

# Implementing e-Government Services in East Africa: Assessing Status through Content Analysis of Government Websites

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**Abstract:** A content analysis study was conducted to determine the status of government websites of three East African countries - Kenya, Tanzania and Uganda - using establishment year, visibility and usability attributes. The results were matched with a four-stage model of e-Government growth based on the status of websites from simple to sophisticated features. The study identified 98 government websites including 33 for Kenya, 37 for Tanzania and 28 for Uganda. More than 83% of the identified websites were established between 2000 and 2003 and their creators are still undergoing the learning experience. The website visibility test ranged from 27% to 40% and the average for three countries was 32%. Usability analysis revealed more interactivity features for Tanzanian and Ugandan websites than Kenyan websites. The study concludes that all of the East African websites are at the first and second stages of the website development and corresponding e-Government services. One of the theoretical and practical implications of the study is a move toward a standardized use of the website evaluation attributes among various researchers to gauge stages of e-Government implementation. These attributes can also serve as indicators for individual governments to strive toward advanced stages of e-Government implementation.

**Keywords:** Website visibility, website usability, website interactivity, East Africa, Kenya, Tanzania, Uganda, content analysis.

## 1. Introduction

In February 1997, a joint report of the National Performance Review (NPR) and the Government Information Technology Service Board of the United States elaborated the concept and implementation of e-Government (Relyea 2002, Salem 2003). The NPR was established during the Clinton Administration and was given the task of developing recommendations to 'reinvent' the Federal Government, with the aim of having a government with these qualities: "works better, costs less, and gets results Americans care about" (Salem 2003, p.15). Salem further notes: "Early in the process it became clear that the reinvention of government was tied to the proliferation of information technology. According to Vice President Gore, 'information technology (IT) was and is the great enabler of reinvention. It allows us to rethink, in fundamental ways, how people work and how we serve customers'." (p.15).

Several authors have since defined this concept in various ways but the keywords include the use of information and communication technologies (ICTs) to facilitate access to and provision of government services to people. The ultimate aim is to improve performance

(efficiency, effectiveness, transparency and accountability) of government (Allen et al. 2001, Silcock 2001, Whitson and Davis 2001, World Bank 2003). This is connected to recent developments in ICTs -- especially the Internet and the World Wide Web -- that have created great potential for social and economic progress due to their effect in facilitating access to information for decision-making processes (ECA 2003, Hsinchun 2002, Mansell and Wehn 1998, UN 2001, World Bank 2001). In utilising that potential, many countries have decided to employ ICTs to enhance delivery of government services to their citizens, and are thus at various stages of e-Government implementation (Ho 2002, Holliday 2002, Layne and Lee 2001, Netchaeva 2002, UN 2002, UN 2001).

Several developing countries have also taken up the challenge of exploiting the potential of the Internet to disseminate information and be accessed for the benefit of their citizens. This is especially so in Asian countries (Holliday 2002, Lu et al. 2002, Netchaeva 2002) and to a lesser extent in African countries (Mutula 2002, Netchaeva 2002, UN 2002, UN 2001, World Bank 2003). Likewise, many scholars have taken keen interest in e-Government services implementation as a research area particularly in Western countries and to some extent in Asia and

South America. These researchers have come up with findings or models that indicate the various stages of implementing e-Government services using specified criteria (Holliday 2002, Layne and Lee 2001, Netchaeva 2002, UN 2002, UN 2001). Similar empirical studies in Africa as a whole and specifically in East Africa are almost negligible despite a couple of emerging e-Government services (Netchaeva 2002, UN 2001, World Bank 2003). This study, therefore, attempts to fill this gap and aims to examine the status of implementing e-Government services in East Africa through a content analysis of government websites of three countries, namely, Kenya, Tanzania and Uganda. Since creation of a government website is considered the first stage toward full implementation of e-Government services, it is possible to determine the latter by analysing the status of the former. In determining the status, the study uses website visibility test and usability attributes in connection with the e-Government growth model.

## 2. Background

### 2.1 Which services?

There are various services that different governments are using to reach their users<sup>1</sup> electronically depending on the level or stage of e-Government development and the users' needs. However, the basic service is dissemination of information about structures and functions of particular government agencies. Mutula (2001) elaborates this to include local political information, unit lists, official reports and speeches, tenders and draft bills. Silcock (2001) reports findings of a survey on user needs of e-Government services in the UK to include "National Health Service hospitals (non-emergencies), social services, doctor's surgeries, local councils and the Passport Agency public services". (p. 92).

Silcock further notes that one of the major potential areas of e-Government services is that it can facilitate democratic activities ('e-democracy') such as online voting, campaigning and fund raising, voter

registration, opinion polling, representative-voter communication and public feedback. In connection to that, Netchaeva (2002) notes that Singapore developed a government portal, 'e-Citizen', to maximize use of e-Government to enhance people's participation in democracy. Accordingly, this also led this country to be the first nation in the world to conduct population census online. In addition, Netchaeva reports that in many other countries, including the United States, studies have shown that people would like e-Government services to help with: renewing driver's license, filing government tax, filing complaints, ordering government publications, searching reservations and parking information. Mutula (2002) suggests that in Africa people might be interested in information related to health, agriculture, small businesses, job opportunities, sources of credit and education destinations, among others.

### 2.2 Potential benefits associated with e-Government implementation

Several benefits are presumed to be associated with e-Government services which basically translate to provision of direct services to users instead of/or in addition to traditional flow of paper work between the government and its citizens (Ho 2002, Netchaeva 2002, Silcock 2001, Whitson and Davis 2001, UN 2002, UN 2001). The benefits include savings in terms of money and time. A fully-fledged e-Government service is expected to provide users with 'one-stop shopping' (Ho 2002, Fagan and Fagan 2001) to access and transact the information they need via a government website that is tailored to provide information irrespective of the various functional units of that particular government agency. This saves time for both parties involved, (i.e. the government and the users). Whitson and Davis (2001), enumerate costs and benefits associated with implementation of e-Government services by the Department of Energy's (DOE) Office of Scientific and Technological information (OSTI):

*Costs of transitioning to an e-Government were also absorbed by redirecting resources to focus on the new way of doing business. OSTI's appropriations budget*

<sup>1</sup> In this study, the terms 'users', 'citizens', 'people', 'customers' and 'public' are used interchangeably.

*to support DOE's scientific and technical information activities was \$15M in 1995. In FY-2000, OSTI's budget was \$8.6M, fully allocated to the development, maintenance, and administration of collaborative ventures, networks, systems and tools that support the collection, organization, and delivery of useful and useable electronic information.... Data from 1995 indicates that 808,500 customer transactions were served as the transition to electronic dissemination was underway. With an investment of \$15 million, the cost per customer transaction was \$18.55. In 2000, 3.4 million customer transactions were accommodated electronically at a cost of 8.6 million, for a cost per customer transaction of \$2.59..." (p.87).*

Whitson and Davis also argue that successful implementation of e-Government services affects the way the government agencies measure their transaction with users. They do so by focusing users as key to the transaction process. The main issue here is that e-Government services are affecting how the public sector provides services to the public by shifting from system-oriented to user-oriented focus.

Improvement of government accountability is another benefit that many observers have associated with e-Government services (Netchaeva 2002, Silcock 2001, Whitson and Davis 2001, etc). This is basically related to the above-mentioned benefits of cost-saving since the government uses less taxpayer money to provide more services that give results within a shorter period of time than did traditional processes. Certainly, these benefits can apply to different government environments and this study explores whether the emerging e-Government services in East Africa bear indications of benefiting the intended users via one-stop 'shopping'.

Many observers have also noted a trend toward more partnership among governments, users and the private sector

agencies because of implementing e-Government services (Allen et al. 2001, Ho 2002, Holliday 2002, La Porte et al. 2002, UN 2001). This partnership has led to the emergence of internal and external networks that are beneficial to all parties involved. The private sector is exerting pressure on the government agencies to improve efficiency while the governments are creating a spillover effect (acting as role models) to small businesses to improve efficiency by adopting e-commerce strategies.

### **2.3 Implementation strategies and associated challenges**

One of key prerequisites for implementing e-Government services is to have the necessary infrastructure in place, such as include computer hardware and software, together with reliable telecommunications services for connectivity. To ensure users' easy access to government information online, availability of the infrastructure should be coupled with availability of human resources with necessary skills to collect and organize information. All these require political will and adequate commitments from top government officials for successful e-Government implementation<sup>2</sup>. That brings us to barriers and challenges of e-Government implementation that need to be addressed if governments are to realize the potential of e-Government services. One of the fundamental issues associated with barriers is the question of access to e-Government services, that is the whole concept of digital divide: the gap between those with full access to electronic information and those without it due to such factors as socio-economic conditions, language barriers, physical situations, age, education, and so on (see Hargittai 2002, Holderness 1998, Miller 2001, Netchaeva 2002, Nanthikesan 2001,

<sup>2</sup> Silcock (2001) underlines the importance of these elements operating together: "Even though most of the excitement centres upon the Internet, governments must be aware that e-Government affects every aspect of how organisation delivers service to the public. It is not just business processes; it is not just human resources. It is all these areas combined. At the centre of it all is the customer. How well governments grasp the integration of all the components will largely determine how much value e-Government can bring to citizens and to governments themselves. Governments will need committed leadership...and a clear strategy for overcoming the barriers to change... (p.88).

Norris 2001, NTIA 2001, Sagasti 2001). These are the real challenges to governments because establishment of e-Government services is one issue but access to those services by the intended citizens is another issue altogether, and the former can be easier than the latter.

Such barriers tend to be more pronounced in developing countries, especially Africa (Adam 1996, ECA 2003, Mutula 2002, Mutula and Ahmadi 2000, UN 2002, UN 2001). In reviewing the contribution of Africa to the global Internet content, Mutula (2002) itemizes the following problems that face African countries in creating and accessing such content: Disparity in infrastructure development between urban and rural areas (the former being favoured) and associated poor power and telephone supplies; English dominated content which is only understood by a minority elite; generally low literacy levels of the population and uncoordinated e-Government activities. All these exacerbate the digital divide problem both nationally and internationally. In East Africa, for instance, out of a total population of about 91 million, only about 1 million people have access to the Internet (see Table 1). Likewise, the number of telephone lines per 100 people (teledensity) shown in Table 1 signifies the magnitude of existing digital divide. This implies that the people with telephone lines represent 1%, 0.5% and 0.3% of the population in Kenya, Tanzania and Uganda respectively. Moreover, these services are concentrated in urban areas; for example, Kenya has the teledensity of 0.16 in rural areas and four in urban area while in Tanzania 50% of telephone lines in the country are in the capital city <sup>3</sup> where less than 3% of the population lives. There is, however, some hope and corresponding potential for the Internet access from the mobile phone services whose teledensity – though showing similar bleak trend of the digital divide – is about twice as much as that of the fixed phones in East Africa.

It is thus widely accepted that implementation of e-Government services should go hand in hand with strategies to narrow the digital divide. According to Silcock, “One of the fundamental

differences between e-Government and e-business is that whereas business can, by and large, choose their customers, government cannot. For e-Government to succeed fully, the dream of Internet access for all has to become a reality” (p.94). Discussion on strategies to narrow the digital divide is beyond the scope of this study but several other authors have addressed them (e.g. Fagan and Fagan 2001, Holderness 1998, Mansell and Wehn 1998, Miller 2001, Nanthikesan 2001, Sagasti 2001).

The issue of political will is also important here because it reflects the government's willingness to embrace e-Government services, and commit financial, human and physical resources to establish and maintain the websites; all of these will reflect the quality of government's websites. In essence, the present content analysis study can also be considered as a website quality assessment. Allen et al (2001) note that governments should create suitable environments for e-Government services: “The rise of e-Government refers to the new patterns of decision-making, power sharing and coordination – made possible, or even necessary by the advent of IT” (p.94). They caution that implementation of e-Government services might face internal resistance from government leaders who would not like the organizational change from vertical to horizontal coordination characterized by new partnerships of sharing of government information delivery services.

## 2.4 Stages of e-Government Implementation

Various authors have described four to six stages of e-Government implementation (Layne and Lee 2001, Netchaeva 2002, Silcock 2001, UN 2002, UN 2001) but all of them show the development of e-Government services as an evolutionary process. For example, Silcock (2001) describes six stages which she characterises as dynamic; these include: information publishing/dissemination; official two-way transaction; multi-purpose portals; portal personalisation; clustering of common services; and full integration and enterprise transformation. Netchaeva (2002) describes more or less similar stages without giving them specific terms but she condenses them to five stages,

<sup>3</sup> See [http://www.africaone.com/English/about/fact\\_sheet\\_indicators.cfm](http://www.africaone.com/English/about/fact_sheet_indicators.cfm) & <http://www.ifla.org>

whereas the UN (2002) categorizes five stages as emerging; enhanced; interactive; transactional; and seamless (fully integrated). Layne and Lee (2001) propose a four-stage growth model for e-Government development: cataloguing; transaction; vertical integration; and horizontal integration.

The above models can be summarized into four main stages, starting from simple to sophisticated and interactive websites:

#### *2.4.1 Website creation*

This involves setting up of websites to provide information about structure, functions and services of a government agency information publishing and dissemination). At this stage, there might be links to related websites.

#### *2.4.2 Initial two-way interaction*

At this stage, the website also includes downloadable forms that can be submitted offline and there can be a two-way interaction between government officials and users via e-mail.

#### *2.4.3 Online transactions*

At this stage, the website supports some formal online transactions; these can be payments or creating and submitting information such as renewing driving license and filing tax returns.

#### *2.4.4 Comprehensive government portals*

This stage exhibits availability of comprehensive government portals that can provide a wide range of information to users and supports one-stop transactions without the need for dealing directly with different agencies. The sophistication of the web design includes improved gateway points coupled with security/privacy/confidentiality features.

The present study helps to ascertain which stage(s) the three East African countries fall into in implementing e-Government services.

### **2.5 Assessing implementation status**

The concept and implementation of e-Government services have become a recent addition to numerous challenges

facing researchers in this area. Specifically, a number of scholars have conducted studies to assess implementation status, the quality of e-Government services, and to some extent the impact of e-Government implementation (Ho 2002, Holliday 2002, Kaylor et al 2001, Salem 2003, UN 2002, Whitson and Davis). For instance, the 'cost-benefit' assessment of DOE's e-Government services has already been mentioned (Whitson and Davis 2001). Some of the studies have involved content analysis of government websites or a combination of methods to determine the quality and stages of e-Government implementation (Ho 2001, Holliday 2002).

The United Nations' Division for Public Economics and Public Administration has developed the E-Government Index which is an indicator of the progress the UN member countries have made in implementing e-Government services. To come up with E-Government Index, several parameters and factors are taken into consideration. These include web presence measure (indicating stages of government websites), telecommunication infrastructure measures which define the capacity of a country's ICTs (indicators are internet hosts per 10,000 people, percentage of a nation's population online, and PCs-, telephone lines-, mobile phones-, and televisions per 100 people); human capital measure (using the UNDP Human Development Index, the Information Access Index, and urban/rural population ratio as indicators). According to 2001 survey results (UN 2002), Kenya, Tanzania and Uganda scored the E-Government indexes of 0.90, 0.84 and 0.42 respectively. These are considered to have deficient e-Government capacity but are classified as having enhanced web presence (equivalent to stage 2.4.3 above). Top e-Government-environment countries globally are USA, Australia, New Zealand and Singapore with E-Government indexes of 3.11, 2.60, 2.59 and 2.58 respectively. These are classified to have transactional web presence (equivalent to stage 2.4.4. above). The global average E-Government index is 1.62.

La Porte and colleagues (2002) have endeavored to measure the concept of organizational openness as a result of implementing e-Government services. In

doing so, they conducted a cross-national comparison of websites using the Website Attribute Evaluation System (WAES), with such attributes as ownership, contact information, organizational or operational information, freshness and interactivity. Likewise, Holliday (2002) conducted a study to evaluate e-Government implementation progress of 16 states of East and Southeast Asia. He analyzed government homepages and sites by measuring their visibility and utility. Ho (2002) supplemented a survey study with a content analysis of city websites in the United States to determine whether the cities were indeed reinventing their local governments. Kaylor et al (2001) used 'e-scores' to benchmark implementation of e-Government services among various cities in the United States.

The present study adapts and integrates some of parameters used by these researchers to assess the status of government websites of East African countries; this helps to determine the stage of e-Government implementation of these countries based on the above four-stage model.

### 3. Study area

This study covered government websites of three East African countries, namely Kenya, Tanzania and Uganda. Geographically, these countries are located in eastern Africa and share common borders and Lake Victoria. They also border Ethiopia and Sudan to the north; Congo DP, Burundi and Rwanda to the west; Zambia, Malawi and Mozambique to the south; and Somalia

and the Indian Ocean to the east. As well as their common borders, these three countries share common historical and cultural characteristics; and they have established a regional body, the East African Community, (EAC See <http://www.eacq.org/>) to facilitate their integration. Okello (1999) summarises the common characteristics:

*Given East Africa's common history (the three countries were colonized and got independence about the same time); common cultural practices; the existence of widely spoken languages (English and Kiswahili); the close economic interdependence (consisting of infrastructural linkages and intense trade); the political and social foundations for integration are strongly present (p.3).*

The 2000-2005 development strategy (See EAC Development Strategy 2001–2005 at [http://www.eacq.org/Dev\\_Strategy/Development\\_Stra.htm](http://www.eacq.org/Dev_Strategy/Development_Stra.htm)) of EAC recognizes the role of information and ICTs in facilitating the process of regional integration. That implies that they recognise the importance and benefits associated with e-Government implementation.

Some basic physical, social and economic characteristics of these countries are shown in Table 1.

**Table 1:** Basic characteristics of East African countries

		Kenya	Tanzania	Uganda
Size (sq. km[miles])		582,646 [224,961]	945,087 [364,900]	236,040 [91,136]
Population		31,138,735 (02 est.)	34,569,232 (02 Census)	24,748,977 (02 Census)
Independence year		1963	1961	1962
Languages	National	Swahili	Swahili	English
	Official	English	Swahili & English	English
% GDP contrib. by sector (02 est.)	Agric	24	48	44
	Industry	13	17	18
	Service	63	35	38
GDP growth rate (2001 est.)		1%	5%	5.1%
GDP per capita (US\$)		1,000	610	1200
Literacy rate (2001 est.)		83.3%	76%	68%
Life expec. at birth yrs)		45.22	44.56	44.88
Human dev. Index		0.489	0.400	0.489
E-govt Index		0.90	0.84	0.42

		Kenya	Tanzania	Uganda
Internet users (2002 est.)		500,000	300,000	60,000
Teledensity	Fixed lines	1.03	0.46	0.26
	Mobile	1.90	1.30	1.20

Sources: CIA World Yearbook (2002), UN (2002), UNDP (2001, 2003), UNECA(See [http://www.uneca.org/aisi/nici/country\\_profiles/default.htm](http://www.uneca.org/aisi/nici/country_profiles/default.htm)), The Times Atlas of the World.

#### 4. Analysis of websites

Analysis of government websites was conducted between May 10 and May 31, 2003. The study focused on the websites of central governments only; that is the government ministries headed by cabinet ministers and their direct agencies, bodies or departments, as well foreign missions of these countries (all these hereafter referred to as government agencies); as such, local government units are not included<sup>4</sup>. First, it was necessary to establish whether government websites of the three countries exist. This was done by assessing their visibility (important initial indicator of e-Government implementation) and then conducting the content analysis to assess their status in terms of their level of development (stage) using usability attributes. I consider usability as a website's quality or the ease with which the users can use it.

Hence, the study assessed each of the identified websites by employing a combination of selected attributes from WAES (adapted from La Porte et al (2002) and utility indicators (adapted from Holliday (2002)). Additionally, dates of establishment of the websites were recorded together with languages used other than English; the latter attribute was categorised as a utility indicator. All the selected attributes, together with the names of government agencies and their website addresses, were recorded and compiled in tabular forms and the results were drawn by simple descriptive statistics. The attributes are described below as well as the results and implications:

<sup>4</sup> Although local government agencies provide such services as business licenses in their localities, major services that can be provided online such as issuance of passports and visa are provided by central government agencies in East Africa.

#### 4.1 Website visibility

Using Holliday's (2002) approach to assess the visibility of the website, the Internet was searched using three of powerful search engines - Google, MSN and Yahoo! - by typing separately 'Kenya Government', 'Tanzania Government' and 'Uganda Government'. It was expected that early appearance of a government website, that is if it appeared within first 10 hits of the results, would confirm its visibility. Moreover, subsequent hits were taken note of for further observations if need be.

Table 2 shows the results of the website visibility test which range from 27% to 40%. The average for three countries is 32%. These results fall more or less within the same range that Holliday found in East and Southeastern Asian countries and considered them as under performers in terms of visibility. However, these results led the study researcher to official national websites that provided links to most of other websites. For example, the visibility of Kenyan websites using MSN search engine was only 10% but the only hit was the national official website that provided links to most of the ministries' websites. In information retrieval terms, this particular outcome had a high precision.

**Table 2:** Appearance (%) of government websites of East African countries in 1-10 hits of three search engines

	Kenya	Tanzania	Uganda	EA Average
Google	30	20	30	27
MSN	10	70	20	33
Yahoo!	40	30	40	37
Average	27	40	30	32

There are also notable extreme results of web visibility between countries within the same search engines; for instance, the MSN gave 10% for Kenya and 70% for Tanzania. It seems the Tanzania's websites are configured to be visible although the results were not as attractive with Google. This might be a subject of further debate and study.

Further searching and analysis led to identification of 98 government websites including 33 for Kenya, 37 for Tanzania and 28 for Uganda. Each country has an official national website<sup>5</sup> that provides comprehensive government information to a wide audience together with links to its ministries that have websites and full addresses to those with or without websites. One can argue that these websites have indications of becoming one-stop shopping gateways for government information delivery and access (e.g. the Tanzanian national website has links to government tender documents that can be downloaded by prospective bidders).

Nineteen Kenyan ministries out of 20 (95%) have websites while 20 of 21 (95%) Tanzanian ministries, and 14 out of 16 (88%) Ugandan ministries have websites; this also implies a promising trend of e-Government presence in these countries. However, this trend does not correspond to these countries' embassies abroad. Out of 39 Kenyan embassies identified only five (13%) have websites. Likewise, out of 28 Tanzanian embassies identified, only seven (25%) have websites, whereas five (24%) out of 21 identified Ugandan embassies have websites. This is also an interesting trend which signifies that the embassies and their governments at home have either different or no policies in relation to implementation of e-Government services. This will be further explored in a subsequent study. It was also necessary to conduct further searches to identify more embassy websites (of 17 embassy websites identified, only 8 were linked to relevant government websites back home). In that case, the Internet sources such as 'Governments on the www'<sup>6</sup> were useful tools in assisting the study researcher to trace 'invisible' websites.

## 4.2 Website Establishment Date

The establishment date is an important parameter of a website as it helps us derive the extent of learning experience of the website owners (Ho 2002). As the website owners gain more experience in maintaining the website, they tend to

incorporate more information for the users and the websites become more and more sophisticated and interactive (higher stages of development) with corresponding e-Government services. Moreover, capturing establishment dates will give us a pattern of growth in implementing e-Government services over time. Most websites give this date with the copyright information. For the present study, where this information was not available or it was not clear, the information was searched from the Internet Archives' 'Wayback Machine'(See <http://web.archive.org/>),<sup>7</sup>.

The numbers of new websites and corresponding years of establishment are shown in Table 3. It is clear from the table that there is a general increase in the number of websites from the first year of their establishment, that is, from three websites in 1998 (all of them from embassies) to 31 websites in 2001 and 28 websites in 2003. However, there was also a sharp decline in the number of new government websites in East Africa, from 31 in 2001 to 7 in 2002. This might be due to a consolidation period after a massive establishment of the government websites in 2000-2001 (new millennium) when a total of 50 websites were established, especially in Tanzania and Uganda (only 2 were established in Kenya during that period).

A sharp increase from seven new websites in 2002 to 28 (24 of them from Kenya) in 2003 might be due to recent government leadership changes in Kenya. This will further be examined in a subsequent study by this author. It is also interesting to note that when the UN (2002) assessed the current e-Government indexes in 2001 (see also Table 1), Kenya had four government websites while Tanzania and Uganda had 28 and 24 government websites respectively. This implies that the UN measures the potential rather than real e-Government presence, owing to Kenya's relatively well-established telecommunication system, higher literacy, with corresponding human development index (see Table 1). However, a study by McConnell International (See McConnell International's summary report on e-readiness at

<sup>5</sup> See <http://www.kenya.go.ke/> (Kenya);  
<http://www.tanzania.go.tz/> (Tanzania);  
<http://www.government.go.ug> (Uganda).

<sup>6</sup> See <http://www.gksoft.com/govt/>

<sup>7</sup> I would like to thank Christine Borgman for drawing my attention to this important tool.

[http://www1.worldbank.org/publicsector/egov/docktor\\_mcconnell.pdf](http://www1.worldbank.org/publicsector/egov/docktor_mcconnell.pdf)) to assess 'e-readiness' of 53 countries worldwide places the assessed countries into four categories from low e-readiness in the first inner tier to high e-readiness in the fourth-outer tier. Kenya is placed in the first tier, Tanzania in the third tier, while Uganda

was not included in that assessment. Various assessment methodologies and criteria can thus produce different results. The results further show that there is still a very low rate of establishing new websites by missions representing the East African countries abroad. This will also be examined further in a subsequent survey.

**Table 3:** Number of government websites of East African countries established each year from 1998 to 2003

Website Establ. Year	Kenya		Tanzania		Uganda		East Africa		Total
	Min	Emb	Min	Emb	Min	Emb	Min	Emb	All
1998	-	1	-	1	1	-	-	3	3
1999	-	1	1	1	-	-	1	2	3
2000	-	-	9	-	9	1	18	1	19
2001	1	1	14	2	11	2	26	5	31
2002	3	-	2	1	1	-	6	1	7
2003	24	-	1	2	1	-	26	2	28
Not avail.	-	2	2	-	2	1	4	3	7

(Min = Government ministry or department; Emb= Embassy; Not avail. =establishment date not available)

### 4.3 Website ownership

It is important to take note of the website's owner as it reflects the seriousness with which the government agency takes in implementing e-Government services. La Porte et al. (2002) note:

*The aim is to ascertain if the agency itself is tailoring the material for the site or has shunted these content decisions to someone else...Agencies that own their own Web operations are more likely to consider it a key part of their organizations compared with those that leave the development of their Web site to others". (p.415)*

The ownership data was captured from the copyright information given on the homepages of the websites. These were matched with the names of the government agencies under observation.

Results of the analysis show that the respective government agencies own the majority of websites. However, the ownership of 10 websites (1 Kenya, 9 Uganda) was not established from content analysis, while seven websites (2 Tanzania and 5 Ugandan) were designed and maintained by private companies. The study researcher also noted that several embassies representing their countries in

Japan, including the Kenyan and Tanzanian embassies and even some few developed countries have subverted their websites to a company called KCOM Corporation under the Embassy Avenue<sup>8</sup> program.

Although this study did not establish the terms and conditions attached to this program, it generally shows embassies are surrendering control of their websites to this body.

### 4.4 Website freshness

Like ownership, assessment of the website's freshness gives a general picture of how serious a government agency considers e-Government services by committing necessary resources for costly updating of the website (La Porte et al. 2002). In this study, the date of last update of each website was captured from both the website and the Internet Archives. The websites that were updated more than 12 months ago were considered to contain outdated information and are thus slow in achieving full e-Government service delivery and access.

The results show that the majority of the websites were established between 2000 and 2003; as such, they seem to be pretty fresh. However, others have not been

<sup>8</sup> See <http://www.embassy-avenue.jp/index-e.htm>

updated since their establishment. Thus, if we set aside 35 websites that were established in 2002/3 (27 Kenya, 6 Tanzania and 2 Uganda), 22 websites (2 Kenya, 15 Tanzania, 5 Uganda) have not been updated since 2001. For Tanzania, the figure represents nearly 40% of the websites and this signifies poor performance in delivering e-Government services especially at this initial stage of implementation. Overall, however, the freshness of the East African government websites is an encouraging step towards full e-Government implementation.

## 4.5 Website usability

### 4.5.1 Important links

A website providing links to relevant bodies within and outside the government system is considered user-friendly since the user just clicks to that link to access needed information instead of conducting a new search. The more user-friendly and usable the government website the more the country it represents is heading towards full implementation of e-Government services (Fagan and Fagan 2001, Silcock 2001). Thus, in this study, after recording the appearance of the website the study researcher took note of the links to other relevant government websites and sources of information.

All of the websites have important links ranging from the official national websites to the multiplicity of links to various government and international institutions. The national official websites were particularly instrumental in providing links to government agencies that constitute the majority of the websites analyzed. They also provided links or contact information for their embassies abroad. However, as noted under Item 4.1 above, only eight of 17 embassies representing the East African countries had their websites linked to their home country government websites. These were only identified after further searching.

### 4.5.2 Contact information

Contact information is an important attribute of a website important because it enables users to contact relevant officials in relation to that website's content or any other queries. The information captured includes contact email address to the webmasters and, more importantly, names

and full addresses (postal, telephone, fax, e-mail) of relevant government officials.

With the exception of 7 websites (3 Kenya, 4 Tanzania) with unclear or no contact information, the majority of the websites analyzed have some form of contact information including postal address, phone and fax numbers, e-mail addresses, as well as names of senior officials. However, during the study period, only six websites (3 Tanzania, 3 Uganda) had clickable e-mail addresses to their webmasters. This implies lack of permanent staff for day-to-day maintenance of the websites. It could also mean that they just do not want to deal with a lot of e-mail.

### 4.5.3 Interactivity

Website interactivity signifies the level of two-way communication between a government agency and users. Interactivity attributes captured from websites under analysis include hot-linking addresses for easy contact; provision for user searching, downloadable materials or forms; and feedback e.g. feedback forms or provision for electronic submission of downloadable material. Government websites with these attributes indicate a country is heading towards full implementation of e-Government services and is evolving into advanced stages of e-Government development (see items 2.4 and 2.5 above).

The results of analysis show varying levels of interactivity among the identified websites and among the three countries (Table 4). Generally, Tanzania and Ugandan websites have outperformed Kenyan websites in interactivity with their users. This is probably because most of the Kenyan websites were just established in 2003 while the Tanzanian and Ugandan ones have undergone a longer period of 'learning curve experience' (Ho 2002). Ugandan websites have especially attractive user interactivity features like clickable hotlinks "ask the president", "ask us", provision for user searching, feedback forms and FAQs. All these features are crucial means of communication between governments and their users and they imply a promising e-Government presence (Fagan and Fagan 2001, La Porte et al 2002, UN 2002).

Downloadable materials observed in the study that were at the users' disposal include: forms for visa, passport and license applications; tender bidding documents; various government publications; forms for student and nationals registration abroad; and so on. These are basic e-Government services that these countries offer in addition to general dissemination of information about government agencies that own the websites. However, these forms are to be submitted off-line with the exception of one website (the Tanzanian Embassy in Bonn) which has a provision for online submission of student registration form. These features correspond with stage two of e-Government growth model.

**Table 4:** Number of government websites in East Africa that exhibit user interactivity features

Interactivity feature	Kenya	Tanzania	Uganda
Hot-linking contact	7	21	17
User searching features	0	4	11
Downloadable forms/materials	4	15	14
Feedback features	6	4	10
Online submission of downloadable forms/materials	0	1	0
Total	17	45	50

#### 4.5.4 Language(s) used

The question that especially interested the study researcher is: 'does the language used represent the languages used in the websites represent the languages understood by the population that the website intends to address?' Mutula (2002) observes that the general insignificance of the contribution by African countries to online content is the use of the language that represents only the minority of the population<sup>9</sup>. For East African countries, English is an official

<sup>9</sup> According to Mutula, "The continent's proportion of web content was estimated in 2001 to be 0.04% of the global web content. ... This situation is exacerbated by the fact that Africa's content on the web is largely in the English language, which is spoken by mostly the educated elite. The lack of local content in a widely spoken and understood language reduces the demand for Internet use in Africa" (p. 35).

language in government and commercial transactions. However, it is only spoken and read by about 3-9% of the population (Crystal 1995)<sup>10</sup>. Swahili is a national language in Kenya and Tanzania (it is also an official language along with English in Tanzania) and is somewhat spoken and read in Uganda. Baganda is another major language in Uganda spoken by 16% of the population. The website analysis checked whether the website contents of these governments contain languages read (since the Internet is also textual) other than English. This will signify governments' intentions of reaching most users through the Internet.

From the results, almost the whole content of the East African websites is in English. Only the national website of Tanzania has a Swahili version and the users can choose between the two languages. Likewise, the non-English-speaking missions abroad have their websites in English and the languages of host countries (i.e. Chinese, French, German, Italian and Japanese). Two Ugandan websites have their contents solely in German. One Kenyan website provides a link to one website with the Swahili instructional materials. Eight Tanzanian websites have links to various publications and speeches in Swahili and one in Uganda has publications in tribal languages. This seems to be a good start. However, it is generally hard to draw concrete conclusion and implications relating to the language issue before we take stock of the users and problems of digital divide. Nevertheless, we know that the first potential users of e-Government services are current Internet users (Silcock 2001). In East Africa, these represent a very small fraction of the populations of these countries (see Table 1). Thus the question is: is the language of the website content going to alter this fraction of the users?

#### 4.6 Other information

A look at the contents of the websites analysed revealed they basically focus on describing the mission, functions, structures and leaders of government agencies. They are also geared towards promoting these countries to foreign investors and tourists.

<sup>10</sup> See also SIL International. Ethnologue: languages of the world <http://www.ethnologue.com/web.asp>.

#### 4.7 A note on statistical analysis

An attempt to subject the data to tests of statistical significance could not yield satisfactorily meaningful results because most of the tables - even after collapsing the data - had cells of expected counts of less than five. Therefore, the preceding interpretation of results is based on descriptive statistics and raw observations (tables 2-4).

### 5. Conclusions and future research

This study has sought to examine the status of e-Government services in East Africa through content analysis of government websites. Specifically, the study has conducted visibility and usability tests of these websites and analyzed their establishment dates and other parameters. The attributes used to assess the websites include: visibility, establishment date ownership and freshness (up-to-datedness). Usability attributes include important links, contact information, interactivity and languages used. Interactivity attributes are extremely useful in determining the migration of a country towards e-Government implementation and have a bearing on assessing the country's stage in e-Government service development. These include features for hot-linking to enhance easy contacts to the government, user searching, downloadable material, general feedback and FAQs.

The study has identified a total of 98 government websites<sup>11</sup> in East Africa and there is a general trend of increase in the number of and improvement of the websites judging from the analyzed attributes. For instance, each country has an official national website that provides comprehensive government information to a wide audience together with links to its ministries and other sources of information (this feature tended to offset their relatively low visibility of 27-40%). The national official websites bear necessary indications of becoming one-stop shopping gateways for government information delivery and access. Furthermore, almost all government ministries (95% Kenya and Tanzania, and 88% Uganda) have websites owned by government

departments; this also signifies a promising trend of e-Government presence in these countries (most of them were established in 2000-2003). However, this trend is not reflected in these countries' missions and embassies abroad and there is a need to improve coordination between the two sides.

Taking into account all the attributes assessed we can conclude that the three countries' websites are generally in the second stage of the e-Government development model. This corresponds well with the UN's assessment of these countries as having 'enhanced' web presence for e-Government services (UN 2002). However, in considering the interactivity attributes alone in this study, the Kenyan websites gave the lowest score of 17 while Tanzania scored 45 and Uganda 52. Despite this observation, Kenya scored the highest on the e-Government index by the UN due to this country's relatively well-developed telecommunications infrastructure and stronger human resource capital in comparison with Tanzania and Uganda.

On the language question, and from the results, almost the entire content of East African websites is in English. However, it is generally hard to draw concrete conclusions and implications relating to this issue before the e-Government user study is conducted in these countries. However, one thing is certain: the future of successful implementation of e-Government services in East Africa and other countries is linked to the intended users' universal access to the Internet.

This study bears both practical and theoretical implications relating to implementation of e-Government services in East Africa and other regions. Other researchers can easily use the attributes used to assess the websites in this study for similar studies. As such, this study contributes toward a more standardized methodology of assessing government websites and thus avoiding conflicting conclusions. Additionally, these attributes can serve as indicators for governments to strive toward advanced stages of e-Government implementation.

The study has also shed light on potential topics of future studies in this and other regions: Firstly, the need to study user

<sup>11</sup> A full list of assessed websites is available on request.

composition of e-Government services and the types of e-Government services they require. This will also address the issue of language. Secondly, there is a need to study insights of policies that govern implementation of e-Government services. The issue specific to this region is why the foreign missions of these three countries were the first adopters of e-Government services while they are now lagging behind home government agencies. In addition, the reason why, on the overall, Tanzania and Uganda started implementation relatively earlier than Kenya while the latter has relatively better-developed infrastructure and human resources than the former two. Thirdly, there is a need for conducting more visibility studies to compare various search engines and more countries. Finally, there is a need to extend this study to cover more countries and regions and to give a deeper analysis of the attributes considered in this study.

## 6. Acknowledgments

The author wishes to thank Ariann Stern, Nancy Hunt-Coffey and two anonymous reviewers for their insightful comments; the author's dissertation committee members, participants at the PhD Seminar 299M (under Barbara Lawrence), and Ping Wang for their suggestions during conceptualization of this study; Tunu Ramadhani for her advice on statistical analysis; and Roselle Lee for assisting to search 'invisible' websites. Also, to the participants of the International E-Services (Pittsburgh, PA) and Marijn Janssen for their helpful suggestions. The author did this study while pursuing a PhD program at UCLA under the World Bank-supported TARP II fellowship.

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