Implementing an E- Government in Algeria: Prospects and Constraints, a Comparative-Survey-Based Study

تحقيق الحكومة الإلكترونية في الجزائر: الآفاق والقيود، دراسة استقصائية

مقارنة

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Abstract:

As far as the public service in Algeria is concerned, modern technologies are very complex. Therefore, a great need for system of management is openly expressed. This system is best known as e-government; but has been adopted for years in major developed countries. The purpose of this paper is to highlight the most significant constraints to the success and achievement of the project in Algeria through a comparative-survey-based - study. It also discusses the application requirements in order to find out a real platform project to establish an e- government in Algeria. The results show that there is an urgent need to build e-government which revolves around the basic idea of investing in information and communication technologies and linking citizens, government institutions, businesses and civil institutions, through different channels, together in an electronic model.

Key words: Business, Digital economy, E- government, ICT, Internet

حينما يتعلق الأمر بالخدمة العمومية في الجزائر، فان التكنولوجية الحديثة معقدة جدا. لهاذا السبب، هناك إعراب كبير عن الحاجة إلى نظام إداري. وهذا النظام هو ما يدعى بالحكومة الالكترونية؛ ولكن قد تم تبنيه من قبل الدول

المتقدمة الكبرلعدة سنوات. الهدف الأول لهذا البحث هو تسليط الضوء على القيود التي تحد من نجاح هذا المشروع في الجزائر من خلال إتباع دراسة مقارنة قائمة على استبيان. كما تقوم الدراسة بمناقشة متطلبات تطبيقه من أجل ايجاد قاعدة حقيقية للمشروع بغرض تاسيس الحكومة الالكترونية في الجزائر. تنهي نتائج الدراسة إلى أن هناك حاجة ماسة لبناء حكومة إلكترونية والتي تدور حول الفكرة الأساسية للاستثمار في تكنولوجيا المعلومات والاتصالات وربط المواطنين، المؤسسات الحكومية، الأعمال والمؤسسات المدنية معا، من خلال قنوات مختلفة في نموذج إلكتروني.

Introduction:

Electronic government or digital government refers to the initiative taken by governmental agencies to use Internet technology so as to increase their working effectiveness and efficiency. It is a permanent commitment made by the government to improve the relationship between the citizens and the public sector through enhanced, cost-effective, and efficient delivery of services, information, and knowledge.

Moreover, electronic government includes the use of all information and communication technologies, from fax machines to wireless palm pilots, in order to facilitate the daily administration of government services and expertise to ensure citizen participation in and satisfaction with government process (UN and ASPA, 2001).

As far as e-governments, the Maghreb countries are following the lead of other nations throughout the world by working towards making government transactions online. Benefits of electronic government include saving time, money and resources ("E-government" par. 1). Tunisia for instance, has the most advanced e-government in the Maghreb, thanks to technology which mostly benefits the educated elite.

As systems become more affordable, user-friendly and accessible, rural residents may benefit by being spared trips to major cities ("E-government" para. 4). Our country, Algeria, lags far behind neighboring countries in the use of information technology. This conclusion was drawn in 2005 by the

representative of mb-Soft, Mohamed Chibani, during a workshop on e-government solutions held at the Mercure Hotel. He said that the number of companies with a website is insignificant. This system will develop public services, 268 Government 2.0 & Open Government Data modernize government and Business.

This is not limited only to the introduction of IT tools in the institutions but will improve the internal management and relations with citizens (Amalou, 2005, para. 1). However, he said the latter being called a Business Portal, allows the organization of the information society, to better manage employees, suppliers and customers in record time.

Speaking at the opening of the seminar, the Minister of Post and Information Technology and Communication, Mr. Haïchour Boujemaa, said that the gradual transformation of the Algerian society in an information society was a major objective of his department. Although he said that the e-Government launched in 2004 will be operational in 2006, it seemed that the project was still far reaching (Amalou, para. 3). Although it was supposed that the e-government project in Algeria would be operational in 2006, there existed some obstacles behind the implementation of an effective e-government in Algeria.

Therefore, our main concern throughout this undertaking is to highlight some of the problems and obstacles which make real constraints to adopt an e-government in Algeria. Although the theoretical considerations are the basics of such an investigation, the aim is to find practical solutions that may help in founding an operational e-government in Algeria.

Section 1: The Literature Review

E-government has its roots in Britain when, in 1957, the British government directed the technical support of the telecommunication service to evaluate and council the government on the use of computers in government offices (Koontze, 2003). Mnjama et al. (2008) noted that since that directive from the British government, many countries have gradually introduced computers in their public administration.

In Europe, e-government became more pronounced in 1990s because of the development of the Internet and World Wide Web. In the USA, the Congress enacted the Paper Reduction Act

in 1980, which served as a single framework for federal government management of information resources. Since then, several acts, such as the Paperwork Reduction Act of 1986 and 1987; the Computer Security Act of 1987 and the Clinger-Cohen Act of 1996, were signed and set into motion the transition from paperwork to electronic. The act of elimination required government agencies to provide the public with options of submitting, maintaining and disclosing required information electronically. It aimed at implementing sound information technology architecture and enforcing technology management policies that would lead to strong leadership and integrated approach to information provision. The purpose was to foster citizens' access to government information and services (Reyea and Hague, 2003).

In Asia, Africa, and other developing countries, governments have been using computers in their administration for many decades now. In Africa, the use of internet services in government and private business started on a more serious note in the 1990s. Mnjama et al. (2008) revealed that the implementation of e-government in Africa was carried out in line with the various national and regional declarations. For example, the concept of e-government was declared in the continent first in the 1980s when the Organization of African Unity (OAU), now African Union (AU), recognized the importance of access to government information as a way of solving Africa's development problems.

Another early e-government initiative in the region was "The United Nations Economic Commission for Africa" whose assignment was to create an enabling environment for Africa's e-government. The UN General Assembly's emphasized the need for African countries to create Government 2.0 & Open Government Data 269 indigenous technology for adapting and adopting information technologies to the African environment. The computer for Africa (CFA), an ICT project (http://computers4africa.org/) with the goals of sharing the wealth of the US technology with people in the least developed nations; providing good technology environment to Africa; and building US-African partnership (Well and Well, 2007). In Algeria however, e-government is still in its infant stage. The

UN survey on e-government for 2012 reveals out that Algeria is still located further as far as governmental services related to ICT directed to the citizens.

Accordingly, Algeria is ranked 132 worldwide in the "United Nations E-Government Survey 2012" on a set of 159 countries studied. In North Africa, Tunisia is leading, followed by Egypt, Morocco, and Algeria. But, what is taken into account in this study is the ability of the countries to develop e-government to strengthen citizenship and businesses, allowing greater access to information of public service and greater transparency in government management (UN, 2012). Although the field of e-government does attract much research, few examples can be seen. Warda Allouche and Abdelaziz Khedraoui (2011) proposed two models for identifying and constructing e-government services formalized by using MAP formalism. These were applied to construct such services provided by the Algerian health insurance.

Assia Tebib and Mahmoud Boufaida (2009) defined an approach to developing the mechanism of interoperability of information systems of the e-government. They proposed an applicative protocol named EGP (for, Electronic Government Protocol) that permits technical interoperability by ensuring the exchange and data sharing between public administrations. The proposed approach is based on the intelligent agents.

Section 2: The Benefits of E-Government

The development and implementation of electronic government bring about impacts and changes to the structure and functioning of the public administration. Unlike the traditional bureaucratic model where information flows only vertically and rarely between departments, electronic government links new technology with legacy systems internally, and in turn, links government information infrastructures externally with everything that is digital (Tapscott, 1995).

E-governments possess the potentials to hasten ICT literacy and encourage the development and application of e-agriculture, e-commerce, e-health, e-education e-library, and the rest. It impacts will empower citizens and improve governments' citizens' relationships (Kitaw, 2006). Electronic governments make government processes more accountable, responsive and

transparent. It improves governance and the quality of life of citizens and offers a number of compelling benefits; such as better quality services, increased citizenship satisfaction, higher efficiency, reduced costs and lowers processing time (Sudan, 2005).

Electronic government will create a public administration that is less hierarchical. It will also offer potentials to increase access to information and services, and make it easier for citizens to participate in to governmental issues. The benefits of electronic government can be summarized as follows:

A) - Removed boundaries: E-government will help break down agency and jurisdictional barriers to allow more integrated whole-of-government services across the three tiers of government. The provision of seamless access will be taken much further.

B) - 270 Government 2.0 & Open Government Data Accessibility: Electronic government offers the potential to dramatically increase access to information and services.

C) - Improved Quality: Electronic government represents convenient and reliable services, with lower compliance costs as well as higher quality and value.

D) - Improved Reputation: Electronic government helps build an image of a country as a modern nation, an attractive location for people to visit and businesses to invest in.

Citizen Participation: Electronic government makes it easier for those who wish to contribute ("E- Government Benefits", Commonwealth of Australia, 2003).

Section 3: ICT Policies in Algeria Overview

The Algerian government has mandated the Ministry of Post and IT to implement and manage the national ICT policy (Hamdy, 2007, p. 3). At the same time, the government has also initiated collaboration with a number of international agencies to enhance the ICT status in the country. In 2002 the World Bank also co-operated with the ministry to develop and implement projects for the creation of the enabling environment and improving access to ICT while making it affordable for all. Table 2 provides a snapshot of the state of national ICT infrastructure in Algeria. The level of ICT integration is still ongoing and at an early stage.

The program aiming at providing access to ICT through the Computer for Every Home Initiative was launched in 2003. Some forms of media, such as radio and television, have achieved high penetration rates. Mobile phones are commonplace and the number of Internet users is increasing rapidly due to the number of Internet cafés, shops, and access centers that are available — particularly in urban areas. In 2000, a regulatory law was passed where the old public institution in charge of national telecom was split into two commercial organizations and two operators emerged: "Algerie Poste and Algerie Telecommunication".

The law also created an independent regulatory authority of posts and telecommunication. Currently, there are three operators of: Algerie Telecom (mobile and fixed lines), Orascom (Djezzy and Lacom for fixed lines), and Alwatanya (Nedjma and Internet access with mobile phones).

To facilitate the entry of Algeria into the information society, the following national ICT initiatives have been designed (Hamdy, 2007, p. 4):

• The project of the Ministry of Education to equip all schools with computers by 2005;

 • The distance education project;

 • The virtual university project;

• The research network to be put in place by the Ministry of Higher Education and Scientific Research;

• The health network developed and maintained by the National Health Development Agency (ANDS);

 • The Djaweb Internet platform.

 Furthermore, for the Algerian authorities, promoting high level of ICT integration is the most important key to founding up the e-Algeria 2013 strategy which is a program that aims to provide e-government and e-business solutions and nearly 300 on-line services for Internet users in Algeria.

The e-Algeria strategy is based on several goals:

- Boosting the use of ICTs in public administration and businesses;

- Government 2.0 & Open Government Data 271 Developing incentive mechanisms and measures to give citizens access to ICT equipment and networks;

- Stimulating the development of the digital economy;
  - Strengthening high and very high-speed telecommunication infrastructure;
    - Developing human capacities;
- Strengthening research, development and innovation; updating the national legal framework;
- Recognizing the value of international cooperation; and
  - Establishing e-monitoring and evaluation mechanisms

Section4. E-government readiness in Algeria

Since the advent of information technology, empowerment in the 21st century is anchored on the ability to use information, technology and the knowledge economy to broaden individual and collective choices.

The development imperative today is to employ Information and communication technology ICTs to level the playing field for all. This means that ICT has proved capable of being applied in all spheres of human activities and of solving the problems of all irrespective of discipline or profession.

The dramatic advances made by ICT have transformed much of the world into a digitally interconnected community, and the predominant drivers of change have been the Internet and the World Wide Web and both have added new electronic dimension to academics, commerce and now the e-government.

E-government readiness is the capacity of the government and the governed to deploy ICT for the provision and improvement of knowledge and information in the service of the public. Capacity here encompasses financial, infrastructural, human capital, regulatory, administrative and systematic capability of the state. It also includes the willingness of the state to provide information and knowledge for the empowerment of the citizens (United Nations, 2004).

Algeria, as in other emergent countries, suffers from the bad quality of e-government services and sometimes the required services are not put forward. Recently, some projects to introduce ICT into Algerian public institutions are realized through the creation of web portals to some institutions.

However, these projects concern only the information and
communication issues and do not reply to the main citizen needs
and interests which is the most appropriate quality and
transparency of services. To assess Algeria's e-government
readiness, as compared to other African countries, some criteria
should be taken into account for analysis. These are
transactional presence, and connected presence which are
illustrated into the following tables.

Table 1: Transactional stage of e-government readiness of 12
African countries

S/N	Country	2005	2008	2010	Total	%	Assessment
1	Mauritius	27	13	00	40	29	Very Strong
2	South Africa	17	17	00	34	25	Very Strong
3	Egypt	22	24	00	46	33.3	Very Strong
4	Botswana	00	6	00	6	4.35	Strong
5	Seychelles	00	00	00	00	00	Weak
6	Swaziland	00	00	00	00	00	Weak
7	Mozambique	0	7	0	7	5.1	Strong
8	Senegal	0	1	0	1	0.07	Weak
9	Algeria	0	0	0	0	0	Weak
10	Morocco	0	1	0	1	0.07	Weak
11	Lesotho	0	1	0	1	0.07	Weak
12	Benin	2	1	0	3	0.22	Weak
	Total	68	70	0	138	97.11	

Source: UN E-government Report 2005, 2008, and 2010.
Table 1 shows e-governments service levels at a transactional
stage and illustrates that the vast majority of African
governments were not present at this stage. As can also be seen
in the table, most African countries were not present. The scores
of most countries were less than 5% while others scored zero. In

2010, all the countries, including Algeria, scored zero indicating that transactional activity between governments and the citizens did not exist completely.

However, there were countries that were not only present but strongly maintained their position. They were Egypt, Mauritius, South Africa, and Mozambique. The governments of these countries have continued to maintain and update their online services up to transactional stage.

The implication is that, though these governments have their official websites, there was limited informational flow between governments and the citizens and absence of opportunities for online completion of tax forms, birth registration, processing of travelling documents, payment of traffic violation fine, and other related online transactional services.

Table 2: Connected/ Networked stage of e-government readiness of 12 African countries.

S/n	Country	2005	2008	2010	Total	%	Assessment
1	Mauritius	9	0	6	15	9	Very strong
2	South Africa	22	4	2	28	16,7	Very strong
3	Egypt	7	6	12	25	15	Very strong
4	Botswana	6	3	5	14	8,4	Strong
5	Seychelles	6	3	0	9	5,4	Very strong
6	Swaziland	4	3	0	7	4,2	Strong
7	Mozambique	9	4	6	19	11,4	Strong
8	Senegal	6	4	7	17	10,2	Weak
9	Algeria	6	0	2	8	4,8	Weak
10	Morocco	7	2	4	13	7,8	Weak
11	Lesotho	4	0	1	5	3	Weak
12	Benin	2	2	3	7	4,2	Weak
	Total	88	31	48	138	99.9	

Source: UN E-government Report 2005, 2008, and 2010.

Table 2 presents results about e-government readiness taking into account the connected/ networked presence of e-governments. This stage is the apex of e-government framework and the online services assessment bus-stop. For countries to be

considered present at this stage, they must have been fully
integrated with the ministries, departments, agency and lines of
demarcations between government and its workforce are
removed in cyberspace, and services are clustered along
common needs.

This phase is characterized by the capacity and the presence of
enablement for the public to instantly access government
information. Any service of ministerial, departmental,
institutional and agency line of demarcation is obtained in
cyberspace and services are clustered along common needs.
Unfortunately, no country studied has fully attained this stage
(United Nations, 2010).

However, the table presents a picture of African governments' e-
services at the connected stage. They show that South Africa at
16.7% was the champion, Egypt at 15.0%, came second, while
Mozambique, 11.4%, and Senegal, 10.2%, followed. Mauritius,
9.0%, Botswana, 8.0% and Morocco, 7.8% were present with
very low percentage which cannot qualify them as having
attained the connected level.

Algeria is among the countries that were not present at this final
stage because it scored below the minimum standard. Though
some of the countries present here have official websites,
regrettably, networking between national government portal and
states, ministries, local governments, and citizens was lacking.
None of the countries, even the technologically advanced ones,
has fully actualized this level because connected or networked
governance has the task of providing better organized, aligned
and integrated information flows, new transactional capacities
and mechanisms for feedback, consultation and, above all,
participative forms of democracy.

According to the tables above, Algeria does not have an
effective e-government that acts as a mediator between the
citizens and the government authorities. The provision and the
improvement of services by the public administrations is a
fundamental issue of e-government in terms of quality,
efficiency and transparency.

However, citizens and enterprises in Algeria still suffer from the
bad quality, inaccessibility, and the lack of clarity of the
different services provided by public institutions. Facing up to

this problem, it appears necessary to construct an e-government system to provide necessary services whenever needed by the citizens.

Section5: An e-government in Algeria

A) - The Obstacles

We have highlighted the most important advantages and benefits of implementing e-government on various business institutions. Is it possible to implement this digital unique project in Algeria? What are the main obstacles to achieve its implementation? The e-government project in Algeria has been running for more than three years; it has not yet functioned well because of a number of obstacles which are mainly related to the environment. 274 Government 2.0 & Open Government Data Adopting and using ICT lie in the political and regulatory environment. With an uneven record in legal and regulatory issues, weak ICT strategies and implementation, and excessive reliance on foreign technology, Algeria is frequently lagging in its readiness for its e-government strategy. Generally, the obstacles are:

- Software piracy rates: Algeria, as other countries in the world, suffers bad press and a lack of credibility, with looming restrictions in technology transfers (Moran, 2011, p. 3). It has been estimated that in 2010 Arab countries, including Algeria, lost $376m to software piracy (Palmer, 2011, 122).

  The following figure shows how much Algeria is affected by software piracy.

Table 3: Countries with High Software Piracy Rates.

Countries	Percentages				
Vietnam					95%
China					95%
Ukraine					95%
Indonesia				90%	
Zimbabwe				90%	

	75%	80%	85%	90%	95%
Russia				90%	
Algeria		80%	85%		
Nigeria		80%	85%		
Pakistan	75%	80%	85%		
Paraguay	75%	80%	85%		
	75%	80%	85%	90%	95%

Source: Business Software Alliance, 2008. Insufficient funding for ICT research and development

The absence of an effective ICT research and development funding commitments translates into a virtual absence of an Algerian national ICT policy and software industry. Thus, Algeria is structurally a net importer of technology and ICT. The figure below illustrates how much Algeria is investing in ICT.

Table 4: Diffusion of Recent Innovations, High and Medium Technology, 2001.

	0%	10%	20%	30%
TUNISIA				30%
ALGERIA	0%			
SYRIA	0%			
SAUDI ARABIA		10%		
BAHRAIN		10%		
KUWAIT		10%		
EGYPT		10%		
MOROCCO			20%	
OMAN			20%	
Percentages	0%	10%	20%	30%

Source: UNDP 2002.

B) - Telecommunications are slow and limited

The telecommunications sector, though not the central factor in explaining ICT development, is one of its founding components. Deregulation has mostly applied to mobile telecommunications networks (GSM) and Internet Service Providers (ISP).

The ISP sector is thriving but is mostly limited to dial-up offerings; a few offer broadband connectivity and digital

subscriber lines. However, land lines, fiber optic connectivity, and most broadband offerings remain government monopolies, with little deregulation and privatization. Consequently, unless steered in that direction by the state, national incumbents have few incentives to promote connectivity.

Government monopolies leave little room for private infrastructure funding. Furthermore, connectivity charges remain high (Dutta, n. d. p. 123). Inability of the postal IT sector to supply customers with the delivery of telephones which is the most important channel of communication via the Internet. Inability to complete infrastructure for communications in all regions of the country Internet promotion and usage in Algeria is still limited. The percentage of using of this technology is still low in Algeria compared to neighboring countries.

In Morocco, for example, the percentage is 14.36% while it is only 5.33% in Algeria. Financial transactions online are still in their infancy despite the fact that the Algerian authorities have started these operations three years ago. For example, many people are still afraid of using magnetic cards to withdraw their money because of the large errors resulting from the drawing machines, according to declarations mentioned in "Absence of legislations". (Haichour, 2006, p. 14)

Section 6: The Impacts of an Algerian E-government on Business

Despite these obstacles, an e-government project should be set up due to the aforementioned benefits and advantages generated by the uses and practices of modern technology. Also, some changes will be brought on both public service and business institutions in light of cyberspace and the transition to digital economy.

These can be cited below:

1-Organization of the transition from traditional organizational structures, based on functional structures, to specific structures designed on the basis of information flows dynamically and constantly, interacting with external and internal variables. This organizational structure within the new model should be based on the following cornerstones:

- Activating the functions of strategic management in order to achieve higher added value through the exact

wording of the institution's mission, strategic leadership, control strategy, and other approaches to achieve its objectives.

- Using other units that perform common functions of human resources and financial management, planning, and management of research and development.
- Including functional units that implement the operational processes of production, seeking to build high levels of integration and in dealing with customers, suppliers and owners (Selimi, 2002, p. 261).

2. Leadership Within this context should be shared, exchanged, and integrated. Its central task is to direct the development and empower individuals towards the electronic model to achieve its advantages of currency, innovation and successfulness (Selimi, 2002, p. 262).

3. Human resources Conducting business in the electronic model requires the ability to accommodate information and communication technologies and the opportunities offered by the methods of dealing with it through a high degree of activity and dynamism in the performance of the business, and high degree of reciprocal relationships (Riami, 2007, p. 8).

4. Financial and Accounting Due to continuous 24-hour electronic connectivity with internal and external variables, companies can be supplied with financial data about financial markets, customers, suppliers and shareholders, as well as providing all financial and accounting documents that enable them to accomplish transactions within the framework of an easy-access, high-speed and high-tech environment and with the lowest possible number of staff (Selimi, 2002, p. 263).

5. Planning Moving to an electronic style depends on a clear vision of what this new technology can contribute to in achieving the goals of companies, especially in long term through access to information so as to identify opportunities, threats, strengths, and weaknesses in order to formulate clear strategies and objectives and monitor resources, competencies, and human skills (Riami, 2007, p. 10).

6. Decision-making Management in enterprises relies on the skills of diagnosing problems and determining alternatives due to information obtained within the electronic system. This also depends on the activation and strengthening of its decisions at all levels and taking necessary action in record time and to correct deviations (Selimi, 2002).

7. Control Digital technology facilitates the discovery of errors and corrects deviations easily. People can also self-censor through training, rehabilitation and well-defined tasks, receiving and exchanging information through different channels of communication that are opened daily (ibid).

8. Production Using design, computerized production, control and measurement systems through software, built-in production processes which depend on the use of digital information and the use of communication technologies enable institutions to benefit from the following advantages of accessibility to purchase sources of raw materials easily, accessibility to funding operations, guidance of various technologies and regulations, and easy access to technologies related to the Government 2.0 & Open Government Data 277 design and production engineering. All these elements enable the company benefit from production and delivery process on time (Selimi, 2002, p. 264).

9. As far as Marketing is concerned, there is no doubt that e-government, through cyberspace with multi-disciplines, enables businesses of various kinds access to different markets and to collect vital information. Besides, there are possibilities of promoting, distributing, and concluding transactions within e-commerce services. Here, the e-government represents a strong foundation to these services due to the link that exist between all ministries and governmental agencies (Selimi, 2002, p. 266).

Section7: General Perspectives

The core value of this paper hinges on using the e-government strategy in Algeria to improve decision making and resource allocation; in determining the effectiveness of e-government websites and the degree to which the websites add value to the education, research, and development needs of the nation; providing data to assess change over time; in identifying problems and possible solutions as well as the effectiveness of corrective action; in empowering organizational sectors to seek

and enact solutions, develop accountability and organizational leadership and improving public sector information access.

The creation of official websites by the Algerian government provides greater opportunities for researchers, document librarians, employees of government and private establishments, archivists, and policy makers and citizens to have speedy access to government information. It makes government policies and plans available simultaneously to millions of users and also to people.

The bureaucratic bottleneck, devastating delays and weaknesses in the implementation or enforcement of legal deposit laws would be minimized as government documents librarians could easily acquire government publications online without waiting for depository copies from government printing officers. Acquisitions of government publications are made more transparent and cost-effective if e-procurement or e-acquisition of these documents is made possible through Algerian government websites.

Access to ICTs and educational infrastructures might remain limited if sustainable efforts are not invested, and this may pose serious impediments to e-government project to responsibles.

Section 8: Recommendations

The government in Algeria needs to understand the potential of ICTs as a tool for improving their public services and therefore, in enabling an environment for the attainment of connected governance. They have to continually invest in improving e-public services and in providing access tools to ever demanding citizens.

The importance of providing opportunities for participating in e-governance is the first imperative for them. To achieve this, there should be a realistic political vision and plan for action that completely grasps the strengths and weaknesses of its public sectors capacity. There is a need for a regular organization of multi-stakeholders' workshops on e-government sustainability in Algeria. The purpose of this is to create awareness of e-government on 278 Government 2.0 & Open Government Data government officials.

To be able to accomplish this task more efforts and resources need to be invested if Algeria is not going to be left behind in the global e-information service delivery.

A growing number of research works on Algerian e-government should be conducted and published. The aim should be to raise further awareness among government officials on the e-government opportunities; share information on national approaches and practices.

This will provide and promote collective efforts in the development of national e-government strategies so as to be involved in playing pivotal roles in implementing a steady e-government with best practices. The need for effective investment in information and communication technologies and provide necessary infrastructure needed to found a strong e-government.

This requires the wide promotion of the internet, provision of legislations to protect these technologies. There is the need to mobilize citizens and make them aware of the benefits and advantages of these technologies and provide the necessary facilities so as to acquire of the necessary hardware.

Conclusion

The project of building e-government revolves around the basic idea that investing in information and communication technologies and linking citizens, government institutions, businesses and civil institutions, through different channels, together in an electronic model allows for different transactional operations to be conducted easily and gives companies many benefits to improve their performance in a digital economy.

The Algerian e-government that was initiated in 2004 is still out of effective operation because of a number of obstacles which center mostly on the lack of strong and necessary ICT infrastructure and support to it. The e-government has been a result of multiple changes of information and communication technologies of which the traditional government has been performing the same functions but through an electronic model.

The implementation of this project requires the provision of basic infrastructure for carrying out a set of requirements, such as the availability of a communications network, personal

computers, internet promotion and specific legislation in this area.

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