Alignment of e-Government Policy Formulation with Practical Implementation: The Case of Sub-Saharan Africa

W. Munyoka, F. M. Manzira

Abstract—The purpose of this study is to analyze how varying alignment of e-Government policies in four countries in Sub-Saharan Africa Region, namely South Africa, Seychelles, Mauritius and Cape Verde lead to the success or failure of e-Government; and what should be done to ensure positive alignment that lead to e-Government project growth. In addition, the study aims to understand how various governments' efforts in e-Government awareness campaign strategies, international cooperation, functional literacy and anticipated organizational change can influence implementation.

This study extensively explores contemporary research undertaken in the field of e-Government and explores the actual respective national ICT policies, strategies and implemented e-Government projects for in-depth comprehension of the status core. Data is analyzed qualitatively and quantitatively to reach a conclusion.

The study found that resounding successes in strategic e-Government alignment was achieved in Seychelles, Mauritius, South Africa and Cape Verde - (Ranked number 1 to 4 respectively).

The implications of the study is that policy makers in developing countries should put mechanisms in place for constant monitoring and evaluation of project implementation in line with ICT policies to ensure that e-Government projects reach maturity levels and do not die mid-way implementation as often noticed in many countries. The study recommends that countries within the region should make consented collaborative efforts and synergies with the private sector players and international donor agencies to achieve the implementation part of the set ICT policies.

Keywords—E-Government, ICT-Policy Alignment, Implementation, Sub-Saharan Africa.

I. INTRODUCTION

E-GOVERNMENT (e-Gov) is the use of information and communication technologies (ICTs) in the public sector to improve its operations and delivery of services [1], [2]. Information and communication technologies, including e-government, has played and will continue to play a central role in the development of a country, region, or continent, especially one as underdeveloped as Africa, where the impact of ICT and e-Government will even be greater [3]. Countries in sub-Saharan Africa have implemented some forms of e-government services at local, state or national level in the past ten years. The e-government websites ranges from static web pages to fully fledged portals that are often one-stop gateways for servicing the wider government stakeholders and agencies [3]. These ten years of e-strategy adoption have witnessed various e-government strategic policy formulations, implementation and a clause in the policies for continuity and growth of e-Gov projects.

ICTs and e-government policies and projects initiatives in Africa and nearly most developing countries are supplier-driven (initiated from the central government's vision for its perceived demand by the citizens, business and other agencies) rather than demand-driven for the e-service from citizens and hence, their utility is low and failure rate high. Furthermore, the strategic alignment of policies with implementation in various nations have yielded diverse results - positive, negative and sometimes postponement of implementation of key e-Gov projects. Amongst key contributing factors to these diverse achievements are varying political wills and support towards e-Gov initiatives, lack of good infrastructure, sluggish economic development, limited capacity, poorly trained personnel and various cultural factors [4], [5]. Contrasting studies [5], [7] revealed stacking contrasts that despite ranking the lowest in terms of Human Development Index (a measure for life expectancy, literacy, education and standard of living for a country) Sub-Saharan African region have made the most significant progress in e-government over the last decade in the entire continent. Despite this overwhelming achievement for the Sub-Saharan region, the entire African continent continues to lag far behind the world average in terms of regional e-government development index [6]. Fig. 1 shows the world regional e-Government development index.

W. Munyoka is with the Department of Business Information Systems, University of Venda, P.Bag X5050, Thohoyandou 0950, South Africa (phone: +27-718376043; e-mail: willard.munyoka@univen.ac.za).

F.M. Manzirais with the Department of Business Information Systems, University of Venda, P.Bag X5050, Thohoyandou 0950, South Africa (email: francis.manzira@univen.ac.za).
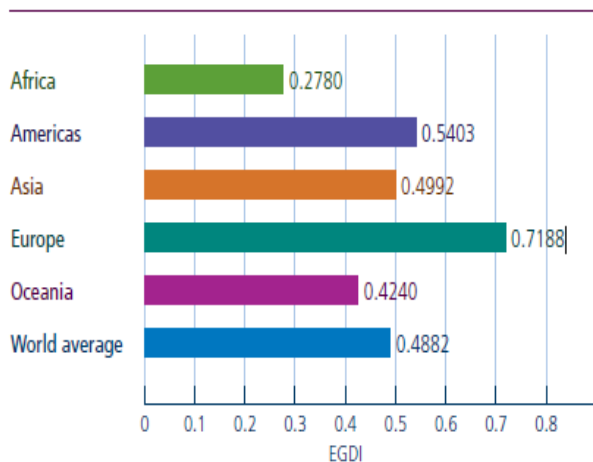
Fig. 1 Regional e-government development index [6]

Besides the majors chain of structural and operational constrains identified above for derailing and impeding the rapid growth of e-Government projects in the Sub-Saharan Africa, strong political leadership backed with effective management in various e-government and ICT ministerial portfolios have been identified as fundamental ingredients for the region to flourish in this frontier. The lack of visionary leadership, often corrupt, for most countries in the region was aggravated by vague ICT and e-government policy frameworks that are inadequate to deal with modern emerging importance of ICTs in government [4]. It has emerged from numerous studies undertaken on e-government policy [8], [10], [11] that for many Sub-Saharan African countries ICT and e-Government policies are often outdated, took longer to be updated and in cases where they are up to date, commitment to practical implementation is marred by more pressing social and economic emergencies like hunger, outbreak of diseases, disasters and civil strife. All these catastrophes calls for divergence of originally allocated and often depleted financial resources – thus further compounding the smooth strategic alignment of e-government policies and implementation on the ground.

Constant monitoring and evaluation of e-Gov policies and the actual e-Gov projects are essential for successful alignment, progress and to ensure that the policies remain relevant since Information and Communication Technology (ICT) and e-Gov are very dynamic. In addition to sole effort from sovereign states to implement e-government policies in the region, assistance both in action and program facilitation came from several national and international organizations, chief amongst them are United Nations Economic Commission for Africa (UNECA), United Nations Department of Social and Economic Affairs (UNDESA), World Bank, Pan African Development Information System (PADIS), Capacity Building for Electronic Communication in Africa (CABECA) [3] and the International Telecommunications Network (ITU). The World Bank, UNECA and UNDESA advocated a collaborative effort amongst all concerned nations and agencies for intensive capacity building through education and training in ICT [3] for all citizens. The whole idea was to stimulate a high-ICT literacy society that will assist the national agenda in e-government and ICT initiatives through a realization for utility and demand for the available e-government services. Strategic alignment of e-government policies with implementation becomes easily attainable if adoption of the e-services is demand-driven (citizen centric) as opposed to supply-driven (government creating a service anticipating citizen demand) [9].

The following section of the paper presents our research methodology for the study, followed by results analysis and conclusion.

II. RESEARCH METHODOLOGY

This study extensively explores contemporary research undertaken in this field and the actual respective national e-Gov policies, strategies and implemented e-Gov projects for in-depth comprehension of the status core. Other key areas of consideration for the study are analysis of e-Government rankings of Sub-Saharan African countries and national e-Government indexes. Review and coding of the continents of e-Government websites with information related to national ICT frameworks and policies for major countries were carried out between January–May 2013. Despite considerable effort dedicated to access major critical national departmental websites of respective countries for updated data on ICT policies, some Uniform Resource Locators (URL) could not open or had broken links. The United Nations Survey on e-Government on people [6], [3] provided some surmountable statistics for analysis of strategic alignment of e-government policies and implementation for Africa.

Data is analyzed qualitatively and quantitatively to reach a conclusion. The subject of analysis was major websites of different countries, their ICT Policies and their respective stages. Other key features for consideration were the ability for the websites to present multiple languages in line with major tribals within a specific country and then analyze it against the set e-Government Policies, the available features and executable services. This brings in the fundamental and central focal aspect of considering the number and quality of services rendered to ordinary citizens by the websites. A four-stage framework of analysis of development for e-Government services was adopted [3], [12]-[14] to determine the level of advancement of e-government projects for each nation and this shows an effective alignment of ICT policies to implementation. The final pivotal aspects for assessment for the study is the availability of constant monitoring and evaluation of e-Government policies in-line with implementation to determine project success and giving insights to policy makers for future project alignment.

III. RESULTS DISCUSSION

A. Analysis of E-Government Policy Formulation in Sub-Saharan Africa

The studies undertaken in [15] revealed that the "designing and implementing ICT policies and strategies require proper knowledge of the state of ICT in a country and its use by organizations (government as well as business) and individuals (and often, the main barriers to such use)." For many developing countries across the world, ICT policies and strategies have been set up to foster access to, and use of, ICTs by individuals and organizations [15]. Despite this, surveys done by UNCTAD [16] indicated that 116 developing economies had introduced national ICT Master Plans. Only 28 countries, including South Africa, Seychelles and Mauritius already possessed some special formal statistics on the use of ICT by citizens and businesses. The same studies noted that "without data on ICT access, use and impact, it will be difficult for policymakers to design, analysis, evaluate and review national ICT policies," [16] and this posed a huge impediment for e-government alignment.

The analysis of the Sub-Saharan African countries with some form of updated e-Government policies, revealed that the major four phases of ICT policy formulation (policy design, policy analysis, policy evaluation and policy review) do not operate in isolation, they must be supported by effective ICT Research and Analysis, ICT measurement and ICT impact assessment. This is actually lacking for nearly all of the Sub-Saharan African countries as not even one country had all these four key aspects in place, working in harmony. Better results were found in South Africa with its recently introduced e-Barometer framework [17] for measuring e-Government impact, readiness and adoption. However, ICT Policy formulation is lagging behind by a decade; calling for more to be done sooner than later to maintain leading role in the region.

Seychelles and Mauritius [21] have made huge consented effort to align their e-government policies with implementation over the past decade, leading to them ranked number one and two respectively in the Sub-Saharan African region and African continent at large with e-Government Development Index of 0.5192 and 0.5066 [6] for the year 2012 UN e-Government Development Index assessment. Table I presents the African continent e-Government development index [6] with the leading top three countries coming from the Sub-Saharan region. Cape Verde is the fourth trailing country in the region where e-government alignment efforts are yielding desired results with an index of 0.4297 for the year of 2012.

TABLE I
TOP TEN E-GOVERNMENT RANKED COUNTRIES IN AFRICA [6]

Rank	Country	E-Gov Development Index		World E-Gov Development Ranking	
		2012	2010	2012	2010
1	Seychelles	0.5192	04179	84	104
2	Mauritius	0.5066	0.4645	93	77
3	South Africa	0.4869	0.4306	101	97
4	Tunisia	0.4833	0.4826	103	66
5	Egypt	0.4611	0.4518	107	86
6	Cape Verde	0.4297	0.4054	118	108
7	Kenya	0.4212	0.3338	119	124
8	Morocco	0.4209	0.3287	120	126
9	Botswana	0.4186	0.3637	121	117
10	Namibia	0.3937	0.3314	123	125
	Regional Average	0.2780	0.2733		
	World Average	0.4882	0.4406		

B. Analysis of E-Government Implementation in Sub-Saharan Africa

With regard to e-government implementation, the entire Sub-Saharan Africa have made some effort in implementation e-government of some sort, though in most cases projects where not keeping pace with implementation policies and time frames. One of the notable causal of such a scenario was pointed to the lack of widespread competitive infrastructure and functional literacy [6]. Fig. 2 shows that the Sub-Saharan Africa region was leading the entire African continent for the year 2012 in implementing most e-government websites with much functionality and often in their interaction and transactional phases of growth [18]. However, the study revealed that impact measurement and assessment of their e-services to determine citizen and business utility is missing, thus creating a huge gap in vital information needed to inform policy makers to make informed decisions on e-government alignment.

Seychelles lead the pack of African countries and in the Sub-Saharan Africa region in implementing e-government after incorporating major practical reforms in its ICT infrastructure, legal and regulatory framework, health, human resource development and capacity-building of citizens in ICT literacy in 2012. Studies done by the United Nations on ICT Task Forces [19] revealed that Seychelles and Mauritius are the only two countries with upper income levels and upper digital access levels in Africa. These two factors are crucial for ICT and e-government uptake, demand and willingness to do away with the old traditional paper-based and long-queuing services. Some notable implemented e-government projects in the Sub-Saharan African Region are SeyGo Connect integrated portal for Seychelles catering for both citizens and business, Batho Pele government port and SARS Tax Returns e-Filing systems for South Africa, Mauritius' e-Government portal offering a wide e-services to citizens, business and tourists, and Cape Verde E-Government portal offering a variety of e-services for citizens and enterprises.
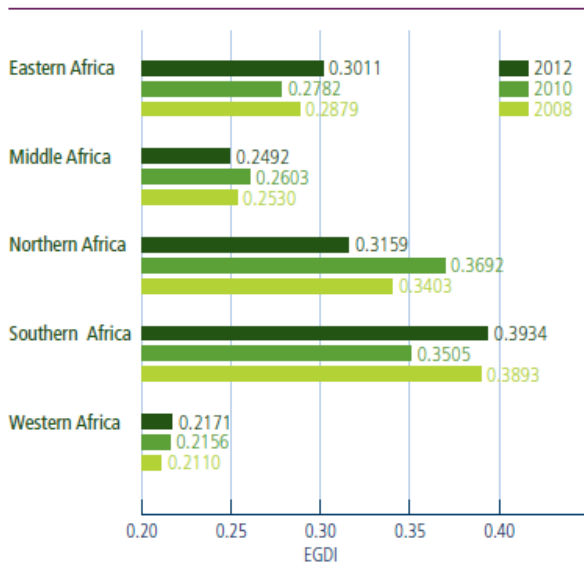
Fig. 2 Trends in e-Government Development in Africa 2008-2012 [6]

C. Strategic Espousing of e-Government Policies and Implementation

1. South Africa

Studies done in [4] on e-government progress stated that "At the turn of the century, South Africa started out as a leader in e-government among developing countries. A decade later, it has been surpassed by states that were much less developed. Why did this happen?" A close analysis of the e-government alignment endeavors revealed that central to this decline was the failure and lack of urgency on the designated government departments and tasked government agencies to come up with an updated ICT policy to guide implementation on the ground. It has been noted with concern that the ICT policy has been under revision since the since the publication of the 2001 interim policy framework, but up until now, that is more than 10 year later there is no update available [4]. Despite this drawback updated policy, notable e-government alignment with implementation has been witnessed in the transactional SARS e-Filing Tax returns system.

2. Seychelles

In the context of Seychelles, much of its efforts to align ICT polices with implementation, coupled with human capital development was accelerated from 2010. This lead to the inception of its SeyGo Connect portal [20] going transactional, offering vital central government services to both citizens, business and non-governmental organizations. In its latest ICT policy document for Seychelles, it has been stated that "the Government is conscious that the successful implementation of this policy and achievement of its objectives is through partnership with the private sector and civil society" [21]. As such it has identified that in order to achieve its key set goals in the ICT policy, participation and involvement of all key ICT stakeholders from Government, civil society to private

sector is crucial [21]. This involvement of all concerned stakeholders in aligning its e-government policy with implementation has achieved promising results in the past three years.

3. Mauritius

Strategic e-government alignment for Mauritius has been aided with the existence of an updated, 62 paged comprehensive e-government strategy policy [23] incorporating contemporary e-government implementations like Cloud Government, m-government, e-health and other numerous e-services. This was drafted in consultation with all concerned stakeholders, giving it the highest chances of catapulting e-government alignment in Mauritius to world-class levels. The official e-Government portal for Mauritius offers key important online e-services, some of them capable of transactional services [22]. Nevertheless, Mauritius like any other developing countries in the Sub-Saharan Africa region, suffers from widespread citizens' lack of awareness of the existence of the government portal and e-services – thus jeopardizing the government's efforts in having a demand-driven e-services aligned to the formulated policy.

4. Cape Verde

In its Millennium Development Goals (MDGs) for 1990-2015 [28], Cape Verde have identifies ICT policy formulation and implementation as strategic to its development and overcome communication barriers posed by rough geographical terrain. The Cape Verde government has received commendable support from the One UN Programme and other donor agencies and this has helped the government to design and implement a set of modern, synchronized e-government systems [29]. The end results of the strategic e-government alignment have led to positive impacts, for instance increased revenue collection, e-voting, biometric identification and enhanced e-services for citizens for government services. The study could not establish the actual e-services offered on the Cape Verde e-Gov portal [30] due poor accessibility (language barrier), as it is written in their vernacular language of Portuguese with no facility for presenting the same information in English.

D. Impact of Various Governments' Efforts on E-Government

It has been noted that for e-government to succeed, government agencies require effective integration of strategy, processes, organization, and technology [24] to link government IS to the necessary digital domains [25]. This study found that governments in Sub-Saharan Africa region need to understand how their various efforts in e-Government awareness campaign strategies, public-private-donor collaboration, functional literacy and anticipated organizational change can influence implementation and uptake.

1. Awareness Campaign Strategies and Functional Literacy Effect on E-Government Uptake

The e-Government Strategy for Mauritius [23] clearly

emphasized the need to empower citizens through awareness campaigns of the e-services and government portals as one of the corner pillars for persuading citizens to adopt e-government services at the expense of queuing at the government offices. In the context of Mauritius and Seychelles, this was achieved through a well thought out marketing strategies utilizing step-by-step audio clip advertisements on different public television stations and in public places for offering digital health educational content in all major hospitals and clinics outpatient waiting rooms [26]. Cape Verde on the other hand remained suppressed in this campaign of e-services awareness. The United Nations E-Government Survey [6] done in 2012, outlined clearly that one major challenge faced by Africa as a continent in line with e-Government is lack of widespread functional literacy and this is compounded by poor e-Government readiness assessment by governments. This has been reiterated by the International Telecommunications Union (ITU) report [27] that "the emerging trend in e-Government is to design services to focus squarely on the needs of citizens," and failure to focus on their demand will lead to underutilized e-services.

2. Public-Private-Donor Organizations Partnership for E-Government

It has been highlighted in [27] that governments must formulate national e-Government strategies which foster and forge ahead sound partnerships and collaborations by the private and public sectors, and the public sector and international donor agencies in order to attain cost-effective and efficient e-Gov projects. Studies done for developing countries in the Sub-Saharan African Region [11], [27], revealed that for International Corporation on e-Gov to work smoothly and yield desired e-Gov Alignments, local leadership trust, risk management, accountability, effective communication and coordination of key stakeholders must exist, otherwise the end results are futile. Key notable international donor partner within the region were the United Nations with its many agencies, the World Bank, Pan African Development Information System (PADIS), Capacity Building for Electronic Communication in Africa (CABECA) and the International Telecommunications Network (ITU), SADAC and African Development Bank. This study established that most of these international and regional partners play a pivotal role in establishing the necessary ICT infrastructure like broadband and wireless networks required for the establishment of wider outreach communication facilities like internet. Lessons learnt from studies done on developing countries [1], [11], [26], [28], revealed that government partnership with private, regional and international donor organizations is essential because nearly all states operate on heavily strained budgets, with funds often diverted and devoted to other pressing urgent needs like hunger, natural disasters and disease outbreaks, and civil strife and wars.

IV. CONCLUSION AND AVENUES FOR FURTHER RESEARCH

Findings revealed that four sub-Saharan Africa countries

under study constitute the dominant force in e-Gov policy initiatives and implementation. A clear picture that emerged from this study is that Seychelles, Mauritius and South Africa have created a huge digital divide gap in e-Government within the Sub-Saharan Africa and Africa at large due to its high progress. The implication of the study is that policy makers in developing countries should put mechanisms in place for constant monitoring and evaluation of e-Gov policies and implemented projects to ensure that e-Government projects reach maturity levels and do not die mid-way implementation as often noticed in many countries. The study recommends that countries within the region should make consented collaborative efforts and synergies with each other and international donor agencies to achieve the implementation part of the set e-Gov policies.

This study has mainly been exploratory in nature, utilizing existing contemporary studies on e-government and analysis of actual national portals of respective governments. For future research direct, the study seeks to focus more on designing a framework that can be used to measure e-Government Strategic Alignment. Such a framework will guide ICT Policy makers, governments and international donor agencies in their endeavors to strengthen e-governance in developing countries across the world. Currently there is no such framework of its kind and this will fill-up the missing knowledge gap in e-Government.

REFERENCES

[1] W. Munyoka and M. F. Manzira, "Assessing the Impact of e-Government Projects: The Case of Limpopo Province in South Africa," in *Proc. International Conference on Cloud Computing and e-Governance*, ICCCEG, Dubai, 2013, pp. 17-23. Accessed on 9 August 2013 from http://www.edlib.asdf.res.in/2013/iccceg/paper003.pdf.

[2] R. Kumar, and M. L. Best, "Impact and Sustainability of e-Government Services in Developing Countries: Lessons from Learned from Tamil Nadu, India," The Information Society, Routledge: Taylor & Francis Group, vol. 22, pp. 1-12, 2006.

[3] A. Rorissa, and D. Demissie, "An analysis of African e-Government service websites," Government Information Quarterly, pp. 1-9, 2010, doi:10.1016/j.giq.2009.12.003.

[4] F. Cloete, "e-Government lessons from South Africa 2001- 2011: Institutions, state of progress and measurement," The African Journal of Information and Communication, (12), pp. 128–142, 2012.

[5] M. Burke, "A Decade of e-Government Research in Africa," The African Journal of Information and Communication, (12), pp. 2–25, 2012.

[6] United Nations, "United Nations e-government survey 2012: E-government for the people," New York: UNPAN, 2012. pp. 14. Accessed on August 21, 2013 from http://unpan1.un.org/intradoc/groups/public/documents/un/unpan04806.pdf.

[7] AfDB, World Bank, "WEF. The Africa competitiveness report 2011," World Economic Forum, Geneva, 2011.

[8] L. Abrahams, "e-Governance policy 1999-2009: Paths and limitations to progress," Journal of Public Administration, 44(4.1), pp. 1010-1025, December 2009.

[9] V. Weerakkody, S. Jones, and E. Olsen, "E-Government: A comparison of strategies in Local Authorities in the UK and Norway," in Proc. European and Mediterranean Conference on Information Systems, EMCIS, Costa Blanca, Alicante, Spain, July 2006, pp. 1-15.

[10] United Nations, "United Nations E-Government Survey: Leveraging e-government at a time of financial and economic crisis," New York2010, 2010.

[11] P. Dandjinou, "e-Governance strategies in Cape Verde and South Africa: From service delivery to e-participation," in *Proc. 1st International conference on theory and practice of electronic governance*, Macao, 2007, pp. 435-436.

[12] J. Affisco, and K. Soliman, "E-government: A strategic operations management framework for service delivery," Business Process Management Journal, 12(1), pp. 13–21. 2006.

[13] United Nations, "United Nations e-Government survey 2008: From e-Government to connected governance," 2008. Accessed on March 22, 2013,from http://unpan1.un.org/intradoc/groups/public/documents/UN/UNPAN028607.pdf.

[14] D. Mundy, and B. Musa, "Towards a Framework for e-Government Development in Nigeria," Electronic Journal of e-Government, Vol. 8 (2), pp.148-161. 2010. Available online at www.ejeg.com.

[15] United Nations, "Manual for the Production of Statistics on the Information Economy," in *Proc. Conference on Trade and Development*, February 2009. UNCTAD/SDTE/ECB/2007/2/REV.1.

[16] United Nations Conference on Trade and Development (UNCTAD) (2006). Information Economy Report 2006: The Development Perspective. New York and Geneva: United Nations. http://www.unctad.org/en/docs/sdteecb20061_en.pdf.

[17] DoC (2011). "e-Barometer: Measuring the impact of ICTs on development in South Africa," Department of Communications, Pretoria. DPSA (2001). e-Government policy. Department of Public Administration (DPSA), Pretoria.

[18] M. S. Shareef, H. Jahankhani and M. Dastbaz. "E-Government Stages: Citizen-Centric approach in Regional Government in Developing Countries," International Journal of Electronic Commerce Studies, Vol.3(1), pp.145-164, 2012.

[19] United Nations ICT Task Force, "Measuring ICT: the Global Status of ICT Indicators, Partnership on Measuring ICT for Development," 2005. Accessed on April 9, 2013, from http://www.itu.int/ITU-D/ict/partnership/material/05-42742%20GLOBAL%20ICT.pdf.

[20] SeyGo Connect portal, "Available E-Service on the Seychelles Gateway," Accessed on September 24, 2013 from https://eservice.egov.sc/eGateway/public/AllEServices.aspx?type=all

[21] National IT Policy, "National ITC Policy for Seychelles," 2012. pp. 16. Accessed on July 12, 2013 from http://www.ict.gov.sc/homecnt/policies.aspx.

[22] Government of Mauritius, "E-Services Portal," Accessed on March 5, 2013, from http://www.gov.mu/English/Pages/default.aspx.

[23] Republic of Mauritius, "e-Government Strategy 2013 – 2017 (draft), Central Informatics Bureau Ministry of Information and Communication Technology," May 2013, Accessed September 2, 2013 from http://mict.gov.mu/English/Documents/Mauritius%20eGov%20Strategy%2017%20June%202013.pdf.

[24] T. L. Whitson, and L. Davis, "Best Practices in Electronic Government: Comprehensive Electronic Information Dissemination for Science and Technology," Government Information Quarterly, Vol. 18. pp. 79-91. 2001.

[25] F. Hsu, P. Hu, H. Chen, and C. Yu, "The Strategic Co-Alignment for Implementing Information Systems in e-Government," in Proc. Pacific Asia Conference on Information Systems, PACIS, 2009. Paper 29. http://aisel.aisnet.org/pacis2009/29.

[26] W. Munyoka, and F. M. Manzira, "E-Government Adoption in Developing Countries: The Case of South Africa," in *Proc. International Conference on Cloud Computing and e-Governance 2013*, Dubai, July 2013. Accessed on September 2, 2013, from http://www.edlib.asdf.res.in/2013/iccceg/paper009.pdf.

[27] ITU, "Electronic Government for Developing Countries, ICT Applications and Cyber security Division (CYB) Policies and Strategies Department Bureau for Telecommunication Development International Telecommunication Union," August 2008,. Accessed February 24, 2013, from www.itu.int/ITU-D/cyb/app/e-gov.html.

[28] One UN in Cape Verde, "Cape Verde: An Emerging Nation," 2010. Accessed May 12, 2013, from http://www.un.cv/files/One%20UN%20in%20Cape%20Verde.pdf.

[29] African Development Bank and African Development Fund, "Cape Verde: A Success Story, Regional–West 2 Department (ORWB)," November 2012. Accessed June 5, 2013, from http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Cape%20Verde%20-%20A%20Success%20Story.pdf.

[30] Republica de Cabo Verde website, Accessed on July 28, 2013, from http://www.governo.cv/.