



Evaluation of the status of the e-government in Comoros

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Abstract

E-government consists of the use of information and communication technologies (ICTs) by a government to transform itself by managing, producing, and delivering public services effectively to citizens. There are several reports on the level of e-government development in the world. In particular, there are the publications of the United Nations Department of Economic and Social Affairs (UNDESA). These include those of 2010, which state that the Comoros has an e-government development index (EGDI) of 0.2327, with a country online presence estimated at 286. In this study, we are interested in evaluating the country online presence by counting the governmental web sites, commenting on the figures published compared to the online availability of governmental information, and examining the interaction with citizens. The governmental organisations and processes will have to be re-examined because e-governance will come to automate existing and effective traditional procedures, which are missing in the Comoros. The move of the Comorian government from traditional public administration management to e-governance has been popular. However, not only was the lack of governmental websites noted in this study, so was the deficiency in terms of, infrastructure, production of electronic services, as well as the difficult conditions surrounding access to ICTs by citizens. Finally, we recommend that an e-government vision and strategy be developed so that actions can be undertaken to remedy the current situation.

Keywords: e-government assessment; e-governance; online presence; EGDI.

Introduction

E-government is a part of the electronic services (e-services) provided by information and communication technology (ICT). E-government is the use of ICT by the government to transform its way of providing services to its citizens. In Comoros, there is to date no vision or strategy developed for e-government implementation. Nevertheless, it is necessary for the public administration to modernise when dealing with the difficulties of citizens to obtain quality public services and in dealing with issues related to the increased demand for websites by public institutions. In terms of concrete achievements, we can cite the interconnection of ministry departments, the government Intranet project suggested by the International Telecommunications Union (ITU) to the Comoros government in 2006, and the establishment of information systems and a local government portal. Installing a VoIP system at the presidency through the pan-African e-network, the

customs connected through the same system ASYCUDA++ (Automated System for Customs Data), and the automation of business creation, are some initiatives that can be strengthened under the e-government project in Comoros.

Regarding the importance of e-government today, many institutions measure e-government development globally and also the prerequisite environment for its implementation. The United Nations Department of Economic and Social Affairs (UNDESA) can be cited in this case with the latest survey on e-government development in the world (2010) which ranks Comoros 160 out of 192 countries in the world, with an index of e-government development (EGDI) of 0.2327.

The objective of this study is to assess the online presence of Comoros by examining existing websites through a four-stage online presence development model, developed by the United Nations Standard. I used data provided by a few reliable reports and publications.

In this paper, we present the situation of e-government in the Comoros. Then we evaluate the online presence of the Comoros. We identify the corporate websites, in particular the government web portal, to assess the level of online government presence, as well as the effectiveness of e-government in the country.

ICT development and citizens' access index to these technologies will let us understand the reasons that contributed to the low EGDI score for the Comoros. Next, we analyse the results and the situation of e-government, as a whole, in the country. Finally, we make suggestions and recommendations to the government and different stakeholders for creating an effective and dynamic e-government in the Comoros.

Understanding e-government

E-government is the use of ICT by the government to transform its way to administer, produce, and deliver services to its citizens. We can distinguish some services of e-government, in particular, passport applications, electronic tax payments, formalities of citizenship applications, visa applications, applications for birth certificates, procedures for record pensions, progress report of a file to the public office, the collecting of citizen feedback through forums regarding governance, etc.

According to Ornager and Verma (2005), there are four main distinctions when studying the interaction of different stakeholders in the process of e-government,

1. The G2G, which involves the exchange of information and electronic data between different ministries and other government entities.
2. The G2C, which consists of electronic dissemination of information by the government to citizens and vice versa and the introduction of electronic services, thus fulfilling one of the government's main objectives, which is to communicate with citizens.
3. The G2B, which includes the sale of government assets to the public and has the potential to reduce costs through improved procurement practices and increased compe-

tion. In addition, this type of interaction involves transactions and exchanges between the government and companies on licensing, taxation, and permits issued for various sectors.

4. The G2E, which covers the management of public officials, employment opportunities, work instructions, rules and regulations, benefits and compensation structures for employees, and pension welfare of employees and management housing laws.

An enabling environment is required for e-government implementation. This environment is assessed through measurement tools, which measure the readiness of a country to take advantage of ICTs and to participate in the information society. Four basic parameters are developed in the ITU's *e-Government Implementation Toolkit* (ITU, 2009), namely: infrastructure, strategy, governance, and outreach for supply and demand (Figure 1).

These four dimensions are assessed through a measurement tool developed in the ITU toolkit, which allows a state to project a prerequisite for the establishment of e-government. This tool also allows for comparisons between different countries and economies.

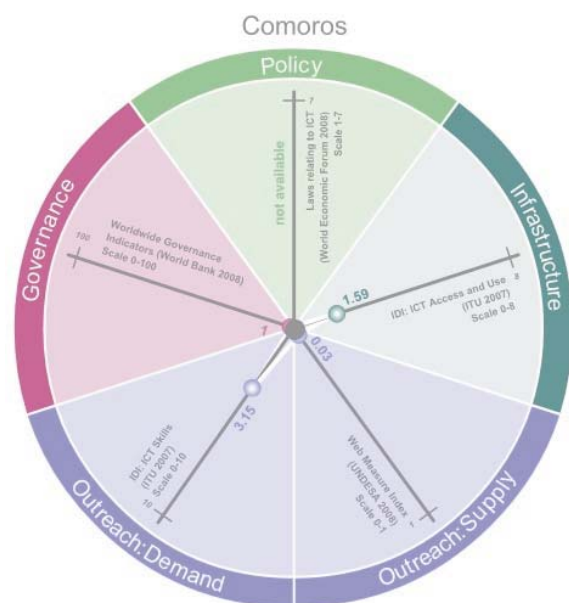


Figure 1. Environment of e-government for Comoros
Image Source: ITU's e-Government Implementation Toolkit (ITU, 2009)

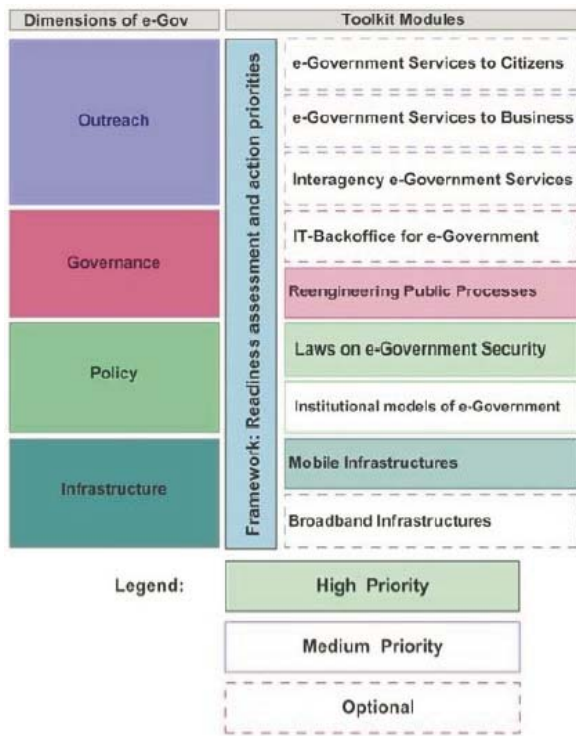


Figure 2. Dimensions of the environment of e-government

Image Source: ITU's e-Government Implementation Toolkit (ITU, 2009)

Comoros e-government status

The e-government development index

The United Nations (UN) EGDI is a comprehensive classification of good will and the capacity of national administrations to use the web and mobile technologies in governmental performance. The EGDI is based on a comprehensive overview of the online presence of all 192 member states (UNDESA, 2010).

Developments and regressions made by the Comoros as assessed through the various UN annual surveys on e-government development, first published in 2003 (UNDESA), are listed in Table 1.

Table 1. EGDI for Comoros from 2003 to 2010.

Survey Year	2003	2004	2005	2008	2010
Index on-line presence	0.0310	0.0310	0.0538	0.0268	0.0286
Index on Telecommunications	0.0070	0.0070	0.0082	0.0137	0.0204
Index on human capital	0.4900	0.5100	0.5300	0.5334	0.6553
Value EGDI	0.1760	0.1830	0.1974	0.1896	0.2327
World Ranking	155	157	155	170	160
Evolution		-2	2	-15	10

Compilation of UN surveys (UNDESA, 2003, 2004, 2005, 2008, 2010)

Mathematically, EDGI is an average of three standard indicators on the most important dimensions of e-government, namely:

1. the scope and quality of online services;
2. telecommunications connectivity; and
3. human capacity.

Each of these index sets is itself a composite measure that can be extracted and analysed independently.

$$EGDI = (0.34 \times \text{Online Services Index}) + (0.33 \times \text{Telecommunications Index}) + (0.33 \times \text{Index on Human Capital}) \text{ (UNDESA, 2010)}$$

For this study, we focus only on the index for online services of the Comoros. This index characterises the four stages of development of e-government (Table 2), namely the emergence of online services, evolution of services, availability of transactional services, and, finally, interconnected services.

In Table 2 we see a 7% emergence of online services, which is really low, and we see 3% enhancement of information services, which is confirmed by the number of available sites for the Comorian government. Out of 13 departments in the government, only two have official websites outside of the government web portal. To date, no transactions have been made between existing sites and citizens.

In terms of infrastructure, we see that only 4% of the population uses the Internet and 0.88% of the population owns a computer, indicating that most Internet users go to cyber cafes or use the Internet in their workplaces. Moreover, e-government applications are also developed for mobile phones because they have a good wear rate and the user rate is growing.

Table 2: The Comoros online presence in 2010

World Ranking	Index value	Emerging information services (step 1)		Improved information services (step 2)		Transactional services (step 3)		Connected Services (Step 4)		Total	
		Points	Score (%)	Points	Score (%)	Points	Score (%)	Points	Score (%)	Points	Score (%)
175	0.0286	5	7	3	3	1	2	10	

(UNDESA, 2010)

Table 3. Telecommunications Development Index 2010 for Comoros

World Ranking	Index Value	Internet users per 100 inhabitants	Fixed telephone lines per 100 inhabitants	Mobile subscriptions per 100 inhabitants	Personal computers per 100 inhabitants	Fixed broadband subscribers per 100 inhabitants
172	0.0204	3.42	3.02	6.20	0.88	0.00

(UNDESA, 2010)

An overview of the online presence

At the time of writing this paper (March 2011), we identified government ministry or department websites that may be utilised for e-government. We also noticed that no e-directory exists at the national level and it was only by contacting officials of different ministries that we were able to obtain the following data:

1. The Presidency of the Union of Comoros: <http://beit-salam.km>
2. The Assembly of the Union of Comoros: www.auc.km
3. The Ministries of Foreign Affairs: www.diplomatie.gouv.km
4. The Ministry of Tourism: <http://www.tourisme.gouv.km/>
5. The Union of Chambers of Commerce and Industry and Agriculture <http://www.uccia-comores.com>
6. The National ICT Regulation Authority: www.anrtic.km
7. The Central Bank of the Comoros: www.bancecom.com
8. The National Centre for Documentation and Scientific Research: <http://www.cndr-comores.org>
9. Procedures for creating business and association in Comoros: <http://comores.e-regulations.org>

Methodology used for assessment

To emphasise the provision of services and their potential use by the public, we checked the performance of a given website against the four

steps presented earlier. Emphasis is placed on the effectiveness of the use of ICT by the government for providing services to the Comorians citizens. This evaluation is done in Table 4.

Results and comments

Of the nine government websites evaluated, only 50% can be considered as meeting the criteria of the step 1: **Emergence of the Online Services**. Most of them are not accessible from the government portal. Indeed, in attempting to access one of the two sites that are not accessible at all, a notification of a virus came up. General information is present in all of the web sites listed. Some web sites are not updated.

All websites assessed need to improve by providing assistance to citizens in a way that will help them improve their relationship with the government. There are no transactions with citizens. Indeed, bidirectional communication with citizens, including the ability to consult and receive feedback on government policies, programs, and regulations, does not exist. Forum links are available on a limited number of websites, including the government portal, but are not functional, and online survey tools are not used. The other deficiency is observed in the necessary conditions for transacting online, namely the security aspect through a public encryption infrastructure. This infrastructure is lacking in the Comoros. The element that most characterises a country's online absence is the use of Yahoo and Hotmail email addresses by not only ordinary citizens but by state officials up

Table 4. *Evaluation Matrix of web sites compared to the stages of implementing e-government, based on a model by Goundar (2009).*

Site analysis	Emergence of the Online Services (Step 1)	Improved information services (Step 2)	Transaction Services (Step 3)	Interconnected services (step 4)
Presidency of the Union of Comoros Hosted in Comoros	First website to be established for the government. Detailed information on the presidency and public institutions are included. We have access to government information that is regularly published and updated. Links point to other state institutions, except that all these institutions do not yet have their own web portals.	No forms available. The forum is not functional; no survey is conducted on this portal. The site is available only in French, while Arabic is the second official language.	No transactions are conducted between the government and citizens.	This site is not interconnected with any other service.
Assembly of the Union of Comoros Hosted in Comoros	Practical information for the public is provided with respect to the composition of the assembly of the union, its functioning, the agenda of parliament, and procedures for visiting the institution. Furthermore, it should be noted that the information is not maintained. Broken links exist and should be completed.	Forms are not available, while the site claims to provide an opportunity for citizens to attend parliamentary sessions. The site is available only in French.	No interaction exists between the assembly and the citizens. (For example, citizens could give their views on the texts studied by the assembly)	This site is not interconnected with any other service.
Ministry of External Relations (MIREX) Hosted in Comoros	Practical information for the public is provided with respect to comorian diplomacy, the composition of this department. Furthermore, it should be noted that the information available is not maintained.	Information is given on the procedures for obtaining visas but no forms are available for download. The site is in French only.	No transactions exist between this department and citizens or with any foreign person who might be interested in coming to the Comoros.	This site is not interconnected with any other service.
Ministry of Tourism Hosted in Comoros	In trying to access this site an error message indicated the presence of a virus on the site.	-	-	-
Union of Chambers of Commerce, Industry and Agriculture Hosted abroad	Practical information for the public is provided with respect to the economic environment of the Comoros. Information is updated. All the links point to other sites and information. Repositories of information are accessible.	A download area exists. Calls for applications are published. Events are announced. Forums are available, and even a space for research jobs exists.	The tools in this site allow interaction with the public and all traders. However, transactions are not currently being made.	This site is not interconnected with any other service.
National ICT Regulation Authority Hosted in Comoros	The basic regulations are available. Practical information for the public and stakeholders in the ICT sector are not provided. The news published is not updated. There is a lack of links to other sites. Repositories of information are accessible.	No forms are available. The site is in French only.	No form of transaction exists between the site and ANRTIC ICT players.	This site is not interconnected with any other service.
The Central Bank of Comoros Hosted abroad	In trying to access this site, we were redirected to a website for adults.	-	-	-
National Centre for Documentation and Scientific Research Hosted abroad	Practical information on the institution is provided. News is not included. Only general information about the museum research and the Comoros is provided. There is a lack of links to other sites.	This site appears to be old, regarding the system used which is based on HTML coding. No forms are available for download.	No bidirectional communication is provided.	This site is not interconnected with any other service.
e-regulation Comoros Hosted abroad	Practical information for the public and any potential investor is provided on investment procedures in the Union of Comoros. The information published is updated. All the links point to other sites and information.	Enriched information is presented in this site. There are animations and videos on how to help visitors use the site. The various interactions are understood. The site is in French and English.	No bidirectional communication is provided	This site is not interconnected with any other service.

to the highest rank, including ministers, even though there is the possibility of using the sub-domain gov.km for government entities.

The blocking factors

The factors blocking the development of e-government in the Comoros are institutional, political, and technical. The political and institutional instability that has plagued the country since its accession to independence, affects governance. Indeed, many services are not provided as they should be, and e-government can be a companion tool. Organisation and governmental pro-

cesses should be consolidated, as e-governance would automate existing traditional procedures that are lacking in the Comoros (Hafkin, 2009).

To address the factors blocking e-government, we observed the local situation by comparing it with a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis on the development of e-government, presented by Hafkin (2009) and Kitaw (2006), in which the forces, weaknesses, threats, and opportunities are presented (Table 5).

In addition to blocking factors identified in the SWOT analysis, we can also cite the lack of a vision of e-government in the

Table 5. SWOT analysis on implementing e-government in the Comoros.

<p>Strengths</p> <ul style="list-style-type: none"> - Late adoption of e-government gives the Union of Comoros the opportunity to learn good practices from other advanced countries. - Low rate of illiteracy at 25% (UNDESA, 2010) 	<p>Weaknesses</p> <ul style="list-style-type: none"> - Lack of telecommunications infrastructure. - Lack of democratic governance. - Specialized human skills in ICT misused as recruitments are done according to regionalism and political affinity and not by skill level.
<p>Opportunities</p> <ul style="list-style-type: none"> - Increase the participation of citizens in the processes of democratic governance. - Consolidation of the administration to increase efficiency because ICT provides new opportunities. - Stimulate the use of open source software for development. - Promote transparency and reduce corruption by focusing on the availability of information and opportunities to all citizens and businesses. - Arrival of the fibre optics in the country can boost the use of the Internet. 	<p>Threats</p> <ul style="list-style-type: none"> - The issues of cybersecurity is to be taken very seriously as internet users are afraid of cybercriminality. A safe and secure environment will enable the accession of the largest number of ICT users and therefore potential citizens adherence to e-government. - Energy issues affecting Comoros are 100% dependent on oil. Now we need to constantly produce electricity for the use of ICT, especially in the service of e-government.
<p>Model developed from Hafkin (2009) and Kitaw (2006).</p>	

Comoros, which translates into the lack of an overall strategy for its implementation.

The websites listed have been created through the initiatives of the ministries and various institutions themselves. All these websites are adopting various charters obliging citizens to adapt to all these interfaces. According to ITU statistics, a Comorian must pay 46.65% of his or her income to access ICTs in general, 685.44% for broadband and 22% to be able to use mobile telephony (ITU, 2010). In the specific context of e-government, infrastructure availability is only meaningful when the population can afford it; otherwise, many websites can be set up for each department, but nobody will access them as it is not affordable to have Internet at home.

Conclusion and recommendations

In this paper, we presented what e-government is and the key services that constitute it. Then we reviewed the classification of the Comoros in the latest survey of UNDESA on the development of e-government. All websites need to be improved to meet public needs by providing assistance to citizens in their relationship with the government. It was observed that there are no transactions or interactions with citizens. The possibility for citizens to consult and send feedback on government policies, programs, and regulations does not exist. Links to forums are available on a few websites, including the government

portal, but these forums are not really functional, and online survey tools are also not used.

E-government is simply a tool to support governance; however, in Comoros there are many services that are not delivered as intended. It is necessary to consider recasting the organisation itself and government processes for e-governance in a way that will automate them.

Comoros needs to improve e-government by making effective use of ICT in delivering public services by increasing the online presence of the country. Statistics show that information services are emerging only at 7%, the enhanced information services at 3%, interconnected services at 2%, and transactional services simply do not exist. These figures clearly show that citizens do not interact with the government through ICT; neither do they seek information online that not exist elsewhere. Indeed, not only are there not enough government websites available, but the country lacks ICT infrastructure. Difficult access conditions do not allow for full use of ICT, which is necessary for an effective e- government.

Regulation of the ICT sector needs to be strengthened in order to meet security concerns and for citizens to adhere fully and have confidence in ICT tools and the Internet. Regulation will encourage the use of ICT between departments to ensure that services are produced and provided to the public. The most critical step will be to build a national vision of

e-government, followed by a strategy so that actions can be taken to achieve a successful e-government project in the Comoros.

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