

Examining the Role of E-Government in Advancing Digital Transformation: The Algerian Context

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Abstract:

This research aims to study the role of the government in promoting digital transformation in Algeria, as it has become necessary for the Algerian government to adapt to the new reality that imposes on it the transformation from traditional governments to electronic governments. This happens as a result of developments in information and communication technology in the world, which are characterized by providing several advantages such as saving time, effort and cost.

The importance of this research comes from the fact that it provides an analysis by tracking the indicators of e-government development issued by the United Nations, such as the e-services index and the human capital index. This allows us to clarify the extent of e-government development in Algeria and gives us a clear picture of the extent of our country's readiness to undertake this digital transformation and enter the world of e-government.

Keywords: e-government, digital transformation, e-services index, human capital index, Algeria.

JEL Classification Codes: O32, O33, H11, H54

1. INTRODUCTION

Most governments have realized the importance of digital technologies and their role in supporting the achievement of national visions and strategies, through the adoption of the digital society approach and its application at all levels of economy.

Therefore, it has become imperative for all countries, especially Algeria, to keep pace with the developed countries that have made great strides in the digital world by increasing spending on research and development projects, developing human resources, increasing their knowledge capabilities, providing infrastructure, and e-security standards because they are requirements of e-government and e-transactions. This entails changing the traditional methods of performing government work to methods that use modern technologies that are always evolving in light of the information and communication technology revolution.

• Main question and sub-questions

In this research paper, we tried to answer the following question:

- What is the readiness of e-government and digital transformation in Algeria in light of its classification in the e-government development index?

To answer this problem, we ask a set of sub-questions:

- What is the concept of e-government and digital transformation?
- What are the possibilities of implementing e-government?
- What is the general indicator of e-government development and what are its components?
- What is the evaluation of the Algerian experience in the embodiment of e-government based on the analysis of

the general indicator of e-government development?

- **Objectives of the Research**

- Giving a simpler picture of the concept of e-government and digital transformation.
- Learn about the United Nations E-Government Project.
- Attempting to evaluate the experience of e-government and digital transformation in Algeria and knowing the most important obstacles and difficulties it faces.

- **Approach**

In this study, we relied on the descriptive approach to present some concepts and definitions in addition to presenting some statistics and figures related to the research topic. We also used the analytical approach to analyze the development of e-government and digital transformation in Algeria through using e-government development index.

2- Definition of e-government

E-government is the management of public affairs, through an electronic means to achieve social, economic and political goals, and to abandon routine and centralized work and the completion of government business and services between different parties such as the relationship between the government and the government, relations between the government and individuals, relations between the government and companies, and the relationship between the government and the employee.¹

It can also be defined as the use of information and communications technology to provide relevant information and information services to business institutions in order to reduce administrative burdens such as information costs, bureaucratic procedures, corruption, attracting investors and providing a suitable environment for doing business.²

3- Definition of digital transformation

Digital transformation is considered as the employment of information and communication technology within institutions and bodies, whether government or the private sector, with the aim of developing institutional performance and services, improving operational efficiency and increasing efficiency and productivity, which serves the workflow within the institution in all its departments, as well as in its dealings with customers and the public to improve services and facilitate access to them, which ensures saving time and effort at the same time.³

Digital transformation can also be defined as the process of redesigning businesses, activities, processes, procedures and services and transforming them into electronic digital processes using information technology to benefit from the digital reality in all aspects of business.⁴

The transformation of government business is also considered a radical change in the business model, procedures and processes. The transformation may affect the process of changing the product or the way the service is provided altogether.

4- Evaluation of the e-government experience and digital transformation in Algeria using the e-government

¹Jamal Dawood Salman, Knowledge Economy, Al-Yazouri Publishing and Distribution House, 2009, p. 120

²Bilal Ghalem, The Role of E-Government in Improving the Business Climate in Algeria, Journal of Humanities and Social Sciences, Volume E, Issue 2, 2020, pp. 146-147

³Omar Abdel Hafeez, Ahmed Omar, The Digital Transformation of the Government and its Role in Achieving the Sustainable Development Goals, Egypt as a Model, Journal of the Jordanian University of Zaytouna for Legal Studies, Volume 2, Issue 3, 2021, p. 157

⁴Islam Gamal Saber Ibrahim, Digital Transformation in the Arab Republic of Egypt: An Analytical Study of the Egypt Digital Platform, Scientific Journal of Libraries, Documents and Information; Volume 5, Issue, 13 Part 2, January 2023, p. 140

development index

4.1 Description of e-government development index ranking according to UN

The e-government Survey Report is issued biennially by the division for public administration and development management of the United Nations department of economic and social affairs with the aim of providing a tool for decision makers to identify strengths and opportunities for improvement and guide e-government policies and strategies. It is a study supervised by its department of economic and social affairs. It assesses the digital growth of the governments of all 193 UN member states.

The E-Government Development Index (EGDI) is adopted as a key indicator in the ranking of countries, and a composite indicator whose value ranges between 0 and 1, where: ⁵

$TII + HCI + OSI / 3 = EGDI$, OSI: E-Services Index, TII: Telecommunications Infrastructure Readiness Index, HCI: Human Capital Index

4-2 The reality of e-government in Algeria

E-government is a key axis in the digital transformation and keeping pace with the modern technologies existing in the world. Through this transformation, Algeria sought to adopt the e-government program in 2013.⁶

The document issued in December 2008 is the first official document that carries the features of an integrated electronic management program in Algeria, as it aims to build the information society, move the economy and make it digital, in addition to reducing bureaucracy and reaching the speed of decision-making. Algeria's orientation towards the application of information ⁷and communication technology represents an entry point that reflects a major change in the culture and practice of government business to ensure more efficient management of its resources and thus enable it to implement its policies and plans with high efficiency.

4-3 Objectives of the e-government project and its most important applications

The main objective of the e-government project in Algeria is to ensure the effectiveness of the provision of government services to the citizen, and to be available to all by facilitating and simplifying the administrative stages through which it seeks to obtain documents and information as well as coordination between various ministries and official bodies, in addition to improving the quality of services provided to the citizen in various areas of the life of our society and contributing to the embodiment on the ground of the principles of social justice and equality.⁸ Among its most important applications we find:⁹

- Payment of traffic fines, fines, postal bills and electricity,
- ADMINISTRATIVE RECORDS

⁵Mohamed Mebanni, The Reality of E-Government in Algeria, An Analytical Study of the E-Government Development Index for the Period 2012-2022, Journal of Administration and Development for Research and Studies, Volume 12, Issue 01, June 2023, p. 29

⁶Mohamed Ben Oda et al., E-Government in Algeria - Digital Applications and Global Indicators, Journal of Business and Trade Economics, Volume: 07, Issue 01, 2022, p. 582

⁷Siham Boufelfel, Sumaya Sridi, The role of e-governance in improving public service in Algeria, Ministry of Interior and Local Communities, International Forum on: Requirements and Challenges of Establishing E-Government in Algeria in the Light of International Experiences, 26-27 April 2017, Khamis Meliana University, Algeria, P. 2

⁸Khannouch Saliha, The Reality of Adopting E-Government in the Arab Countries, A Review of Application Indicators with Reference to the Case of Algeria, Journal of North African Economics, Issue 22, 2020, p. 414

⁹Zidane Youssef, Dabbash Mohamed, The Digital Economy in Algeria between Paths and Challenges, Virtual International Forum: Big Data and the Digital Economy as a Mechanism to Achieve Take-off in Developing Countries, Opportunities, Challenges and Prospects, Martyr Hama Lakhdar University, Al-Wadi, June 18, 2022, p. 10.

- Issuing cards and passports....etc.
- Facilitate payment and procurement processes in the public sector,
- Statistical information.

5- Analysis of the General Index of e-Government Development in Algeria 2010-2022

5.1 Evolution of Algeria's E-Government Development Index (EGDI)

The use of the United Nations model in measuring the development of e-government helps us to diagnose the level of e-government in Algeria during the study period of 2010-2022. The positive development of this indicator shows the superiority of the administrative side in any country and enhances foreign investments by reducing procedures and time. The following table shows the global ranking of Algeria and the value of the e-government development index during the period 2010-2022.

Table (1): Algeria's ranking and the value of the Electronic Government Development Index (EGDI)

2022	2020	2018	2016	2014	2012	2010	years
0,6956	0,5173	0,4227	0,2999	0,3106	0,3608	0,3181	Value
112	120	130	150	136	132	131	world ranking

Source: View Country Data, Algeria, observed on 19-04-2024 at: <https://publicadministration.un.org/egovkb/en-us/Data/Country-Information/id/3-Algeria>

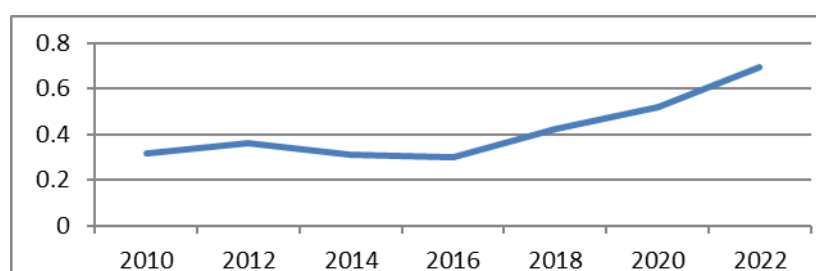
Table(1) shows that Algeria has recorded a continuous decline in the global ranking in the e-government index, as it fell from 131st place in 2010 to 132nd place out of 190 countries in 2012, falling to 150th place in 2016 and then recovering relatively in 2018 to achieve 130th place out of 193 countries, 120th place in 2020 and 112th place globally in 2022, down by eight degrees from 2020.

We also note according to Figure(2) that there is a fluctuation in the value of this indicator for Algeria during the study period, as it moved from 0.3181 in 2010 two years after the launch of the e-Algeria project to 0.3607 in 2012, before deteriorating to 0.31064 in 2014 and to 0.2999 in 2016 and then slightly improving to reach 0.42270 in 2018, where the dusting began since 2017, where it witnessed the acceleration of the pace of administrative reforms, the most important of which is the inspection of electoral lists online, and attention to the judiciary and justice.

Algeria has also given work to achieve the post-2015 sustainable development goals, which require attention to education, training and ICT to achieve the knowledge society that the United Nations emphasizes.

It then stands at 0.5173 and 0.6956 in 2020 and 2022, respectively.

Figure (1): Evolution of the value of the e-government development index for Algeria 2022-2010



Source: prepared by researchers based on the data of Table (1)

Algeria has had to adapt quickly to new methods, especially in light of the COVID-19 pandemic, which highlighted

the importance of e-government initiatives in providing services to citizens. According to the figure, it can be said that Algeria is lagging in the ranking at the global level, where the e-government development index in 2022 reached approximately 0.6956. In the same year, we find that Denmark ranked on the list of the top 10 countries in the field of e-government 2022 with a value of 0.9717. On the other hand, we can also say that the development of the e-government development index in Algeria reflects Algeria's failure to implement these programs.

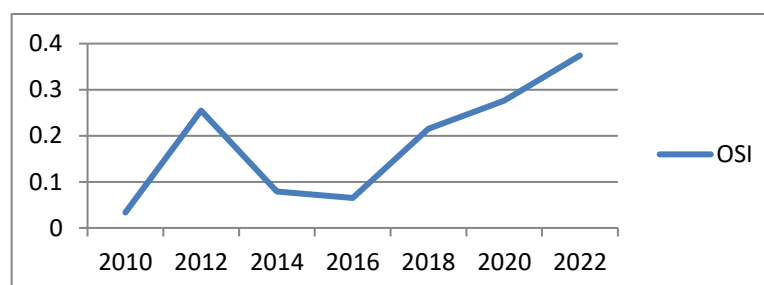
5.2 Evolution of e-government sub-indicators for Algeria

5.2.1 Evolution of e-services Index (OSI) values for Algeria

This indicator show the extent of progress in e-government through a set of axes:¹⁰

- Institutional framework.
- Statutory and organizational framework
- NATIONAL STRATEGIES
- Percentage of use of electronic services and customer satisfaction.
- The rapid introduction of modern technologies and regional and international cooperation.
- Adopting comprehensive and integrated government policies to effectively achieve the 2030 Sustainable Development Goals, taking into account the interrelationships between the economic, social and environmental sectors.

Figure (2): The value of the e-services index for Algeria



Source: Prepared by researchers based on e-government survey reports for different years, Department of Economic and Social Affairs, United Nations, New York

It is clear from Figure 2 that in 2022, the rate of e-services within the total index of e-government development in Algeria was 0.3743, which shows that there is an improvement in the rate, which is less than the global average in the same year, which was 0.5554. However, there is a weakness in the value of the index (both in its value and in its growth rate) despite the government's efforts to improve e-services, as we note from the figure now a significant decrease before 2016, and then we note a remarkable development to reach its highest value in 2022 at 0.3743.

The high index of access to the Internet in Algeria in light of the Covid-19 pandemic is due to the forcing of citizens not to go out of the house for a specific time, and therefore most of them used social networking sites such as YouTube and Facebook. It has also accelerated the development of applications to pay various bills (phone; gas; water) electronically without the need for transportation, and the validity of the healing card has been extended, obtaining student score sheets

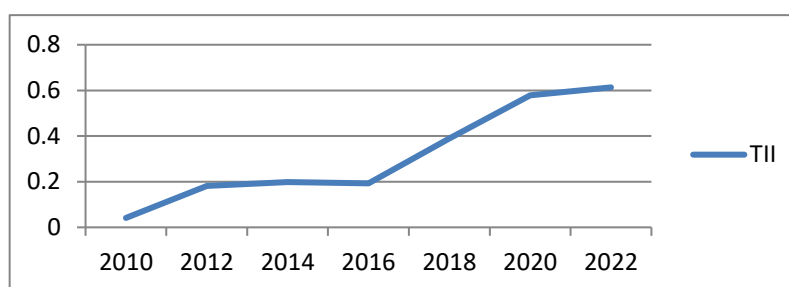
¹⁰Luda Ali, eGovernment Indicators, observed on 19-04-2024 at:
<https://scs.org.sy/?q=scs/infomag/showarticlenode&id=851>

electronically.¹¹

5.2.2 Telecommunications Infrastructure Readiness Index (TII)

This indicator measures the availability of means of communication and the ability of the public to access them. It represents the combined arithmetic average of four indicators: the percentage of individuals using the Internet; mobile phone subscriptions per 100 inhabitants; fixed (wired) band subscriptions per 100 habitants; and active wireless broadband subscriptions per 100 inhabitants. Infrastructure data has been obtained from the reports of the International Telecommunication Union¹². The values of this indicator for Algeria for the period (2010-2022) as shown in the following figure:

Figure (3): The value of the Telecommunications Infrastructure Readiness Index for Algeria



Source: Prepared by researchers based on e-government survey reports for different years, Department of Economic and Social Affairs, United Nations, New York for different years.

It is clear from Figure (3) that despite the remarkable growth in the value of the Telecommunications Infrastructure Readiness Index (TII), which reached 0.12481 in 2010.

This increase is weak, which continued until 2014, and at very low rates. This indicates the lack of interest of successive governments in this sector. On the other hand, it does not reflect the government's aspirations to establish an advanced telecommunications infrastructure, nor does it reflect its efforts to employ emerging and advanced technologies to provide services that meet the needs and aspirations of people, given the efforts made by the state.

As shown in the figure, in 2016, the index fell to 0.19336, after which the index began to rise to reach a maximum value of 0.6133 in 2022. It is worth mentioning that this rise in this period is due to the attention paid by the state to the telecommunications sector, especially in the period of the COVID-19 crisis.

We explain Algeria's delay in this area to the following points: ¹³

- The high prices of smartphones;
- Weak geographical connectivity to high-flow Internet and lack of development of smart applications for phones.
- Lack of the latest technology and weakness in e-commerce.
- The development of electronic management was delayed, as were cybersecurity problems.
- Regulatory problems and inadequacy of legislation.

¹¹Kada Dalilah, Canar Habiye. Evolution of the e-government development index in Algeria in light of Covid 19, according to the United Nations e-government survey 2020, Journal of the Foundation, Volume 12, Issue 1, 2023, p. 50

¹²Al-Tayeb Boulehiya, Samir Salmi, Total Advanced Economic Research, Volume 07, Issue 01, Al-Wadi University, Algeria, March 2022, p. 239

¹³Shatibi Rokaya, Evaluation of the E-Government Experience in Algeria, Journal of Humanities and Social Sciences, Volume 09, Issue 01, June 2023, pp.134-135

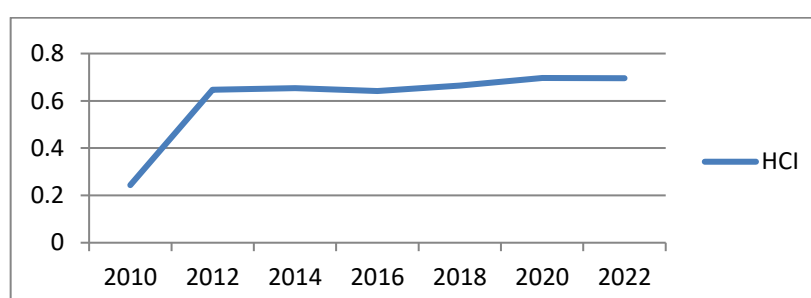
- Weakness in the production of high-quality goods and services in the ICT sector.

5.2.3 Human Capital Index (HCI)

It measures the levels of education among adults and the rate of enrollment in education at various levels. There is a positive relationship between human capital and e-government, where the higher the levels of education among individuals, the greater their abilities and skills to use information technology in a way that helps the spread of e-government and the use of its various facilities. This indicator consists of four sub-indicators: the adult literacy rate, the total enrollment rate in primary, basic and secondary schools, the expected years of schooling, and the average years of schooling.¹⁴

The values of the Human Capital Index (HCI) for Algeria for the period (2010-2022), as shown in the following figure:

Figure (4): Algeria's ranking in the Human Capital Index



Source: Prepared by researchers based on e-government survey reports for different years, Department of Economic and Social Affairs, United Nations, New York

Figure (4) shows the remarkable growth in the value of the human capital index to achieve a value exceeding 0.6 during the study period. As we note that it jumped from 0.2435 in 2010 to 0.6956 in 2022, this indicates the efforts of the Algerian government to provide education to the general public in various forms (regular education, continuous education, distance education), on the one hand. On the other hand, there is the COVID-19 pandemic, which required the state to impose educational institutions, especially universities, to supplement distance education, and this is reflected in the positive change of the indicator.

5.2.4 Obstacles to the implementation of e-government in Algeria

Algeria faces a number of obstacles that prevent the actual realization of the e-government project, including:¹⁵

- Algeria is still far from global standards in the use of technology and access to it.
- Weak presence on the Internet for local groups: Radishes of municipalities and departments do not have websites. The little that exists is limited to introducing the
- government administration and the services it provides through this network and the various legislations, documents, procedures, document forms and forms.¹⁶

¹⁴Al-Tayeb Boulehiya, Samir Salmi, op. Cit., P. 240

¹⁵Mohamed Ali Dasha, Riad Abdelkader, Ways to activate the e-government project in Algeria by benefiting from the leading international experiences, Journal of Economics of Finance and Business, Abdelhafid BouSouf University Center, Mila, Third Issue 2017, p. 135, 136

¹⁶Sofiane Batata, Abdelkrim Baadash, E-government project in Algeria, an evaluation and comparison study with Tunisia and Morocco, using the index of the development of e-government of the United Nations, Journal of Economic Reforms and Integration into the Global Economy, Higher School of Commerce, Algeria, Volume 14 No. 1, December 2020, p.

- The lack of coordination between the departments that have not yet come out of their shelling around themselves, while the modernization of the e-administration is carried out in a consistent manner among all the concerned authorities.
- Lack of recruitment of specialists with competencies who need continuous training courses.

6- Conclusion

The study aimed to assess the readiness of Algeria and the requirements of the transition to establish e-government, by making comparisons of Algeria's position in the United Nations e-government development index for a number of years, and to know the extent of progress in the index, especially since Algeria, like other countries, had to adapt to this new reality, which forced it to shift from traditional governments to e-government, which relies mainly on information technology in its work.

Through the study, we reached the following results:

- E-government represents a new method of providing services to citizens with the aim of raising the efficiency of government performance, reducing the routine procedures suffered by citizens, and providing information and data in an easy way to benefit from the enormous digital revolution.
- The study showed that the Algerian government is still far from adopting the concept of e-government, after it became clear that it occupied the last ranks through its readiness to use modern technologies in the e-government development index, as revealed in reports issued by the United Nations.
- Weak infrastructure, in addition to the lack of qualified human resources, as well as the limited spread of Internet use in Algeria have made it difficult to progress in the implementation of the e-government project.

As proposals we propose:

- Increasing awareness among society groups of the importance of the Internet as well as information and communication technologies, as well as raising awareness of government agencies and institutions of the opportunities provided by information and communication technologies to develop and increase efficiency and effectiveness.
- Circulation of high-flow Internet to ensure the quality and speed of communication and improve the quality of electronic service.

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