





جامعة أحمد بن يحيى الونشريسي
تيسمسيلت-

المعيار

مجلة نصف سنوية متعددة التخصصات
مصنفة " C "

في الآداب، الحقوق والعلوم السياسية، علوم وتقنيات
النشاطات البدنية والرياضية، العلوم الاقتصادية، والعلوم الإنسانية
والاجتماعية

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كلمة العدد

السلام عليكم،

بعد واجب التّحيّة تطل عليكم مجلة المعيار – كما عودتكم – بمجلد جديد وعدد متجدد هو المجلد السادس عشر، العدد الأول، حاملة في طيّاتها مجموعة ثرية ومتنوعة من المقالات العلميّة والبحوث الأكاديمية، التي تتناول طيفا واسعا من المواضيع والقضايا التي تهم القارئ المتطلّع للمعرفة والفهم العميق.

وكالمتوقع، يتضمن هذا العدد نخبة من المقالات التي كتبت بأقلام نيرة، وبأفكار ناضجة، تجمع بين العمق العلمي والطّرح الجذّاب، وذلك في مجالات شتى، تشمل: الأدب، والقانون، والسياسة، والاقتصاد، والاجتماع، وغيرها وبلسان مختلف اللّغات منها الانكليزيّة، الفرنسية والألمانيّة، ومن الميادين التي تتجدّد أهميتها مع متغيرات الواقع وتحديات العصر.

وما يضيفي على هذا العدد طابعا خاصّا، هو ما يتضمنه من أعمال كتبت من داخل الوطن ومن خارجه، في دليل واضح على عمق الامتداد العلميّ للمجلة، وحرصها على جمع الآراء والأصوات العلميّة من كافة الأصقاع، فكلّ مقال يضيف بعدا ورؤية تساهم في بناء معرفة شاملة ورؤية متوازنة نتطلّع من خلالها إلى نيل رضى القارئ والفوز بإعجابه.

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أ.د. عيساني محمد

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Abstract:

This research aims to evaluate the reality of the digital economy in Algeria by inspecting the state of the information technology sector and Algeria's global and regional position in various specialized international indicators, it also seeks to monitor all efforts made by the Algerian authorities to enter the realm of the digital economy.

Through this study, we reached an important conclusion: Algeria has not yet transitioned to a true digital economy, this has negatively affected the overall framework for facilitating the work of economic partners in their daily interactions with the administration. Up to now, most commercial and administrative transactions with various governmental entities, are still conducted in a primitive manner, this consumes considerable effort and time, leaving the door wide open to favoritism and administrative corruption.

key words: Information Technology; Digital Economy; E-Government; Digital Readiness.

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The reality of the digital economy in Algeria through the study of the information technology sector during the period 2015-2024

Introduction:

Our contemporary world has witnessed tremendous technological advancement, progressing at an accelerated pace, the world has transitioned from a physical realm governed by laws, customs, and differences to a virtual, intangible realm where boundaries and disparities have diminished, this transformation owes much to information and communication technologies (ICT), which have connected the world through a global digital network, turning it into a small, interconnected village, this era has come to be known as the digital revolution or the Fourth Industrial Revolution (4th IR).

This rapid development has facilitated economic and commercial transactions and given rise to a new form of economy based on modern technology, known as the digital economy, this economy has become a hallmark of technological progress and prosperity, contributing significantly to economic development, wealth generation, job creation, and reducing unemployment.

As a result, most specialized international organizations and institutions have developed indicators to measure countries' digital readiness and their ability to transition toward a digital economy, countries that rank high on these indicators are often the same ones leading in economic development, prosperity, and high standards of living, **(Financial Times, 2020)**.

From this perspective, we aim in our research to examine the reality of the digital economy in Algeria by studying the state of the information technology sector, this study attempts to address the following research problematic:

- What is the reality of the digital economy in Algeria?
- What is Algeria's position in the latest technological indicators?

Research Hypothesis:

To answer the above questions, the study is based on the hypothesis that **according to international indicators used to measure the development and utilization of modern information and communication technologies and e-government, Algeria ranks significantly low, keeping it among the least advanced countries in the digital economy sector.**

Methodology and Structure:

This research utilizes various tools for data collection, including electronic academic books, specialized articles, dissertations, reports, and websites, based on the research problematic and methodology, the study is structured as follows:

2. Concept and importance of the digital economy in Algeria:

This section discusses the concept of the digital economy and highlights its potential benefits for Algeria. It examines how transitioning to the digital economy can reduce reliance on outdated economic, commercial, and administrative practices that foster corruption and favoritism.

2.1 Concept of the digital economy

The term "digital economy" emerged with the expansion of digital transactions, which rely on information technology for economic and commercial activities. The concept combines two key components: "economy" and "digital." It refers to an economy that leverages modern

information and communication technologies (ICT) in a virtual space to facilitate commercial, administrative, and financial transactions **(Bukht & Heeks, 2017, pp. 6-11)**.

Definitions of the digital economy vary among researchers and academics, some define it as:

The continuous interaction, integration, and coordination between information technology and communication technology on the one hand, and the national and global economy on the other, ensuring transparency, swift processing, and access to economic data and indicators for immediate decision-making **(Barefoot, Curtis, & al., 2018, pp. 6-7)**. Others define it as:

An economy based on the use of information and communication technology, facilitating the flow of information, goods, services, and capital from and to any point in the world **(Rjam, Wassel, & Saada, 2018, p. 44)**.

Based on these definitions, the digital economy can be summarized as an economy that fundamentally relies on the integration and interaction of information and communication technologies with all economic activities to facilitate and accelerate the exchange of information, goods, services, and capital flows.

2.2 Characteristics of the Digital Economy:

The digital economy is characterized by:

- Heavy reliance on communication networks, such as the Internet, intranets, and extranets.
- Utilization of encryption software and cybersecurity measures.
- Adoption of electronic transactions, including e-commerce, e-banking, and e-governance.
- Dependence on ICT infrastructure, such as 4G/5G networks, ATMs, point-of-sale (POS) devices, and broadband internet.

2.3 Importance of the Digital Economy in Algeria:

Transitioning from a physical to a digital economy could provide Algeria with several benefits, including:

- Reducing the import bill for paper by replacing traditional administrative transactions with electronic ones, and replacing paper-based marketing and advertising with digital alternatives.
- Promoting electronic payment and collection systems, which create new, efficient job opportunities and eliminate redundant positions.
- Digitizing customs and taxation sectors to tighten control over tax evaders and fraudulent importers, saving the state significant funds **(Tosheva, 2020, p. 43)**.

3. State of digital infrastructure in Algeria and its position in digital readiness indicators:

There is no doubt that transportation networks, including roads, railways, land, sea, and air transport, are the backbone and lifeline of the physical economy, facilitating the swift and secure movement of people and goods, however, in our current era, characterized as the age of technological and digital revolution, Information and Communication Technology (ICT) has become the backbone of the digital economy, ICT ensures the seamless flow of information and data between various sectors, including production, administration, and services, acting as a critical link for efficient communication and exchange, in today's era, ICT has become a crucial element of progress and an essential component of economic development for nations, given its significant and positive impact on all aspects of life, both economic and social, the advancement and progress of countries have become closely tied to the development of their

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communication and information technologies. This has made these technologies a fundamental pillar for the success and prosperity of any digital economy.

3.1 State of Telecommunications in Algeria:

Like other developing countries, Algeria has recognized that achieving the status of advanced nations and entering the realm of an effective digital economy inevitably requires the development of the telecommunications sector. Consequently, Algeria opened the door to investment in the wireless telecommunications sector, realizing that foreign investment in this field would save time and provide access to modern technology through these investments.

Given the significant advancements in modern wireless communications, particularly in mobile telephony, which has become indispensable after being previously limited to a small elite of businesspeople and wealthy individuals, and due to the high demand for this means of modern communication, Algerian authorities in early 2000 authorized the foreign operator Orascom Telecom Algérie (OTA) to support the state-owned operator Algérie Telecom Mobile, which operated under the trade name Mobilis.

The foreign operator entered the Algerian market in early 2002 with its brand name Djezzy. Starting in 2015, ownership of this brand was transferred to the company Veon, and in July 2022, Veon transferred all its shares in Orascom Telecom Algérie to the National Investment Fund (FNI). Thus, the Djezzy brand became owned by a national company named Optimum Telecom Algérie.

Currently, Djezzy is owned 96.57% by the National Investment Fund and 3.43% by Cevital, making it entirely managed by Algerian shareholders (**Djezzy.dz, 2023**).

Starting in 2004, Algerian authorities authorized a second foreign operator, the Kuwaiti company Wataniya Telecom Algérie, which operated under the brand name Nedjma, later, in 2014, the Nedjma brand was rebranded as Ooredoo after the Qatari operator Qtel acquired a majority stake in Wataniya Telecom Algérie (**ooredoo.dz, 2023**).

By 2009, competition intensified among the three operators, after the foreign operator Orascom had previously dominated the majority of mobile phone subscribers. According to the statistics provided by the Algerian postal and electronic communications regulatory authority in its second-quarter report for 2024, the total number of mobile phone subscribers in Algeria reached 52 221 043, marking an increase of 3 305 559 compared to the second quarter of 2023, which represents a growth rate of 6.76%.

The total number of subscribers is distributed among the three operators as follows: (**ARPCE, 2024**)

- Mobilis (ATM): 22 658 999 subscribers, ranking first.
- Djezzy (OTA): 16 127 107 subscribers, ranking second.
- Ooredoo (WTA): 13 434 937 subscribers, ranking third.

It is noticeable from the previous statistics that they are relatively close, unlike the statistics of previous years, during which the foreign operator Orascom dominated with a significant margin over the other competitors*.

* According to the 2006 annual report of the Postal and Telecommunications Regulatory Authority, available at https://www.arpce.dz/fr/doc/pub/raa/raa_2006.pdf, the total number of mobile phone subscribers at the end of 2004 reached 4 882 414, of which 3 418 367 were subscribers with Orascom Telecom Algérie, representing 70.01% of the total.

To illustrate the development of mobile phone subscriptions during the period from the second quarter of 2023 to the second quarter of 2024, we have included the following table:

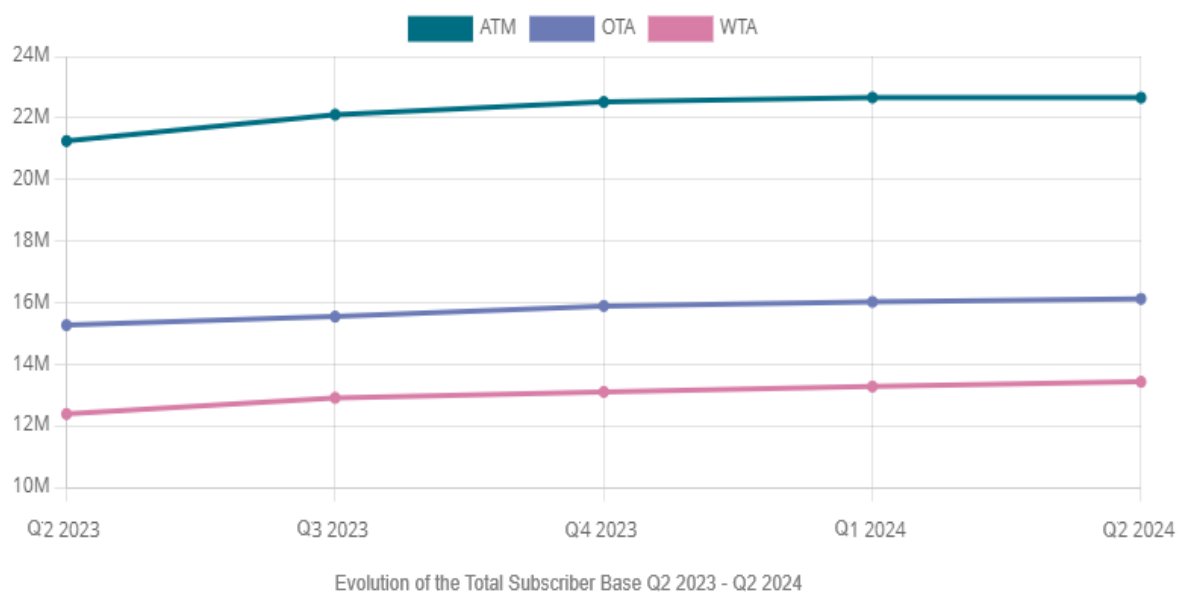
Table 1. The total active subscriber base on mobile networks by operator

Operator \ Period	2nd quarter 2023	3rd quarter 2023	4th quarter 2023	1st quarter 2024	2nd quarter 2024
ATM	21 252 647	22 107 897	22 517 967	22 662 914	22 658 999
OTA	15 272 197	15 550 652	15 897 659	16 029 657	16 127 107
WTA	12 390 640	12 913 986	13 106 521	13 280 071	13 434 937
Total of subscriber	48 915 484	50 572 535	51 522 147	51 972 642	52 221 043
growth rate (Q2 2023 – Q2 2024)		+6,76%			

Source: (ARPCE, 2024)

It is observed from the table above that the number of mobile phone subscribers continues to increase over time and has not yet reached saturation. The number of subscribers during the period from Q2 2023 to Q2 2024 grew by 6.62% for the operator ATM, by 5.60% for the operator OTA, and by 8.43% for the operator WTA, to illustrate the development of the active subscriber base for the three operators, we have included the following chart:

Figure 01: Evolution of the total subscriber base (Unit 10⁶)



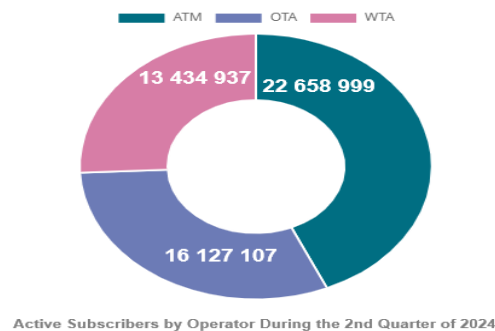
Source: (ARPCE, 2024)

Despite the close growth rates among the three operators, WTA's growth rate is the highest. If this trend continues in the coming years, WTA could surpass OTA and take second place in the number of subscribers.

The following figure illustrates the market share of each operator in terms of mobile phone subscribers in Algeria during the second quarter of 2024.

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Figure 02: Share of each customer of active subscribers in mobile networks for the second Quater of 2024



Source: (ARPCE, 2024)

The figure above illustrates the market share of the three operators in terms of the total number of active subscribers during the second quarter of 2024. It highlights the dominance of ATM over the other operators in terms of subscriber numbers.

As for fixed-line communications, the public telecommunications company, Algérie Telecom, continues to dominate this sector. By the end of the second quarter of 2024, the number of fixed-line subscribers reached 6 463 920 (ARPCE, 2024).

3.2 The reality of Digital Infrastructure in Algeria

Since its early years as an independent nation, Algeria has sought to catch up with developed countries by benefiting from the experiences of leading nations in advanced technologies, particularly modern information and communication technologies (ICT). The concept of globalization emerged, transforming the world into a small interconnected village where communication between individuals and institutions became seamless, provided a digital infrastructure for communications, data exchange, and information sharing was in place. Among the most important modern means of ICT is the Internet.

Algeria took its first steps in the field of ICT in the mid-1970s by establishing its first specialized center in this domain in 1974, known as the Center for Scientific and Technical Information and Technological Transfers (Centre d'Information Scientifique et Technique et de Transferts Technologiques). The primary responsibilities of this center included: (**Official Gazette of the People's Democratic Republic of Algeria,, 1974, p. 959**)

- Collecting and cataloging all available scientific and technical information in Algeria.
- Informing all national entities involved in scientific and technical information about sources of importable technologies, along with details regarding the costs and legal aspects of importing such technologies.

By 1985, Algeria realized that catching up with leading nations in modern technologies required more than just acquiring equipment and tools; it needed to develop this sector through scientific and technical research. Thus, 1985 marked the establishment of the Research Center on Scientific and Technical Information (CERIST - Centre de Recherche sur l'Information Scientifique et Technique). Among its key responsibilities were: (**Official Gazette of the People's Democratic Republic of Algeria, 1985, pp. 202-203**)

- Participating in the creation and development of a national network for scientific and technical information, and promoting the use of IT techniques to collect, analyze, and process scientific and technical data.

- Ensuring coordination for linking the national information network with external and international networks related to scientific and technical information.

Over the years, Algeria gradually recognized the necessity of transitioning toward widespread adoption of modern technologies, with the Internet at the forefront. The CERIST was tasked with this mission, and in March 1994, Algeria's first practical step toward Internet services began. At the time, it relied on a single international line connecting Algeria to Europe and the rest of the world via Italy. However, the bandwidth was extremely low, at just 9.6 kbps, limiting widespread Internet use. Initially, the Internet was available to a few university researchers and a very limited number of institutions and companies. Over time, Internet bandwidth improved, reaching 2 Mbps by March 1999 (**Deghmoum & Kebaili, 2023, p. 9**).

Algeria continued its efforts both technically and legislatively:

- **Legislatively:** Algeria ended CERIST's monopoly as the sole national Internet provider and allowed other entities to offer Internet services. This was achieved through Executive Decree No. 98-257, issued on August 25, 1998 (Official Gazette of the People's Democratic Republic of Algeria, 1998, pp. 5-8). This decree expanded Internet access, leading to a continuous increase in subscribers. Subsequently, Executive Decree No. 2000-307, issued on October 15, 2000, which amended and complemented Decree 98-257, (**Official Gazette of the People's Democratic Republic of Algeria, 2000, pp. 51-61**), and this marked Algeria's entry into the era of widespread Internet use, making it accessible to all segments of society after being limited to a select group of researchers and professionals.

- **Technically:** The efforts of the Algerian government, through the Ministry of Post and ICT, led to the establishment and expansion of international and national fiber optic networks, as a result, Internet bandwidth reached 9.8 Tbps in 2024, compared to 420 Gbps in 2019. This development in ICT infrastructure enabled the connection of all municipalities across Algeria to the Internet starting in 2008, additionally, these efforts resulted in the total length of fiber optic telecommunications networks reaching 200 000 km by the end of 2024 (**Ministry of Post and Telecommunications, 2024**).

3.3 The Stages of Digital Services Development in Algeria

In its attempt to enter the realm of the digital economy and electronic services, the Algerian authorities increasingly recognized the need to transition from traditional public services, which rely on outdated bureaucratic and centralized mechanisms, to modern electronic services based on advanced technologies, this led the Ministry of Post and Information and Communication Technologies to launch the "Algeria Electronic Strategy 2013" project, the goal of this initiative was to prepare Algeria for the digital economy and e-government era by generalizing the use of ICT, the strategy aimed to enhance the efficiency of the national economy, improve and modernize public services, and increase the capacities for scientific research, creativity, and innovation, representatives from various stakeholders in the ICT field were involved in developing this project, which included thirteen main pillars. Each pillar contained one or more objectives with a specified timeframe for implementation, extending from late 2008 to 2013.

The primary objective of this project was to intensify the use of ICT across various sectors and simplify administrative procedures for citizens by transitioning Algeria into the digital economy, supported by the necessary human, financial, and legal resources to achieve this goal. (**Official Gazette of the People's Democratic Republic of Algeria, 2009, pp. 18-26**).

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Despite the efforts made by Algerian authorities, the Algeria Electronic Strategy 2013 project failed to achieve most of its objectives, accomplishing only a few. By 2014, Algeria remained stagnant in its use of ICT. According to the Global Innovation Index 2014, Algeria ranked 133rd out of 143 countries, focusing on the use of e-government services. This ranking reflects Algeria's significantly lagging position both globally and within the Arab world, where it ranked 12th out of 14 Arab countries included in the index. **(The global innovation index 2014, 2014, pp. xxiv-xxv).**

This alarming state of e-government services prompted Algerian authorities to accelerate the implementation of electronic services initially planned under the Algeria Electronic Strategy 2013. The authorities began by generalizing the use of Algeria Post's electronic payment card, and starting in 2014, the biometric passport replaced the traditional passport. Moreover, the biometric national ID card was automatically issued to every citizen who obtained a biometric passport.

In the field of e-commerce, despite all the efforts made by the Algerian state to encourage citizens to use bank cards in their commercial transactions, many Algerians remain hesitant to adopt this method of payment, and they prefer traditional, cash-based methods despite their risks and disadvantages.

3.4 Algeria's Position in the Networked Readiness Index (NRI):

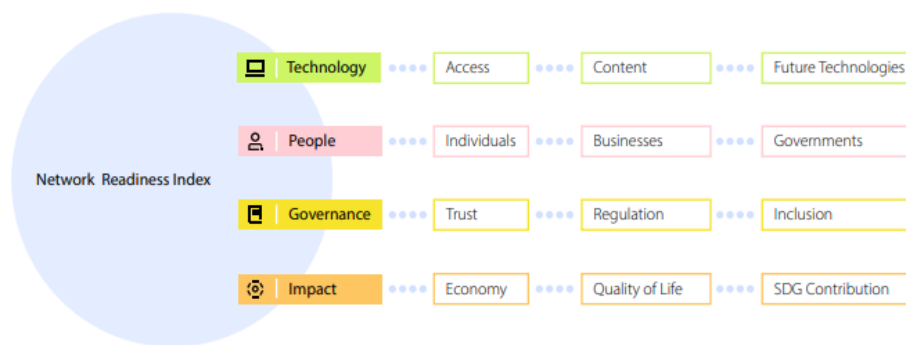
The Networked Readiness Index (NRI) has been published by the World Economic Forum since 2002. It is considered a credible indicator of how countries engage with the digital world and their readiness to adopt and benefit from modern information and communication technologies (ICT). This index measures the quality and efficiency of using modern technologies to develop economies, enhance competitiveness, increase welfare, and facilitate business operations.

There is no doubt that the higher a country's ranking on this index, the greater its chances of successfully transitioning to a digital economy and mastering its aspects. The index includes 140 countries, evaluated based on statistics and data collected from a wide range of international agencies, organizations, and entities, such as UNESCO, the World Bank, the International Telecommunication Union (ITU), and various United Nations agencies.

It is noteworthy that the World Economic Forum regularly published this index as a primary indicator until 2016. From 2017 onward, the NRI was incorporated as a sub-index within the Global Information Technology Report (GITR) (World Economic Forum, 2016). The NRI was absent from the World Economic Forum's reports until 2019, when the responsibility for publishing the annual NRI report was transferred to the Portulans Institute (PI) in collaboration with the World Information Technology and Services Alliance (WITSA).

The 2019 NRI report covered 121 countries, including 13 Arab nations. Countries such as Mauritania, Syria, Libya, Sudan, Iraq, Somalia, Djibouti, and Comoros were excluded due to a lack of accurate and reliable data.

To illustrate the general framework of the NRI and its calculation methodology, we have included the following diagram, which outlines the subcategories that make up the index. **(World Economic Forum, 2016)**

Figure 03: Subcategories of the Networked Readiness Index

Source: (World Economic Forum, p. 33)

To highlight the position of Algeria and some Arab countries within this index during the period from 2015 to 2024, we have included the following table, which tracks and illustrates their standings.

Table 02: Algeria's Position in the Networked Readiness Index from 2015 to 2024

Years Data	2015			2016			2017			2018			2019		
	Index Value	Arab Rank /15	Global Rank /143	Index Value	Arab Rank /15	Global Rank /142	Index Value	Arab Rank /15	Global Rank /142	Index Value	Arab Rank /15	Global Rank /142	Index Value ¹	Arab Rank /13	Global Rank /121
Algeria	3,09	12	120	3,20	12	117	-	-	-	-	-	-	35,30	12	98
Morocco	3,93	8	78	3,95	8	78	-	-	-	-	-	-	41,38	10	87
Tunisia	3,88	9	81	3,92	9	81	-	-	-	-	-	-	42,04	8	84
UAE	5,30	1	23	5,27	1	26	-	-	-	-	-	-	65,45	1	29

Years Data	2020			2021			2022			2023			2024		
	Index Value	Arab Rank /13	Global Rank /134	Index Value	Arab Rank /12	Global Rank /130	Index Value	Arab Rank /12	Global Rank /131	Index Value	Arab Rank /13	Global Rank /134	Index Value	Arab Rank /13	Global Rank /133
Algeria	35,15	12	107	36,88	12	100	39,48	12	100	37,52	12	103	39,24	11	96
Morocco	39,71	11	93	46,06	9	81	46,50	9	79	45,43	8	77	45,93	8	76
Tunisia	41,30	10	91	44,33	10	87	45,46	10	84	42,25	10	88	41,57	10	96
UAE	64,42	1	30	63,92	1	34	65,64	1	28	62,43	1	30	62,79	1	28

Source : (World Economic Forum)

By examining the results in the previous table there is no doubt that Algeria, despite all its efforts to expand and generalize the use of information and communication technologies²,

¹ The method for calculating the index was changed starting in 2019, it is now assigned on a scale from 0 to 100, the closer the values are to 100, the better a country's performance and ranking, conversely, the further the values are from 100, the weaker its performance and the lower its ranking.

² Algeria sought to generalize the use of computer technologies by launching the "Ousratic" program in 2005, aimed at providing every household with a computer on an installment basis. The initiative intended to facilitate access to information and communication technologies, build a digitally connected society, and promote modern technologies, particularly the Internet, however, the project did not achieve its set goal of equipping 6 million families with computers and connecting them to the Internet.

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has consistently ranked very low in the Networked Readiness Index. Throughout the study period, Algeria ranked last among Maghreb countries and placed 11th out of 13 Arab countries included in the index in 2024, ahead of both Mauritania and Yemen, the latter of which ranked last, and it is widely known that Yemen has been severely affected by ongoing wars and conflicts, Algeria also ranked last among the 12 Arab countries included in the index in the years 2021 and 2022, the table also shows that the United Arab Emirates has maintained its leading position among Arab countries since 2015, globally, Algeria's ranking fluctuated between 120 and 98 out of approximately 135 countries included in the index. In 2024 Algeria ranked 100th out of 133 countries, placing it among the countries at the bottom of the ranking.

The 2024 Networked Readiness Index report noted that Algeria ranked 105th in terms of mobile call pricing, 125th in terms of ICT services exports, and 115th out of 133 countries for Government online services. These figures reflect Algeria's lag in adopting modern technologies, which significantly hinders its ability to transition to an efficient and effective digital economy.

4. Algeria's Position in the Global Innovation Index and EGDI¹

Despite Algeria's persistent efforts to reach the ranks of advanced nations and bridge the gap separating it from them in terms of electronic services and the digital economy, its achievements remain far from the desired level. Algeria still lags behind, maintaining its position among the underdeveloped countries in this field, this delay can be attributed to the mindset prevailing during the 1970s and 1980s, characterized by a state-controlled economy and resistance to innovation, development, and openness to the digital world, however, with the worsening economic crisis in the late 1980s, Algeria began to recognize the role of modern technologies and digital transformation in driving economic development, as a result, the country started promoting digital services, offering tax incentives for such services, and encouraging their adoption.

In the following paragraphs, we will examine Algeria's position in the Global Innovation Index and the E-Government Development Index (EGDI).

4.1 Algeria's Position in the Global Innovation Index:

Algeria has been unable to keep pace with the rapid advancements in modern information and communication technologies, despite its efforts, many government services and administrative transactions are still carried out using outdated traditional methods, causing significant inconvenience to citizens and negatively impacting their quality of life.

As a result, Algeria has been unable to improve its low ranking in the Global Innovation Index, where it ranked 115th out of 133 countries included in the 2024 index, it is worth noting that poorer African countries, such as Kenya, Madagascar, and Namibia, ranked ahead of Algeria, in the Arab world, Algeria ranked 12th out of 13 Arab countries, Meanwhile, Mauritania ranked last, a country suffering from underdevelopment in all fields and cannot be compared to Algeria.

Starting in 2009, the program was relaunched with reduced computer prices, but citizens' response remained weak, this was largely due to the declining purchasing power of individuals, who continued to view computers and Internet access as luxuries, secondary to other basic necessities.

¹ E-Government Development Index

Refer to the following table, which shows Algeria's ranking globally and within the Arab world from 2016 to 2024:

Table 03: Algeria's Ranking in the Global Innovation Index from 2016 to 2024

Years Data	2016				2018				2020			
	Algeria	Tunisia	Morocco	UAE	Algeria	Tunisia	Morocco	UAE	Algeria	Tunisia	Morocco	UAE
Index Value	24,46	30,55	32,24	39,35	23,87	32,86	31,09	42,58	19,48	31,21	28,97	41,79
Arab Rank	12/13	9/13	7/13	1/13	12/13	5/13	8/13	1/14	12/13	2/13	5/13	1/13
Global Rank	113/128	77/128	72/128	41/128	110/126	66/126	76/126	38/126	121/131	65/131	75/131	34/131

Years Data	2022				2024			
	Algeria	Tunisia	Morocco	UAE	Algeria	Tunisia	Morocco	UAE
Index Value	16,7	27,9	28,8	42,1	16,2	25,4	28,8	42,8
Arab Rank	11/14	7/14	5/14	1/14	12/13	9/13	4/13	1/13
Global Rank	115/132	73/132	67/132	31/132	115/133	81/133	66/133	32/133

Source : (The global innovation index 2024, 2024)

The previous table shows that the United Arab Emirates has maintained its leading position among Arab countries, however globally, it has consistently ranked around 32nd, Morocco, on the other hand, has improved its ranking among Arab countries, moving up to 4th place after being ranked 7th in the 2016 index, globally, Morocco advanced from 75th place in 2016 to 66th place in 2024, as for Tunisia, it ranked 9th among Arab countries in the 2024 index, maintaining the same position it held in 2016, but, globally, Tunisia declined to 81st place in 2024, down from 73rd place in 2022.

Algeria, meanwhile, remained at the bottom of the Arab rankings, fluctuating between 12th and 11th place, while globally, it improved slightly, moving from 121st out of 131 countries in 2020 to 115th out of 133 countries in 2024.

In summary, Algeria has not yet reached the ranks of leading nations in the field of e-government and digital services, let alone entered the realm of the digital economy, achieving this requires substantial efforts, material, technical, and human resources, as well as a fundamental shift in mindsets and practices, resistance to adopting modern technologies, coupled with a reliance on traditional methods, continues to fuel bureaucracy and administrative corruption, undermine transparency, and create opportunities for bribery, favoritism, and other related administrative issues.

4.2 Algeria's Position in the E-Government Development Index (EGDI) Published by the United Nations

The United Nations Department of Economic and Social Affairs (UNDESA), through its Division for Public Administration and Development Management, has been issuing the E-Government Development Index (EGDI) biennially since 2000. This index is the result of a survey conducted by the United Nations across all 193 member states.

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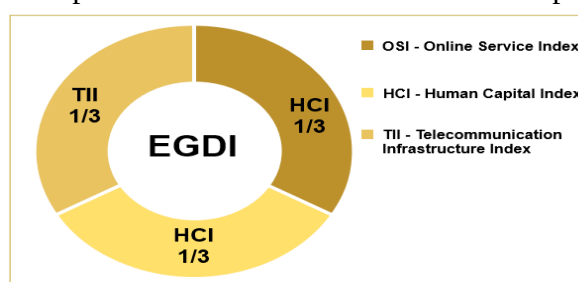
The survey provides a brief and comprehensive overview of all rankings related to the development of e-government by assessing the performance of countries in utilizing information and communication technologies (ICT) to deliver public administrative services. It evaluates the quality of these services, the state of communication infrastructure—particularly the Internet—and highlights countries' ability to implement online participation initiatives.

The E-Government Development Index is calculated as the average of three balanced sub-indices:

- Online Service Index (OSI): This index evaluates the national government website, its usability, and demand level.
- Telecommunication Infrastructure Index (TII): This index assesses the population's use of the Internet, mobile phones, and fixed-line phones.
- Human Capital Index (HCI): This index measures adult literacy levels and the average level of education among citizens.

For further clarification on how the index works, its structure, and calculation method, we have included the following figure that outlines the sub-indices composing the E-Government Development Index:

Figure 04: The three components of the E-Government Development Index (EGDI)



Source: (United Nation Publication, 2016)

It is observed from the previous figure that the E-Government Development Index is calculated as the average of the three sub-indicators that constitute it, according to the following mathematical formula:

$$EGDI = \frac{OSI + TII + HCI}{3}$$

To highlight Algeria's position and ranking within this index during the period from 2016 to 2024, we have included the following table that tracks and illustrates it:

Table 04: Algeria's Ranking in the E-Government Development Index from 2016 to 2024

Years Data	2016			2018			2020			2022			2024		
	Index Value	Arab Rank /21	Global Rank /193	Index Value	Arab Rank /21	Global Rank /193	Index Value	Arab Rank /21	Global Rank /193	Index Value	Arab Rank /21	Global Rank /193	Index Value	Arab Rank /21	Global Rank /193
Algeria	0,30	15	150	0,42	12	130	0,517	12	120	0,561	12	112	0,595	11	116
Morocco	0,52	9	84	0,52	10	110	0,573	10	106	0,592	10	101	0,684	9	90
Tunisia	0,57	7	72	0,63	7	80	0,653	7	91	0,653	7	88	0,693	7	87
UAE	0,75	2	28	0,83	1	21	0,856	1	21	0,901	1	13	0,953	2	11

Source: (United Nation Publication, 2024)

From the previous table, it can be observed that Algeria's efforts in recent years have yielded some results, with a slight improvement in its global and Arab rankings, the index value achieved by Algeria in 2024, at 0,595, is its best ever, compared to values ranging between 0,42 and 0,30 during the period from 2016 to 2018, this improvement signals a brighter and more advanced future, provided that efforts are sustained and resources are unified.

As for neighboring countries, Tunisia maintained its 7th place among Arab countries from 2014 to 2024, while Morocco achieved its best Arab ranking, 9th place, in both 2016 and 2024, regarding Arab countries with high performance, the United Arab Emirates and Saudi Arabia stand out as the best-performing Arab nations, in 2024, Saudi Arabia achieved the highest index value among Arab countries, at 0.960, securing 1st place regionally and 6th globally, meanwhile, the UAE ranked 2nd in the Arab world and 11th globally, with an index value of 0.953.

5. CONCLUSION

Through this research paper, it becomes evident that Algeria's digital infrastructure is significantly weaker compared to global and even Arab standards. This has a direct impact on its position among leading countries in the field of the digital economy, both globally and regionally. Despite the considerable efforts made by Algerian authorities, the country has yet to reach the desired level and has been unable to keep pace with leading nations in the digital economy. Among the findings of this study, we note the following:

- Algeria continues to rank poorly in digital readiness. According to the 2024 Networked Readiness Index report, Algeria ranked 11th out of 13 Arab countries and 96th globally out of 133 countries. This lag has hindered its progress in digitizing administrative and commercial transactions.
- Algeria has yet to achieve the transition to a digital economy due to the weakness of its necessary infrastructure. The 2024 report indicates that Algeria ranked 105th out of 133 countries in mobile phone pricing and 115th out of 133 countries for online government services.
- Throughout the study period, Algeria's performance in digital readiness remained weak, as did its performance in e-government. This has slowed its entry into the digital economy, which fundamentally relies on advanced communication infrastructure. Such infrastructure facilitates the completion of administrative, legal, and commercial transactions with transparency, equality, and ease, free from the complexities of bureaucracy, favoritism, and administrative corruption.

Recommendations:

Based on the findings of this research, we propose the following recommendations:

- Accelerate the transition to a digital economy by integrating modern technologies into all administrative and economic transactions. This can be achieved by upgrading the digital communication infrastructure, increasing international Internet bandwidth, and expanding 4G mobile network coverage nationwide.
- Ensure a transparent and efficient business environment by relying on electronic transactions instead of outdated methods that foster administrative corruption and bureaucracy.

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- Digitize and modernize critical sectors such as banking, insurance, customs, and taxation, along with other sectors directly or indirectly linked to the digital economy. This should involve the widespread adoption of modern technologies and the development of the necessary infrastructure to support them.

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