application. GAB facilitates financial operations such as transfers from account to account, mobile phone packaging, cheque requests, and change of status of the cash card, from which more than 5.7 million gold cards were distributed for 2019-2020.
- **TRF:** It's like a card transfer, but it's characterized by the electronic transfer of money from one post office to another through a media network.

- **CCP E-CCP Postal Current Account Service** According to this service, any natural adult, or moral person, can open an account to apply to the post office located in his or her territory, providing appropriate identification documents so that they can benefit from the services: Using the cash card, you can see the balance of the postal current account at the window level, at the level of the bank's automated window, (on the Website of Poste Algérie eccp.poste.dz)
- **Baridi Mob:** It is a mobile application that provides you with electronic banking and postal financial services of Algérie Poste. It helps optimize your time, manage your CCP account and your operations from anywhere and at any time. (Algérie poste, BARIDI MOB / BARIDI WEB, 2022)
- **SMS Notification Service:** Algérie Poste provides an SMS notification service for all payments, withdrawals, direct debits, and transfers made to your CCP account.
- **S@HEL-KHLASS service:** This service allows you to top up your ADSL account and four other accounts of your choice, Pay your phone bill and those of the people of your choice. Payments are made via the Algérie Télécom customer area "ec.djaweb.dz". (Algérie poste, 2022)
- **RACIDI Credit Service:** For customers who own a CCP account, GSM Mobile is a phone line and therefore a credit service that allows them to view their account balance by text message with the account number without the key followed by the user code on 603. (mobilis, 2022)
- **BARIDINET:** This is a virtual post office (online) provided to Algerian postal customers through the www.poste.dz website, which provides them, remotely and without travel, the same services provided at the local post office, allowing them to benefit from many services: opening a mailing current account (CCP), checking account balance (CCP), requesting a "golden" payment card, and paying consumption bills (water, electricity, gas, Internet, etc.). and buy articles and products available in the online store (electronic boutique). (Algerie poste, 2022)
- **Baridi Mob/ Web :** Algérie Poste launches a new Baridi Web service for its customers with EDAHABIA cards by providing them with a secure and easy-to-use web portal at <https://baridiweb.poste.dz>. The Baridi Web service allows customers of Algérie Poste to benefit from a wide range of postal financial services through the Internet (Internet Banking), with disconcerting ease and speed of execution of operations at any time (7 days a week and 24 hours a day). (Algérie poste, BARIDI MOB / BARIDI WEB, 2022)

4.4. Towards an effective Algérie Poste E-Government Strategy

(Ministry of Post and Telecommunications, Postal development strategy, 2022)

As far as the postal service is concerned, democratizing access to a modern postal service will be achieved by the increasing use of ICT, which remains one of our top priorities. This access may be physical, electronic, or based on the use of mobile telecommunications networks.

This will allow citizens to benefit from postal services anywhere in the country by using all available means, including the public-private partnership to:

- Make postal and financial services closer to customers by making the opening of neighborhood postal checkpoints a priority, both in large urban areas and remote areas.
- Deploy a postal presence in major stations and airports.
- Support and revitalize rural areas, regions, and zones that suffer from difficulties or that are isolated from maintaining their populations by acquiring and deploying mobile offices.
- Transform the postman's function into a true commercial agent to offer various postal and financial services at home.
- Set up in secure malls and public places, multiservice ATMs operate around the clock, seven days a week.
- Maintain the state's commitment to providing the population with universal postal service by offering nationwide basic, cost-effective postal and financial services.
- Rehabilitate the public service and strengthen the community service concept that would reinforce social cohesion through an action likely to preserve permanent continuity of service, equal opportunity of access, and transparency.
- Sustain actions of general interest targeting vulnerable segments of the population.
- Offer easy access to services by using information and communications technology, by deploying an ambitious program of post office computerization (IBP), installing ATMs and EPTs, including the development of applications for remote services or via mobile networks.
- Furthermore, modernization also consists of adopting a range of modern ICT-based postal services, incorporating agencies, means, and tools of production as well as the proposed services. It will be achieved through automation, mass computerization, digitization, and especially the development of online services, remote access, and mobile application use.
- Regarding postal agencies, the brand "Algérie Poste" must evolve in line with the development of society and respect the architecture and environment of each neighborhood.
- To this end, computerizing back and front offices within post offices is one of the major projects of postal industry modernization. This structural project, which is based on the modernization of post office management, will not only

influence the attitudes of citizens and receiving agents, but it will also aim to improve the quality of services provided to citizens.

- Reduce the queue.
- Secure transactions
- Automate audit operations and daily/monthly accounting.
- Concerning the means and tools of production, it is meant to minimize at best the amount of manual work by generalizing process automation and using more efficient modern means.
- To meet the ever-growing demands of clients, "Algérie Poste" will give preference to the electronic interface and remote access and promote the use of electronic means of payment via the website.
- As for the mail and parcels aspects, the development of ICTs and the internet, in particular, provides new tools to improve and develop the postal business. Thus, it aims to move from a primarily mail distributor status and service provider to that of a key player in e-commerce and distribution. Logistical activities and payments are vital for the postal service.
- As such, the reorganization of the postal activity, in particular, the one regarding the EMS, will deal with the following aspects:
 - Involving private operators in transport and distribution
 - Using tracking to monitor the traceability of mailings
 - Creating e-logistics platforms and developing the delivery of items purchased online (e-commerce)
 - Dematerialization of mail and e-mail supply using the domain name poste.dz
 - enhancing hybrid mail and supply of services certification and time stamping (electronic registered letters, Barkia@tic, etc.)
 - Creating an electronic file of addresses and making it available online for the public and interested governments and organizations.

5. Results and Discussion

Many countries in the world have relied on e-government to provide electronic services to their citizens, and to respond to the demands of progress and development in the world of modern technologies, and none of the countries, whether developing or developed, and Algeria, have been excluded from the countries that have adopted the application of e-government as an attempt to provide services at the lowest cost, more efficiently, and as soon as possible. However, the implementation of the Algerian e-government is still in its infancy, and is slowly taking its first steps, as the clear changes and successive developments in the reform and development program of ministries and government sectors are evidence of the progress of the e-government project in Algeria.

All government agencies that are keeping pace with this important event should not lose sight of a strong, integrated infrastructure, relying on the human element that is

only capable of spreading information awareness, which will give the security visa to enter the information society from its wide doors.

This study concluded with the following findings:

- The effective implementation of Algeria's electronic project requires providing many basic requirements for its establishment, such as providing infrastructure, preparing and rehabilitating the human element, as well as enacting the necessary legislation that is in line with this step.
- Algeria's electronic project is promising, but it has not achieved its ruler's objectives because not all partners are involved in the project, from government departments, the private sector, and civil society, while the project has been assigned to only one sector, the Ministry of Post, Telecommunications, Wireless, Technology, and Digitization.
- The E-Government Development Index confirms that Algeria, located within the middle ranking until 2018, entered the high rating category in 2020 and could achieve a better ranking if it improves internet service and infrastructure development.
- Algeria has achieved the highest value EGDI in 2020 with a value of 0.5173, which is more than the Africa EGDI index and less than the world EGDI index.
- All the above indicators are good but not enough to make Algeria ready to implement e-government in its various sectors, especially given the increasing pace of international competition, which means that the first hypothesis is rejected.
- Algérie Poste ranked 73rd globally out of 170 countries, ranking 119th in 2019, with 46 places gained in one year, with the greatest progress in postal development, according to the IPD Integrated Postal Development Index (IPD2).
- According to the Universal Postal Union Express Mail Ranking Index, Algérie Poste advanced 47 places between 2018 and 2020.
- The two above indicators are good but not enough to make the Algérie poste ready to implement e-government, **which means that the second hypothesis is rejected.**
- Algérie Poste has been able to cover a large part of the local market and offer many services that rely on electronic management, which has resulted in many improved electronic services: CCP E-CCP postal current account service, TRF electronic transfers, S@HEL-KHLASS service, RACIDI credit service, SMS notification service, BARIDINET, which means that **the third hypothesis is confirmed.**
- The modernization of Algeria's postal system allowed this institution to strengthen citizens' balances and provide them with a less expensive service, which reduced its expenses and increased its profits. It was able to "improve" its finances thanks to the launch of several electronic services, particularly electronic money transfer and telephone balance mobilization.

- With regard to the postal service, Algérie Poste has implemented an effective strategy that has included democratizing access to a modern postal service based on the increasing use of ICT, which remains one of our top priorities. This access may be physical or electronic and depends on the use of mobile communication networks. In this regard, it is planned to continue and intensify the activities of modernizing the postal network and activating all measures that allow for improved reception conditions for citizens and diversification of proposed offers and services, which will contribute to reducing regional differences. And social disparities. Which means that the fourth hypothesis is confirmed.

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