

Digital Transformation in Algeria in Light of the National Digital Transformation Strategy (Vision 2030)

Sihem Iriri¹, Fateh Bouraghda²

¹ University of Blida 2 Lounici Ali, Algeria
[erririsihem@gmail.com]

² University of Blida 2 Lounici Ali, Algeria
[fateh.bouraghda@univ-blida2.dz]

Submission: 26.08.2025. Accepted: 25.02. 2026. Publication: 22.06.2026

Abstract:

This research paper aims to analyze the reality of digital transformation in Algeria by examining the extent of its progress in the field of digital technologies and its assimilation of their implications, while providing a comprehensive overview of the National Digital Transformation Strategy. It also highlights the major challenges faced by Algeria throughout its journey toward digital transformation. The study concluded that despite the efforts made by the Algerian government in the field of digital investment, the pace of digital transformation remains relatively slow. This is due to a set of obstacles that hinder the effective and successful implementation of the digitalization project, as reflected in the e-readiness indicators issued by international reports. In light of these findings, the study puts forward several recommendations, including the need to provide comprehensive digital infrastructure, enhance and develop human resources and their competencies, establish a legal framework governing emerging electronic transactions and practices, and promote a digital culture within society to help reduce the digital divide among users.

Keywords: Digital Transformation; Information and Communication Technology (ICT); Digital Economy.

JEL Classification: O33, O10.

Introduction

In light of the rapid technological developments currently taking place worldwide, whether in terms of advancements in information and communication technologies or the accelerating changes in business and economic environments, Algeria has moved toward embracing digital transformation as a key driver for achieving sustainable economic and social development. In this context, the Algerian government has intensified its efforts to build a sustainable digital knowledge society in implementation of the “Digital Transformation” initiative launched by the President of the Republic. Consequently, digitalization is no longer merely a strategic option; it has become an urgent necessity that cannot be dispensed with, particularly for institutions and administrations that interact directly with citizens and seek to improve their performance and develop their services by transitioning from traditional administrative systems to smart digital systems, thereby ensuring the provision of services through simple and accessible methods that meet the evolving needs of citizens.

Research Problem: Digital technology has become one of the principal drivers of growth and development across various sectors. In this context, Algeria seeks to keep pace with this transformation by adopting policies and strategies aimed at digitalizing different sectors. However, these efforts may encounter several challenges that could hinder the achievement of a comprehensive and effective digital transition. Accordingly, the research problem of this study can be formulated as follows: **What is the current state of digital transformation in Algeria in light of the objectives set out in the National Digital Transformation Strategy?** This central question gives rise to a number of sub-questions that this study seeks to answer:

1. What is the level of readiness of Algeria's digital infrastructure to support digital transformation?
2. What is Algeria's position within international digital transformation indicators?
3. To what extent are the governmental strategies and policies adopted effective in accelerating digital transformation in Algeria?

Hypotheses: Based on the sub-questions, the following hypotheses are proposed:

1. Algeria suffers from a relative weakness in its digital infrastructure, which limits the acceleration of digital transformation.
2. Despite the efforts made, Algeria has not yet reached the desired level in international digital transformation indicators.
3. Governmental strategies and policies play a decisive role in accelerating digital transformation in Algeria, and their effectiveness depends on the extent of their implementation and application.

Objectives of the Study: Through this study, we seek to achieve a number of objectives, the most important of which are:

- To provide a comprehensive overview of the main information and communication technology (ICT) indicators in Algeria;
- To highlight Algeria's position within global and Arab rankings in the field of digital transformation;
- To analyze the National Digital Transformation Strategy in order to identify its achievements and existing challenges, and to propose recommendations that ensure the effective implementation of this strategy in a manner that supports the digital economy and enhances Algeria's competitiveness in the global digital arena.

Methodology: To achieve the objectives of this study, the descriptive-analytical approach was adopted. The descriptive aspect is reflected in the presentation of the general concepts related to the subject of the study, while the analytical aspect is reflected in examining the extent of Algeria's investment in digital transformation technologies through the analysis of various statistics and transformation indicators, with the aim of evaluating the Algerian experience in this field.

1. Basic Concepts of Digital Transformation

Digital transformation is considered one of the main pillars for achieving sustainable development in the modern era, as it reflects the transition from traditional systems to advanced models that rely on digital technologies in the management of operations and services. To

highlight its importance, a comprehensive overview of the concept of digital transformation, its main objectives, and the steps involved in its implementation is presented below.

1.1 Concept of Digital Transformation

Digital transformation refers to the process of converting the business model of government institutions or private-sector companies into a model that relies on digital technologies for service delivery, product manufacturing, and human resource management. It is based on the formulation of a digital strategy that begins with diagnosing the current situation and identifying the gap between existing digital capabilities and the desired future state. This is followed by implementing the strategy through the allocation of the necessary resources, whether financial, human, equipment-related, or technological, while ensuring continuous monitoring of implementation and evaluation of outcomes (Asmaa & Safih, 2023, p. 130).

It is also defined as “the ongoing process through which organizations adapt to the requirements of their customers and markets (the external ecosystem) by leveraging digital capabilities to create new business models, products, and services that seamlessly integrate digital and manual operations and customer experiences, while simultaneously improving operational efficiency and organizational performance” (Slaimi & Bouchi, 2019, p. 948).

Accordingly, digital transformation can be understood as the integration of digital technologies into work mechanisms with the aim of improving the quality of services and accelerating their delivery to beneficiaries.

1.2 Benefits of Digital Transformation

Digital transformation constitutes a strategic step of paramount importance for government administrations, businesses, and even individuals, owing to the numerous opportunities and advantages it offers through information and communication technologies and modern digital media. It contributes to bringing about profound changes in the ways tasks are performed, services are delivered, and benefits are obtained. Among the most significant benefits of digital transformation are the following (Amal & Qara, 2022, p. 03):

- ✓ Reducing costs and improving spending efficiency;
- ✓ Providing broader opportunities for innovation in service delivery methods compared to traditional models;
- ✓ Facilitating supervision and monitoring of workflow by managers and decision-makers;
- ✓ Enabling commercial enterprises to expand and reach wider customer segments;
- ✓ Improving operational efficiency and organizing internal processes;
- ✓ Enhancing responsiveness to the needs and expectations of citizens and customers.

1.3 Steps of Digital Transformation

The process of digital transformation is carried out through the following stages (Azzam, 2024, p. 76):

- ✓ Establishing a clear vision for digital transformation that identifies the starting point and clarifies the objectives sought through this transformation;
- ✓ Promoting a culture of change and transformation within the institution and the work environment. This includes empowering employees, developing their skills, and enhancing their ability to interact with various digital activities within the organization. It also requires adopting a flexible (organic) organizational structure instead of the

traditional hierarchical structure, together with the adoption of a values-based management approach aimed at maximizing human potential and achieving the highest possible level of productivity;

- ✓ Modifying the cost model, as digital transformation enables innovation and development, thereby contributing to the emergence of new methods of work. This allows tasks to be carried out without the need for substantial capital investments, resulting in reduced costs;
- ✓ Relying on cloud computing in the various activities and operations of government bodies and business organizations through the updating of software and security systems for both internal operations and customers, thereby enhancing the reliability of digital processes;
- ✓ Monitoring the digital transformation process on a regular basis, addressing any shortcomings as they arise, and continuously striving to develop services and improve methods of delivery to beneficiaries and customers.

II. Readiness of the Digital Environment in Algeria

1. Infrastructure Available in Algeria in the Field of Information and Communication Technologies

Algeria possesses terrestrial, maritime, and satellite-based infrastructure for wired and wireless telecommunications with high and very high-speed connectivity. These facilities provide the necessary capabilities for the exchange of information with high quality and a level of security that complies with international standards. The most significant achievements in this field include the following (Iri, 2024, p. 249):

- ✓ The fiber-optic link connecting Algeria and In Guezzam, which constitutes an integral part of the submarine fiber-optic cable linking Algiers (Algeria), Zinder (Niger), and Abuja (Nigeria). This project was initiated within the framework of NEPAD and will be reinforced and secured through the establishment of two additional lines to ensure service continuity in the event of any operational disruption;
- ✓ The submarine fiber-optic cable linking Oran (Algeria) and Valencia (Spain), with a capacity of 100 Gbps, supporting the two previously existing cables, namely SMW4 connecting Annaba (Algeria) to Marseille (France), and ALPAL2 connecting Algiers (Algeria) to Palma (Spain);
- ✓ Third-generation (3G) mobile telephony services, which were gradually introduced throughout the national territory beginning in 2014 and upgraded in 2016 to fourth-generation (4G) high-speed technology, with future plans to adopt fifth-generation (5G) technology and Internet of Things (IoT) applications;
- ✓ The communications satellite “AlComSat-1”, launched by Algeria in 2017, which enables:
- ✓ The connection of the entire national territory to the Internet, including remote and isolated areas. The satellite’s coverage also extends to several African countries, including Morocco, Western Sahara, Mauritania, Mali, Niger, Libya, northern Chad, Egypt, northern Sudan, and Burkina Faso;

- ✓ The provision of a range of satellite-based solutions and services, including VSAT, IP Phone services, videoconferencing, and geolocation services;
- ✓ The assurance of service continuity at relatively low costs in the event of disruptions affecting terrestrial networks.
- **The Algerian National Digital Services Center**, which represents an integrated sovereign digital infrastructure. Through this center, the State seeks to build a modern digital ecosystem aligned with global developments, modernize public administration and public services, and strengthen national digital sovereignty by storing and processing all state data within the national territory in a highly reliable environment. The center is based on two national data centers that comply with international standards and are equipped with advanced technologies and high-capacity infrastructure. Given that the success of the digital economy and the widespread adoption of information and communication technologies in Algeria depend on the development of a local industry for digital equipment, content, and services, Algeria has further strengthened its digital ecosystem through:
 - **The Postal and Electronic Communications Regulatory Authority**, which ensures the regulation of the postal and electronic communications market;
 - Three (03) electronic certification authorities: a National Certification Authority responsible for supervision and management, a Government Certification Authority dedicated to providing electronic certification services to the government, state institutions, and public administration, and an Economic Certification Authority serving economic enterprises. These authorities officially began performing their functions in March 2021;
 - A supportive legal and institutional framework designed to foster a climate of trust conducive to the development and use of information and communication technologies. Since the digital economy is considered the most dynamic sector of the global economy, growing at approximately twice the rate of the traditional economy, electronic marketing, e-commerce, and electronic payment systems help small and medium-sized enterprises overcome logistical and geographical barriers and facilitate their access to both local and international markets. In this regard, Algeria has undertaken the following measures:
 - Enhancing the legal framework in this field, particularly through the enactment of legislation regulating and governing e-commerce;
 - Developing an appropriate ecosystem that promotes the emergence and success of start-ups in various sectors, especially those based on knowledge, technology, and innovation;
 - Developing and deploying several online e-commerce platforms that are consistent with national specificities;
 - Implementing and developing electronic payment services and electronic financial transactions;

- Providing merchants and other entities with electronic payment terminals free of charge;
- Launching mobile electronic payment services using the “Quick Response (QR) Code” system at the end of August 2020.

2. Indicators of the Development of the Telecommunications and Internet Market in Algeria

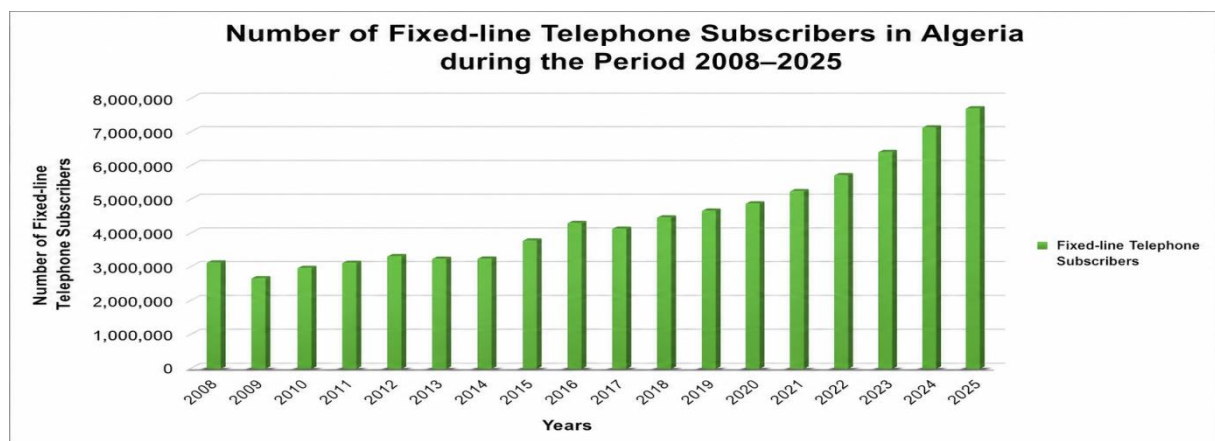
The success of digital transformation in Algeria depends on the availability of a strong and advanced information and communication technology (ICT) infrastructure. Accordingly, the ICT infrastructure in Algeria can be examined through a set of indicators, including the evolution of the number of subscribers to fixed-line telephone services, mobile telephone services, and Internet services.

2.1 Evolution of the Number of Fixed-Line Telephone Users in Algeria

The following presents the evolution of the number of fixed-line telephone users in Algeria during the period 2008–2025:

Figure (01):

Evolution of the Number of Fixed-Line Telephone Subscribers in Algeria during the Period (2008–2025).



Source: Prepared by the researcher based on data from the Postal and Electronic Communications Regulatory Authority (ARPCE), 2008–2025.

Based on the data presented in Figure No. (01), it becomes clear that the number of fixed telephone subscribers in Algeria experienced fluctuations between increases and decreases during the study period. In 2008, the number of subscribers reached approximately 3,069,140, then decreased to 2,576,165 subscribers in 2009. This decline can be attributed to subscribers shifting toward the use of wireless telephones and mobile phones, and it can also be explained by the withdrawal of the operator “LACOM” from competition.

Afterwards, the number increased again, as the telephone market has witnessed development since then. In 2016, it recorded approximately 3,328,154 subscribers, which may be explained by the spread of internet usage through ADSL technology and the relative improvement in the quality of services provided by the service provider relying on the wired network to offer

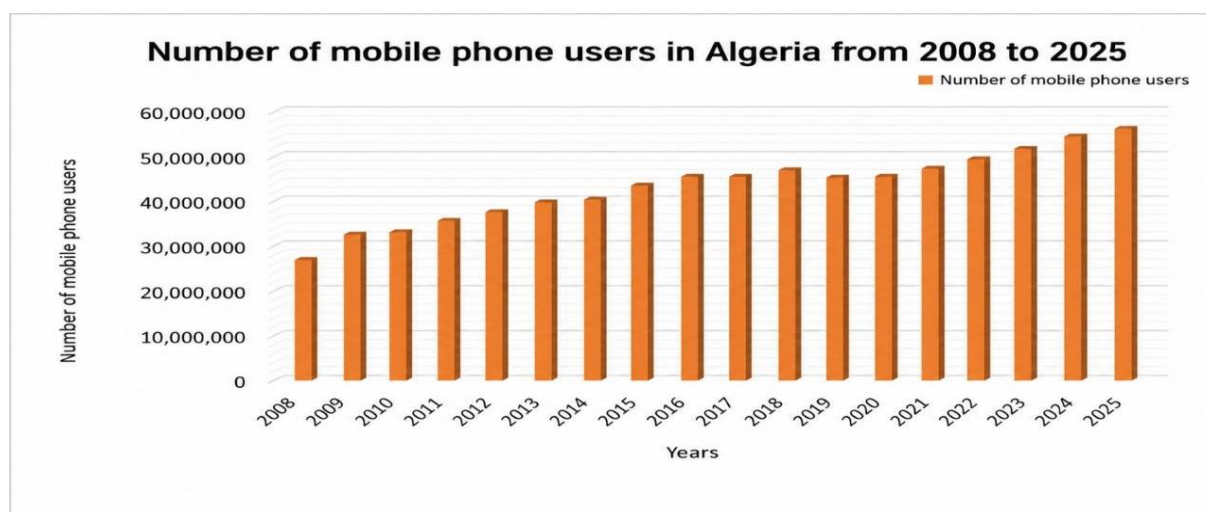
communication services to subscribers, in addition to the improvement in living standards and individuals' purchasing power.

The number then continued to increase, as 2025 statistics show a notable rise in the number of fixed telephone subscribers, reaching 7,610,000 subscribers. This rapid growth can be attributed to several factors, most notably the policy adopted by the Algerian state aimed at generalizing digitalization across various sectors by supporting technology and providing the necessary telecommunications infrastructure. Furthermore, the efforts of the Postal and Telecommunications Regulatory Authority played a significant role in improving service quality and expanding its geographical coverage across the national territory.

2-2- Development of the number of mobile phone users in Algeria

The following presents the evolution of the number of mobile phone subscribers in Algeria during the period (2008–2025).

Figure (02): Evolution of the number of mobile phone subscribers in Algeria during the period (2008–2025)



Source: Prepared by the researcher based on (Postal and Electronic Communications Regulatory Authority, 2008–2025).

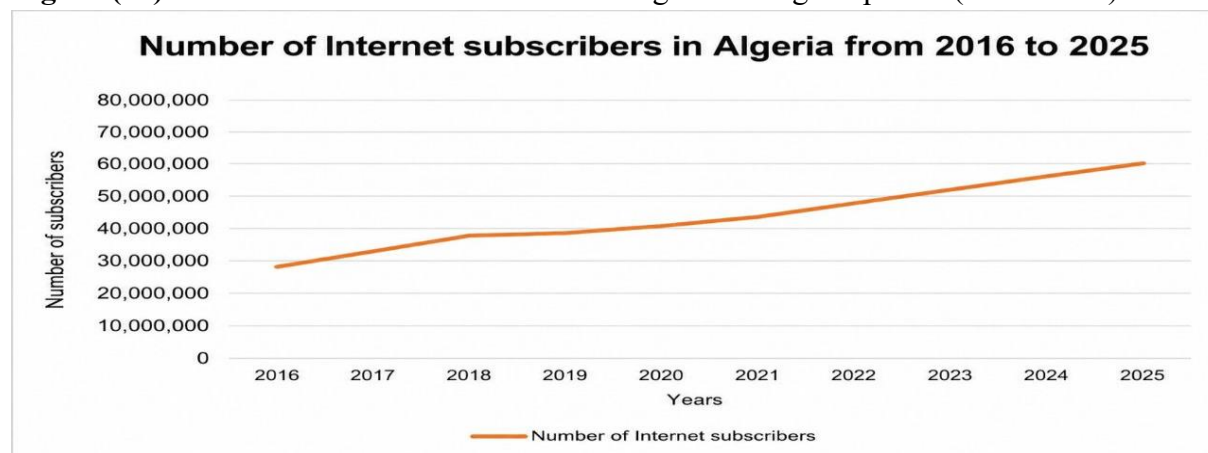
It is clear from Figure No. (02) that the mobile phone market in Algeria has witnessed remarkable growth, as the number of users has increased steadily from one year to another. This growth is due to the expansion of coverage across the entire national territory and the improvement in the quality of services provided by the three operators Mobilis, Djezzy, and Ooredoo at competitive prices. It is also attributed to the launch of 3G technology in 2013, followed by 4G service at the end of 2016, which contributed to attracting a larger number of subscribers.

The number continued to rise, reaching 55.94 million subscribers in 2025. This continuous increase in recent years can be explained by the expansion of 4G services and the growing reliance on digital applications and services, in addition to the increasing use of mobile internet across various fields. This reflects the growing digital transformation in Algeria and the rising demand for modern communication services.

2.3- Development of the number of internet subscribers in Algeria

The following presents the evolution of the number of internet users in Algeria during the period (2016–2025):

Figure (03): Number of internet subscribers in Algeria during the period (2016–2025)



Source: Prepared by the researcher based on (Postal and Electronic Communications Regulatory Authority, 2016–2025).

It is evident from Figure No. (03) that the number of internet subscribers has experienced development over the years under study. The number of subscribers increased from 28,553,025 in 2016 to approximately 60.54 million subscribers during the third quarter of 2025, reflecting the gradual growth of this service and its development over time.

It is also observed that the highest growth rate was recorded in 2017 at 21.28%. This can be explained by the intensive efforts made by the Algerian state in developing and improving telecommunications infrastructure and internet services. These efforts were represented in the implementation of a comprehensive strategy that included reducing communication prices, expanding the activity of regional directorates, and launching high-speed internet services. The state also worked on completing the coverage of most provinces with 3G mobile services, in addition to launching 4G mobile services across the country. These investments and continuous efforts significantly contributed to increasing the number of internet users in Algeria.

During 2018 and 2019, the number of subscribers continued to increase but at a slower pace, with growth rates of 14.36% and 2.21% respectively. This is due to the market approaching a relative saturation stage in major cities, where a significant proportion of the population already had internet subscriptions.

In 2020, the growth rate rose again to 5.11% as a result of the exceptional health conditions experienced due to the spread of the COVID-19 pandemic, which forced many individuals to stay at home and rely on the internet for communication, entertainment, as well as remote work and education.

This trend continued during 2021, 2022, and 2023, where growth rates ranged between 7% and 8%, driven by the expansion of the digital economy, increased use of electronic applications, and improvements in electronic payment services.

In 2024, the growth rate recorded 7.31%, reflecting the continued demand for internet services despite the gradual approach toward relative market stability.

In 2025, the growth rate declined to 5.21% up to the third quarter. This decline can be explained by the saturation of the market due to the very high number of subscribers relative to the population size, as well as the increasing shift in competition among operators from expanding subscriber numbers to improving service quality and connection speed.

Evaluation of the performance of e-government in Algeria during the period (2010–2024)

The following provides an analytical reading of Algeria's position in e-government, based on the E-Government Development Index (EGDI) and the E-Participation Index (EPI) during the period (2010–2024).

1- E-Government Development Index (EGDI)

1-1- Algeria's international ranking according to the E-Government Development Index during the period 2010–2024

The following presents Algeria's ranking according to the E-Government Development Index during the period 2010–2024:

Table (01): Algeria's international ranking according to the E-Government Development Index during the period (2010–2024)

2024	2022	2020	2018	2016	2014	2012	2010	Years
0.5956	0,5611	0,5173	0.4227	0,2999	0,3106	0,3608	0,3181	E-Government Index
116	112	120	130	150	136	132	131	Rank
0.3320	0,3743	0,2765	0,2153	0,0652	0,0787	0,2549	0,0335	Online Service Index
0.8129	0,6133	0,5787	0,3889	0,1934	0,1989	0,1812	0,0412	Tele communication Infrastructure Index
0.6418	0,6956	0,6966	0,6640	0,6412	0,6543	0,6463	0,2435	Human Capital Index

Source: Prepared by the researcher based on (United Nations, Department of Economic and Social Affairs, 2010–2024).

Based on the data in Table No. (01), it is evident that Algeria's ranking in the E-Government Development Index experienced a decline during the period (2010–2016), according to the United Nations report. The country fell by 19 positions over this period; after being ranked 131st in 2010, it declined to 150th place in 2016. This is mainly due to the significant decrease in the Online Service Index during the same period, while the other two sub-indices remained relatively stable.

In contrast, Algeria witnessed an improvement in its overall index value during the period 2018–2022, moving up to 120th place in 2020 and then to 112th place in 2022. This improvement is attributed to the positive development in both the Online Service Index and the

Telecommunication Infrastructure Index, along with a slight improvement in the Human Capital Index.

However, this positive trend did not continue at the same pace in 2024, as Algeria recorded a slight decline in its global ranking, placing 116th, despite the continued increase in the E-Government Development Index value, which reached 0.5956. This decline can be explained by the slowdown in the progress of some sub-indicators, particularly the Online Service Index, which decreased from 0.3743 in 2022 to 0.3320 in 2024, in addition to a decrease in the Human Capital Index from 0.6956 to 0.6418 during the same period. In contrast, the Telecommunication Infrastructure Index continued to show significant improvement, reaching 0.8129 in 2024, reflecting Algeria's progress in information and communication technologies. By tracking the evolution of the E-Government Development Index value in Algeria, it becomes clear that this index has not yet reached the desired level despite the reforms undertaken by the Algerian government in this field. It remained relatively low during the early period before gradually improving in recent years. It is also observed that improvements in the index value have not always been accompanied by improvements in global ranking, reflecting increasing international competition in the field of e-government. This highlights the need to improve the quality of digital services and develop human capital to ensure more sustainable progress in this area.

1.2- Algeria's Arab ranking according to the E-Government Development Index for the year 2024

The following presents Algeria's ranking according to the E-Government Development Index for the year 2024:

Table (02): Algeria's Arab ranking according to the E-Government Development Index for the year 2024

Index average	Index value	global ranking	Arab ranking	country
0.7844	0.9602	06	01	Kingdom of saudi arabia
0.7844	0.9533	11	02	United arab emirates
0.7844	0.9196	18	03	bahrain
0.7844	0.8576	41	04	Sultanate of oman
0.7844	0.8244	53	05	qatar
0.7844	0.7812	66	06	kuwait
0.7844	0.6935	87	07	tunisia
0.7844	0.6894	89	08	jordan
0.7844	0.6841	90	09	morroco
0.7844	0.6699	95	10	egypt
0.7844	0.5956	116	11	algeria

Source: (United Nations, Department of Economic and Social Affairs, 2024).

Based on the data in Table No. (02), it is clear that the Kingdom of Saudi Arabia, the United Arab Emirates, and Bahrain ranked at the top among Arab countries, with their E-Government Development Index exceeding the threshold of 0.9. In contrast, Algeria ranked eleventh among Arab countries, with a value of (0.5956), which represents the lowest value among the countries included in the study.

It is also observed that there is a gap ranging between (0.07 and 0.10) compared to countries with average performance, and exceeding (0.30) when compared to leading countries, which reflects a relatively low position within the regional ranking.

This performance is associated with a set of practical factors confirmed by official reports and recent studies. The United Nations E-Government Survey highlights that one of the main challenges facing Algeria is the weak integration of digital services and the lack of interoperability between administrative systems, which limits the effectiveness of public digital service delivery. National reports on digital transformation in Algeria also emphasize the persistent disparity in telecommunications infrastructure quality, particularly between urban and rural areas, which affects the generalization of e-services.

In addition, the continued reliance on traditional administrative procedures and the weak digitization of legacy administrative data hinder the transition toward integrated digital services. This is further compounded by insufficient digital skills within public administration. Accordingly, Algeria's lag in the E-Government Development Index is not linked to a single factor, but rather results from the interaction of institutional, technical, and organizational constraints that hinder the transition toward a fully integrated and effective e-government model.

1.3- Algeria's ranking in Africa according to the E-Government Development Index for the year 2024

The following presents Algeria's ranking in Africa according to the E-Government Development Index for the year 2024:

Table (03): Algeria's ranking in Africa according to the E-Government Development Index for the year 2024

Index value	Global ranking ((193 countries	African ranking ((54 countries	country
0.8816	40	01	South africa
0.7506	76	02	Republic of Mauritius
0.6935	87	03	tunisia
0.6841	90	04	morroco
0.6773	92	05	sychelles
0.6699	95	06	egypt
0.6317	108	07	ghana
0.6314	109	08	kenya
0.6238	111	09	Cabo verde
0.5956	116	10	algeria

Source: (United Nations, Department of Economic and Social Affairs, 2024).

From the table above, it is observed that South Africa ranked first in Africa, followed by the Republic of Mauritius with relatively high levels compared to other countries, as their E-Government Development Index exceeds 0.7. Meanwhile, Algeria ranked tenth in Africa among 54 African countries included in the study. Algeria's E-Government Development Index value also exceeded the African average, estimated at 0.4054.

Accordingly, it can be stated that although Algeria remains below the global average, its regional position (10th in Africa) indicates a moderate performance compared to other African countries. Therefore, future efforts should focus on improving the quality of online services (OSI) to accelerate digital modernization and enhance the level of digital government-citizen interaction.

2- Algeria's international ranking according to the E-Participation Index (EPI)

The following presents Algeria's ranking according to the E-Participation Index (EPI) during the period 2010–2024:

Table (04): Algeria's ranking according to the E-Participation Index (EPI) during the period 2010–2024

2024	2022	2020	2018	2016	2014	2012	2010	years
0.0548	0.2273	0.1548	0.2022	0.1186	0.0784	0.0526	0.0143	E-participation index
116	148	183	165	167	172	124	157	rank

Source: (United Nations, Department of Economic and Social Affairs, 2010–2024).

Based on the data in Table No. (04), it is evident that the E-Participation Index (EPI) in Algeria was characterized by weakness and fluctuation throughout the study period. Its value stood at approximately 0.0143 in 2010, then gradually increased to reach its highest level in 2018 at 0.2022, before declining again in 2020 to 0.1548.

Despite this relative improvement in the index value, Algeria's global ranking experienced a noticeable decline, moving from 124th place in 2012 to 165th place in 2018. This decline reflects Algeria's lag in the field of electronic participation, which is linked to the weakness of interactive e-government services between the administration and citizens, as well as the limited availability of consultation platforms and the lack of supporting digital technologies and skills in this field.

During 2022 and 2024, the index recorded an improvement in global ranking, rising from 148th to 116th place, despite instability in the index value. This indicates a relative improvement in Algeria's global position, while persistent shortcomings remain in electronic participation and digital infrastructure.

III- Analytical reading of the content of the national digital transformation strategy

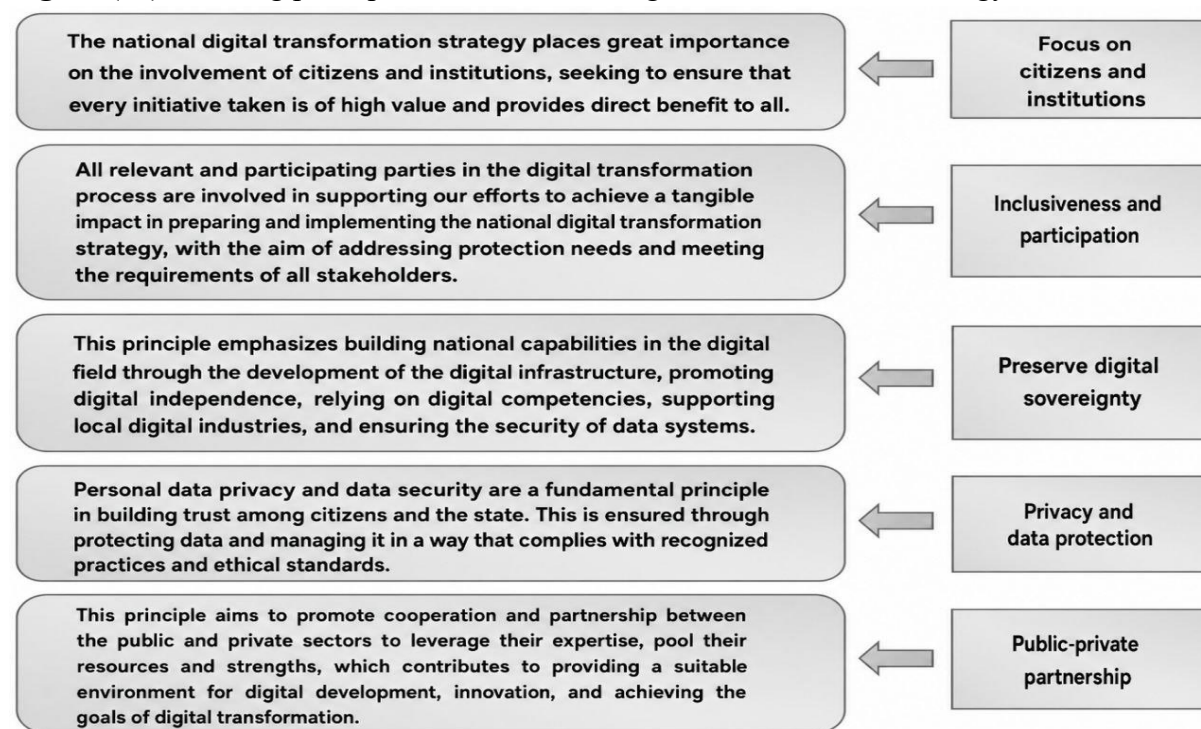
The national digital transformation strategy in Algeria represents a decisive step toward modernizing administration, improving service quality, and supporting the national economy. The Algerian government launched this strategy to establish a clear roadmap for digital transformation in the coming years, serving as a qualitative starting point for improving the delivery of public services and governmental transactions.

The national digital transformation strategy, under the vision “Digital Algeria 2030,” constitutes the first national reference framework that organizes and guides the digital transformation process in Algeria. This ambitious strategy reflects Algeria’s vision of becoming a leading country at the continental level in digital transformation by 2030, through providing high-quality digital connectivity for all, fully digitized public services, and building a creative national digital economy that generates wealth while preserving the social role of the state.

1- Guiding principles of the national digital transformation strategy

The national digital transformation strategy in Algeria is based on five (05) guiding principles, which are presented in the following figure:

Figure (04): Guiding principles of the national digital transformation strategy



Source: (High Commission for Digitalization, 2024, p. 12).

2- Main pillars of the digital transformation strategy in Algeria

Based on the ambitions and aspirations of the Algerian government, the “Digital Algeria 2030” strategy is built on five (05) main pillars, each of which includes a set of strategic objectives as follows: (High Commission for Digitalization, 2024, pp. 14–19)

First pillar: Basic infrastructure of information and communication technologies (ICT)

This pillar is divided into a set of objectives as follows:

- Providing high-quality connectivity for all individuals and households.
- Ensuring reliable and fast connectivity for all public institutions, in order to support the effectiveness of administrative procedures, improve internal and external communication, facilitate the delivery of digital services, and enable citizens and institutions to access them, thereby contributing to the enhancement and effectiveness of digital governance.

- Increasing the efficiency of investments in internet connectivity and expanding bandwidth capacity.
- Establishing national data centers that comply with international standards
- Generalizing the use of the national domain (.dz).
- Providing competitive service offerings in the field of cloud computing export services.

Second pillar: Human capital and training

The main objective of this pillar is:

- Preparing and qualifying human resources specialized in information and communication technologies (ICT), capable of meeting the needs of both the public and private sectors for qualified labor.
- Reducing the phenomenon of brain drain in the field of ICT abroad by creating a sustainable and competitive digital environment to retain specialized skills at the national level and encourage them to remain in the country.

Third pillar: Digital governance

Digital governance is considered a fundamental pillar in modernizing the management of administrations and institutions in order to achieve more effective performance in implementing economic and social processes. Accordingly, the main objectives of this pillar are:

- Digitizing all administrative management procedures across various public sector structures.
- Digitizing administrative transactions directed toward citizens and institutions.
- Increasing the attractiveness of the public sector to attract digital skills and expertise.
- Ensuring digital identity for both citizens and institutions.
- Coordination and integration between government, civil society, and all actors in the public and private sectors in order to build an inclusive, sustainable, and development-oriented digital environment.
- Establishing a comprehensive and integrated regulatory framework for data governance.

Fourth pillar: Digital economy

This pillar focuses on several objectives, most notably:

- Reducing cash payments and encouraging the use of electronic payment methods to expand financial inclusion.
- Generalizing the use of digital systems in the internal management of small and medium-sized enterprises to improve efficiency and transparency.
- Supporting the establishment and development of startups operating in the field of digitalization and encouraging technological innovation.
- Making digitalization a real driver of wealth creation in the national economy
- Increasing exports of ICT products and services.
- Enabling national digital competencies to position themselves internationally and contribute to meeting the growing needs of digital transformation.

- Attracting foreign direct investment by opening the national market to foreign investors in the digital field, encouraging cooperation with international economic actors, and benefiting from opportunities of integration into global value chains.
- Attracting international digital actors and encouraging their activity within Algeria, thereby contributing to the development of the national digital ecosystem.

Fifth pillar: Digital society

This pillar focuses on:

- Ensuring equal and inclusive access to digital technologies and services.
- Increasing citizen participation in public life through digital spaces, thereby strengthening participatory democracy and enhancing inclusive governance by enabling individuals to actively contribute to decision-making.
- Promoting and developing national digital content directed at all segments of society, culturally rich, value-added, and aligned with state values.

3- Foundations of the national digital transformation strategy

The foundations of the national digital transformation strategy in Algeria are as follows: (High Commission for Digitalization, 2024, p. 21)

- Legal and regulatory framework:

The legal and regulatory framework is a fundamental pillar of each axis of the strategy, as it contributes to building a coherent and enabling environment for sustainable development and establishes an active, secure, and efficient digital ecosystem for all. Accordingly, the following measures are expected:

- Developing a comprehensive law governing digitalization in Algeria and accelerating the pace of digital transformation.
- Reviewing and adapting existing legal texts to comply with the requirements of this new law.
- Information systems security:

Information systems security represents a fundamental element and an indispensable condition for ensuring the success of the national digital transformation strategy. Therefore, all projects included in the strategy's axes will take into account the specific requirements of information systems security.

In this regard, the High Commission for Digitalization ensures the alignment of the strategy with the requirements of the "National Information Systems Security Framework," which constitutes the official reference adopted by the state in this field.

4- Evaluation of the national digital transformation strategy in Algeria

Through examining the content of the national digital transformation strategy, it becomes clear that it reflects an ambitious vision aimed at keeping pace with global technological developments and accelerating digital transformation in Algeria. However, there are several shortcomings that hinder its effective implementation, which are outlined below:

1- Clear and comprehensive strategic vision, but disparities in implementation

The national digital transformation strategy is based on four integrated main pillars: development of ICT infrastructure, human resource development and investment in digital

talents, digital governance, and the digital economy. However, its practical implementation still faces several structural challenges, including:

- Lack of prioritization among sectors and projects, which limits implementation effectiveness and prevents tangible impact.
- Focus on technical aspects and digital platforms rather than reforming work processes and improving services.
- Limited reliance on performance and outcome indicators, which makes it difficult to measure the real impact of implemented projects.

2- Structural gaps hindering digital transformation, including:

- Weak coordination and governance: despite the multiplicity of digital actors (ministries, agencies, technicians), there is a lack of effective central coordination ensuring coherence and unified vision.
- Neglect of digital equity and regional dimension: insufficient attention is given to the digital divide between urban and rural areas, which turns digitalization into a tool that deepens disparities instead of achieving balanced development.
- Limited attention to cybersecurity and digital sovereignty: although data protection and system security are essential, the national digital transformation strategy does not sufficiently include clear mechanisms for data protection or for building sovereign infrastructure, which represents a weakness in the context of increasing international threats.

IV- Challenges of digital transformation in Algeria

Among the challenges facing digital transformation in Algeria are the following:

1- Lack of a clear vision for digital transformation:

The absence of a clear vision is one of the main obstacles to the digital transformation process, as a clear vision represents the foundation upon which successful leadership is based. It is the starting point for designing future directions, and it forms the basis for policies and operational plans for governments and institutions. From this vision, strategies are formulated and translated into precise action plans that contribute to achieving digital transformation objectives.

2- Updating legislation and regulations:

The absence of a comprehensive legal and regulatory framework for digitalization and statistical regulation hinders the success of digital transformation in Algeria. Therefore, it has become necessary to urgently update and complete the legal system related to digitalization to ensure alignment with technological developments, including personal data protection, intellectual property rights, and the establishment of legal frameworks supporting the digital economy.

3- Strengthening cybersecurity:

Cybersecurity represents a critical challenge for Algeria in light of increasing electronic threats such as cyberattacks and intrusions. Therefore, cybersecurity and digital sovereignty must be given high importance and top priority in order to ensure network protection, guarantee data confidentiality and privacy, and prevent unauthorized use.

4- Financial resources:

Financial resources are a key and essential factor in supporting digital transformation due to its high technical and organizational costs. These costs include developing digital infrastructure, training personnel, and upgrading systems, which requires significant financial allocation and an appropriate budget to ensure success.

5- Resistance to change:

Resistance to change is one of the major challenges of digital transformation, as some employees or organizational structures often refuse to adapt to the changes imposed by this transformation, especially regarding modifications in work methods and the adoption of a new digital culture.

6- Specialized ICT skills and qualified human resources:

The lack of specialized ICT skills and qualified personnel is a major challenge hindering digital transformation in Algeria. The success of this transformation does not depend only on technical efficiency, but also on leadership competence and the belief and commitment of all members of society to the digital transformation process.

Conclusion

In light of the above, it can be stated that the digital transformation process in Algeria is still progressing at uneven stages between achievements and challenges. Despite the progress made by the Algerian government in the field of telecommunications, the expansion of internet use, and the adoption of a national digitalization strategy, international indicators highlight the need for deeper and more effective efforts, particularly with regard to developing digital infrastructure, improving the quality of electronic services, and increasing citizens' trust in digital systems.

Accordingly, the future of digital transformation in Algeria depends on the state's ability to adopt a comprehensive and integrated vision that takes into account technological, economic, and social dimensions, in order to ensure effective integration into the global digital economy and contribute to achieving sustainable development.

In order to activate and enhance digital transformation in Algeria, the following recommendations are proposed:

- Adopting an educational technological policy based on spreading the culture of information technology use among members of society through training and capacity-building programs in professional and administrative institutions, with the necessity of integrating modern technologies into education at schools, institutes, and universities.
- Investing in national research and development in order to strengthen digital sovereignty and reduce dependence on foreign companies.
- Encouraging research and innovation in information and communication technologies by providing financial support and suitable conditions for work and creativity.
- Directing investments toward less developed regions to achieve digital inclusion and reduce the digital gap between different regions of the country, in addition to allocating additional investments to develop digital infrastructure in marginalized and

underdeveloped areas by improving access to high-speed internet, which contributes to reducing spatial digital disparities and supports social and economic integration.

- Attracting foreign capital and directing domestic investments toward the ICT sector, contributing to the development of digital infrastructure.
- Enacting legal legislation that ensures the protection of ICT users and safeguards the rights of consumers and sellers in the e-commerce environment.
- Adopting a national cybersecurity strategy through the establishment of a specialized agency to monitor systems and the creation of a sovereign center for regulating sensitive sectors (justice, health, finance).
- Changing prevailing mindsets that hinder the implementation and activation of the national digital transformation strategy in Algeria, particularly within public administrations and sectors.

References

- United Nations, Department of Economic and Social Affairs. (2024). E-Government Survey. New York.
- United Nations, Department of Economic and Social Affairs. (2010–2024). E-Government Survey. New York.
- High Commission for Digitalization. (2024). National Digital Transformation Strategy. Algeria.
- Slimi, J., & Bouchi, Y. (2019). Digital transformation between necessity and risks. *Journal of Legal and Political Sciences*, 10(02), 944–967.
- Al-Azzam, S. B. N. (2024). Mechanisms for enhancing digital transformation in government entities in the Kingdom of Saudi Arabia in light of Vision 2030. *Journal of Economic and Business Studies*, 11(01), 70–92.
- Postal and Electronic Communications Regulatory Authority. (2008–2025). Fixed telephone market observatory in Algeria. Algeria.
- Postal and Electronic Communications Regulatory Authority. (2008–2025). Mobile phone market observatory in Algeria. Algeria.
- Postal and Electronic Communications Regulatory Authority. (2016–2025). Internet market observatory in Algeria. Algeria.
- Iriri, S. (2024). The role of digitalization in improving social security fund services in Algeria (Doctoral dissertation). Faculty of Economic, Commercial and Management Sciences, University of Blida 2 – Ali Lounici, Blida.
- Cherki, A., & Sefih, S. (2023). Evaluating the Algerian experience in digital transformation: Reality and challenges. *Journal of Studies in Economics and Business Administration*, 02, 127–147.
- Wehba, A., & Kara, I. (2022). Digital transformation in Algeria between prospects and challenges. *Al-Bashaer Economic Journal*, 08(01), 1–18.