Usability of Government Websites in Uganda

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Abstract: Government websites offer great benefits to citizens and governments. Such benefits, however, cannot be realized if websites are unusable. This study investigates usability of government websites in Uganda. Using the feature investigation method, the study evaluated four Ugandan government websites according to three perspectives. Results show that websites are partially usable in the design layout and navigation perspectives but are rather weak in stating legal policies. Evaluation results provide the Ugandan government with a clear picture of what needs to be improved according to international website design standards. Moreover, the parsimonious evaluation framework proposed in the research is useful for any country that wants to do a quick and easy evaluation of their government websites.

Keywords: e-government, web usability, Uganda, feature inspection method

1. Background

The increasing use of information and communication technology (ICT) in particular the Internet has become prominent and has the potential to change fundamentally how organizations work (La Porte et al., 2001). Internet provides an opportunity for governments to offer services to their citizens via websites. Government websites provide a platform for efficient communication and access to public information. They are a useful tool to transparency and democracy because they enable citizens to easily interact with their governments. E-government is defined as "the use of information technology (IT) by public sector organizations" (Heeks, 2006 p.4) and it involves provision of electronic services such as eProcurement, ePetitioning and eVoting.

Implementation of government websites can be classified into four phases, namely: (1) website creation, (2) initial two-way interaction, (3) online transactions and (4) comprehensive government portals (Kaaya, 2004). The first phase involves development of government websites to provide information to citizens. The second phase focuses on building a platform for interaction between citizens and the government. Tools such as electronic submission forms and discussion forums are created at this phase. The third phase aims at creating web tools for facilitating transactions of government services, such as electronic procurement. The last phase involves integration of government systems to share resources. Usability issues of government websites are particularly relevant to phases one and two of the implementation of government websites.

According to International Organization for Standards (ISO), usability is the extent to which a product, for example software or a website, can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use (ISO, 1998). Website usability or web usability is vital to both private and public organizations because unusable website reduce the effectiveness of communication between users and the organizations. Web usability generally means that websites are clear, simple, consistent and easy for users to use (Cappel & Huang, 2007).

Despite the importance of government websites in government-citizen relationship, many government websites are seldom used, especially not by people with disabilities (Ivory & Chevalier, 2002). For example, Abanumy et al. (2005) show that 98 percent of eGovernment websites worldwide are inaccessible by impaired users. Similarly, Baguma et al. (2007) show that most websites today are three times more used by people without disabilities than those with disabilities. Because accessibility is an element of web usability (Henry, 2002), accessibility problem of government websites therefore reduce their usability and this in turn hampers the role government websites would play in delivering services to citizens.

To date, only limited studies have examined the issue of e-government in developing countries such as Africa (Abdulmohsen et al.; 2005; Heeks, 2002; Schuppan, 2009). Heeks (2002) is one of the exceptions and discussed the development of e-government in Africa in relation to the specific

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economical and administrative characteristics of the continent. This study investigates usability aspects of government websites in Uganda, which is situated in East Africa.

2. Research question and contribution

Because of the current low level of usage of government websites and yet potential benefits of the websites in enhancing government-citizen communications especially for developing countries or countries with a large and dispersed population, this research proposes and applies a parsimonious framework of 14 website usability measures. It emphasizes evaluation of selected important websites in one of the developing countries in Africa - Uganda. The research question of this study is: how usable are government websites in Uganda? The focus of evaluation is on the following aspects:

- Design layout of websites
- Navigation of websites
- Legal policies of websites

The contribution of this research is three-fold. First, the thorough yet simple analysis of selected government websites provides the Ugandan government a clear picture of what needs to be improved according to international website design standards. This is different from studies that use automatic tools and provide only general evaluation results with no specific guideline for improvement. Besides, a full version of automatic tools probably is too expensive and hence impractical for governments of development countries.

Second, the parsimonious evaluation framework proposed in the research is useful to any researchers or governments who want to do a quick and easy evaluation of government websites. Evaluation results based on the framework are also easier for government officials to understand.

Third, the research adopted a selected websites approach which represents a middle ground of current research approaches of government websites. At one end of the government website evaluation continuum, some researchers use only one national portal to represent a certain country (Holzer & Kim, 2003; Melitski et al., 2005). While national portals certainly are important in government-citizen communication and are reasonable proxies of the e-government development in different countries, the problem of such an approach is that web usability typically is not maintained in other government websites (Kaaya, 2004). Therefore, results of these studies could be over-optimistic. At the other end of the continuum, some researchers tried to cover as many government websites as possible (Parajuli, 2007). With the fast changing nature of government politics as well as government websites, the full-blown evaluation approach often is not feasible for developing countries. The proposed middle-ground approach is a better choice for countries such as African countries that lack resources (Heeks, 2002). The approach emphasizes governments prioritize their improvement of specific government websites according to local situations and needs.

3. Web usability

Web accessibility and usability affect effectiveness and efficiency of web usage and improve user satisfaction. Many prior studies focus on accessibility although the two concepts are complementary design philosophies which overlap each other (Alexander, 2006). The primary focus of accessibility is access by people with disabilities while usability focuses on the elements of learnability, memorability, effectiveness, efficiency and satisfaction for all website users (Henry, 2002). Usability aims at satisfying the users - a reason why users' cultural contexts are considered when designing usable websites (Hillier, 2003). All in all "accessibility is a subset of a more general pursuit: usability" (Henry, 2002 p.1) because websites may be technically accessible but hard to use. Since accessibility is a subset of usability, usability represents an important aspect in the development of government websites.

With the rising importance of websites as a communication tool, many studies have been conducted to evaluate the usability of websites of different private and public organizations. For example, analysis results of the website usability of the 500 fastest-growing private companies in the US, the Inc. 500, show that many websites follow only about half of 11 web design measures such as whether text links are underlined or not (Cappel & Huang, 2007).

Website usability has also been a problem for e-government development. Although international guidelines on webpage development are provided by World Wide Web Consortium (W3C, 2009) to

help website administrators develop usable websites, these guidelines are not often followed (Gwardak & Påhlstorp, 2007). For example, Parajuli (2007) evaluated 17 websites of the Nepal government according to four criteria: transparency, interactivity, accessibility, and usability. Results regarding usability show that it was not so easy to navigate or search information on the Nepal government websites because only 35 percent of websites provided a site map and 29 percent provided a search engine.

Prior studies in the area of website evaluation tend to use a long list of measures to evaluate website usability. For example, Stowers (2002) examined 148 federal websites in the US using 5 dimensions of 54 measures. In another study, the portal websites of 84 cities were evaluated based on 92 measures that were classified into five criteria: security and privacy, usability, content of websites, types of online services, and citizen participation. Only cities with an online population of more than 100,000 were included in that study (Holzer & Kim, 2003; Melitski et al., 2005).

Regarding the selection of government websites, most existing studies evaluate the country or city portal to represent the stage of e-government implementation in different countries. Yet few studies examine the other government websites (West, 2008). West (2008) conducted a comprehensive analysis of 1,667 government websites in 198 nations using 18 measures that focus on the amount of information available and the extent of interaction with users, such as website personalization and email updates of information. Results show that there is much room for improvement. North America and Africa ranked the top and the bottom respectively of the list. Africa had an average score of 26 percent. However, Ghana, an African country, was an exception and had a score of 42 percent and was ranked 13th on the country ranking list.

4. Prospects for e-government

The success of modern governments is partially attributed to the use of information and communications technologies for example in crime fighting and cross-agency co-operation. ICT communication tools allow a two-way communication and sharing of information between citizens and the government. The two-way communication model is desirable for governments because it makes "public relations more ethical" (Mackey, 2003) and results in fair practices and policies that are good for the society (Childers, 1989).

Government websites are sometimes even touted as drivers to eDemocracy because they help boost democratic practices such as voting, deliberation or decision-making. These democratic practices are enhanced by providing opportunities for individuals and communities to interact with government as well as the government to seek input from the community (Riley, 2003). Usable government websites promote a bottom-up approach to democracy. This is in contrast to the top-down approach that directs political reforms to citizens but not from citizens (Traunmüller, 2003). A bottom-up approach to democracy involves decisions based on expressions of interests of people. For example, the Inspector General of Government (IGG) website in Uganda promotes a bottom-up approach. This website supports online petitioning and reporting of offences especially on corruption (IGG, 2008). Such an online democratic function cannot be achieved if the website is unusable.

The critical mass theory of interactive media suggests that interactive media such as websites create "universal access through wide spread usage" and involves "interdependence" (Markus, 1987). Experienced users can influence new users to adopt the technology and new users stay connected with the experienced ones through sharing of resources using the adopted technology. Interdependence leads to mass accessibility. However, it is impossible to attain mass accessibility when the technology is not usable. Government websites that are usable can help improve the relationship between government and citizens through communication and sharing of ideas. They also decrease training, support and maintenance costs, increase user satisfaction, improve government services accessibility and enhance productivity. Website features such as privacy policies and user terms and conditions build trust among citizens (Verma & Ornager, 2005).

5. Country profile - Uganda

Uganda is a republic situated in East Africa. It has an estimated population of 32 million (CIA, 2009). The country's adult literacy rate is 66.8 percent (United Nations, 2008). With a tremendous increase in Internet subscriptions over the past 3 years (IWS, 2009), about 6.4 percent of Ugandans are Internet users (Hisali, 2007). Government ministries in Uganda have developed websites since 1998 (Kaaya, 2004). According to the 2008 United Nations E-Government Survey, Uganda has a score of 0.3133 in

an e-government readiness index and was ranked 133th (the average for 192 countries is 0.4514). The index examines the e-government development stage, telecommunication infrastructure, and human capital in each country (United Nations, 2008). In another similar study, Uganda was ranked 155th among 198 countries (West, 2008).

Despite its low ranking in e-government readiness, the number of web users continues to grow in Uganda. Therefore, it is advisable for the Ugandan government to create usable government websites to improve communication with its citizens. Yet few studies to date have examined the usability of government websites in Uganda. Kaaya (2004) compared 98 government websites among three African countries (Kenya, Tanzania, and Uganda) according to five perspectives: website visibility, website establishment date, website ownership, website freshness, and website usability. The results show that all 28 Ugandan government websites provided contact information; 39 percent provide user searching tools; 50 percent provided downloadable materials; but none allowed users to submit materials online. While the study provided useful information regarding usability of government websites in Uganda, it did not provide any specific information that facilitates further action or improvement by the government. In West (2008), Uganda had a reasonable high score in publications (89%) and databases (67%). Its score in the category of security policy was only 11 percent but such result was already much better than many countries that did not have any privacy policy at all.

6. Methodology

The objective of this paper is to examine the usability of government websites in Uganda. The central government of Uganda has three branches namely, legislature, judiciary, and executive. Four ministerial websites within the executive branch of the government of Uganda were examined in-depth from March to April 2009. The four ministries were selected because their focus areas (human development, governance, and security) were prioritized in the 2007/2008 and 2008/2009 budgets of the Ugandan government (Suruma, 2007; 2008). Below are websites for the selected ministries:

- Ministry of Health - http://www.health.go.ug/
- Ministry of Education and Sports - http://www.education.go.ug/
- Ministry of Justice and Constitutional Affairs - http://www.justice.go.ug/
- Ministry of Foreign Affairs - http://www.mofa.go.ug/

We conducted a thorough analysis of all levels of pages linked to the four government websites using the “feature inspection method” (Usabilityhome, 2009). The evaluation was conducted by the first author, who has three years experience as a web designer. There are many other usability evaluation methods such as cognitive walkthrough, heuristic evaluation, pluralistic walkthrough, and perspective-based inspection (Hollingsed & Novick, 2007; Nielsen & Mack, 1994; Verma & Ornager, 2005). The problem of these other evaluation methods is that they require involvement of users or more than one expert (Usabilityhome, 2009). We believe using web usability experts are more practical and the quality of evaluation results is likely to be better than involving random users. We did not use automatic web evaluation tools because these tools focus on accessibility by counting the number of errors. Reports provided by such evaluation tools are too general to be of any specific use to web developers.

In assessing the usability of the four selected websites, we did not count the amount of information or number of services available (West, 2008). Because of the different nature of the government websites, it would be impossible for one to make an apple-to-apple comparison. Instead, three categories of 14 website features were examined, namely: design layout, navigation, and legal policies. The features were adapted from the E-Government Toolkit for Developing Countries (Verma & Ornager, 2005) and Web Content Accessibility Guidelines version two (WCAG 2.0). The e-government toolkit was prepared by National Informatics Centre (NIC) and United Nations Educational, Scientific and Cultural Organization (UNESCO) to guide e-government implementers in developing countries. The WCAG 2.0 standard is a set of guidelines that covers a wide range of recommendations for making web content accessible. It was released in 2008 by Web Accessibility Initiative (World Wide Web Consortium, 2009). Details of each category are given below.

6.1 Design layout

A good government website should have a simple user interface. Design layout for webpages should be consistent so that people find it enjoyable and comfortable to access the desired information

without wasting time. A good color scheme and well-structured design elements make content easy to read. The following visual and communication features were evaluated in this category:

- *Design consistency in webpages:* Webpages of a website should be consistent. For example, the design layout and colors should be the same for all webpages. Consistent design avoids user disorientation. User disorientation causes user frustration and loss of interest (Ahuja & Webste, 2001).
- *Visual design for text (font and color formatting):* Formatting of content such as putting page headings or important text in bold or different colors enhances content readability. It also helps separate different kinds of information such as links and normal webpage text.
- *Feedback/inquiry forms and other interactive tools:* These are tools that support faster and efficient communication between the government and citizens and among citizens themselves.
- *Page content sharing tools:* These are tools that enable users to easily share or obtain content of a webpage as a separate computer file. Examples are print, download/save, fax and email options.
- *Zoom options:* These are tools that allow users to customize content by resizing it. These tools help users especially those who are vision-impaired read the text on webpages.
- *Audio content:* Audio content refers to presentation of web content in form of voice. This feature is highly recommended by international usability and accessibility guidelines such as WCAG to facilitate vision-impaired users.

6.2 Navigation

A good navigation structure and navigation tools help users find information easily and quickly on webpages. The following website features were examined in this category:

- *Website address (Universal Resource Locator) clarity:* Every online website has an address that uniquely identifies it. The address should portray the name of the institution and should be easy to memorize in relation to what the institution does.
- *Main menu and other links:* Links connect webpages and documents within the website to each other and to other external websites. Links should not be broken and should have names that correspond to the linked information.
- *Sitemap:* A sitemap is a collection of links for all main webpages on a website. It helps users find specific information under a certain section of the website.
- *Search tool:* This is a tool for searching information within a website without browsing through webpages. It is an important tool because it facilitates fast information retrieval.
- *Help/FAQ (Frequently Asked Questions) pages:* These pages provide useful information to users when the users need help. Frequently asked questions are based on the common queries raised by users.

6.3 Legal policies

Legal policies on government websites establish a positive image of the websites and enhance citizens' trust of the websites. Privacy policies include security and they protect confidentiality of user information. Online crimes are common these days. Therefore, it is important to have legal policies to ease the worries of users. Website features that were evaluated in this category are shown as follows.

- *Privacy policies:* Privacy refers to the right of a user over certain information. Privacy policies guarantee users ownership over information they are entitled to.
- *Terms and conditions of use:* These are protocols that govern how information should be accessed and used on the website and how services offered by the website are carried out.
- *Copyright/disclaimer information:* Copyright and disclaimer are legal notifications that proclaim the organization as the rightful owner of the website.

6.4 Coding scheme

All pages of each website were examined and features on each website were given a rank between 1-5 where 1 means that the website feature does not exist and 5 means that the website feature is, in

terms of efficiency and effectiveness enhancement, a satisfactory usable feature. Tables 1 and 2 show the coding systems of two of the features in the first category of design layout. For example, if a website provides feedback/inquiry forms or other interactive tools and all the features work, it receives a score of 5. Alternatively, if a website provides such features but only more than half of the features work, it receives a score of 4. Similarly, if a website provides no zoom options on any of its pages, it receives a score of 1 and so on.

Table 1: Coding system for feedback/inquiry forms and other interactive tools

Score	Measurement attributes
1	Absence of feedback/inquiry forms and other interactive tools
2	Presence of feedback/inquiry forms and other interactive tools and less than half of the features work
3	Presence of feedback/inquiry forms and other interactive tools and half of the features work
4	Presence of feedback/inquiry forms and other interactive tools and more than half of the features work
5	Presence of feedback/inquiry forms and other interactive tools and all of the features work

Table 2: Coding system for zoom options

Score	Measurement attributes
1	Absence of zoom option on website
2	Presence of zoom option in less than half of the pages
3	Presence of zoom option in half of webpages
4	Presence of zoom option in more than half of the webpages
5	Presence of zoom option on all pages

7. Results

Evaluation results of the four ministerial websites are summarized in Table 3. Apart from the raw scores of each website, the corresponding percentages to the maximum scores in each category are also calculated for comparison purposes.

Table 3: Evaluation results for website features of Uganda ministerial websites

		Ministerial Websites			
#	FEATURES	W1	W2	W3	W4
	Category 1: *Design Layout*				
1	Design consistency in webpages	5	2	5	5
2	Visual design for text (font and color formatting)	5	3	5	5
3	Feedback/inquiry forms and other interactive tools	2	2	4	2
4	Zoom options	1	1	1	1
5	Page content sharing tools	1	1	1	1
6	Audio content	1	1	1	1
	Scores	15	10	17	15
	Scores/Max scores	50%	33%	57%	50%
	Category 2: *Navigation*				
1	Website address (URL) clarity	5	5	5	5
2	Main menu and other links	3	3	5	5
3	Sitemap	1	1	1	1
4	Search tool	4	1	4	2
5	Help/FAQ page	1	2	2	1
	Scores	14	12	17	14
	Scores/Max scores	56%	48%	68%	56%
	Category 3: *Legal Policies*				
1	Privacy policies	1	1	1	1
2	Terms and conditions of use	1	1	1	1
3	Copyright/disclaimer information	1	3	2	2
	Scores	3	5	4	4
	Scores/Max scores	20%	33%	27%	27%
	Total scores	32	27	38	33
	Total scores/Max total scores	46%	39%	54%	47%

Note: W1=Ministry of Health, W2=Ministry of Education and Sports, W3=Ministry of Justice and Constitutional Affairs and W4=Ministry of Foreign Affairs.

7.1 Ministry of Health website

The design for this website is consistent. All pages have similar design in terms of layout and color. The text is clearly formatted with titles in bold. There are no interactive tools such as feedback forms but contact information (telephone and email contacts) is provided. Webpage content is not customizable and cannot be resized by a user. The content can only be obtained manually in case users want to download it because there are no print, download, fax, or email functions. The information is available in text only. Therefore it is hard for vision-impaired people to use and access the website.

The website address is clear and can be easily recalled. The main menu is visible and well-designed. However, many links are broken. The navigation location is shown clearly using page titles when a user browses the website. The website lacks a site map, but it has a search tool that finds information quickly. The search tool uses the atomz search engine which functions efficiently, but results are displayed on the atomz website page. Displaying search results on a different website affects users' orientation. It also affects their trust if they are redirected to a different website. The website also lacks a Help or FAQ page.

Ministry of health website provides no legal policies. It has no privacy policies, terms and conditions of use or copyright/disclaimer information.

7.2 Ministry of Education and Sports website

The website has an inconsistent design and the homepage has unnecessary animation components. The information on webpages is visible, but it has different formatting styles. Interactive tools such as forms are not provided. However, contact information such as emails and telephone are provided. The website does not have zoom options and page content sharing tools that enable users to obtain or share information with one another. The content is provided only in text format.

The website address is clear. Pages have different menu structures and the main menu links are formatted differently. Navigation through pages is difficult because many pages have no links to connect to previously visited pages or even other main pages within the website. The website has no sitemap, no search tool, and no Help or FAQ pages. However, among the surveyed websites this is the only one that provides a webmaster's email link for users who may have queries about the website.

Legal issues are not catered for on the Ministry of Education and Sports' website. The website lacks privacy policy and terms and conditions statements. However, it has a disclaimer link but the linked page is missing. It also has a one-line copyright note: "reproduction in whole or in part without permission is prohibited."

7.3 Ministry of Justice and Constitutional Affairs website

The design layout for this website is good and consistent with good use of color for all webpages. The website also provides a feedback form, a discussion forum, a guest book and contact information (telephone, address, email and fax). The feedback form was tested. The form was submitted successfully followed by a confirmation message. However, the discussion forum and guest book did not work. The website lacks tools for customizing content as well as tools for sharing webpage content. The information is available in text only. No audio content is provided.

The address of this website is clear. The structure for links is good. Headings are clearly shown and correspond to links. The main menu structure is well-organized and all links function properly. The website lacks a sitemap. It uses the atomz search tool that is efficient and effective, but it displays results on a different website (atomz.com). There is a webpage with Frequently Asked Questions, but all the questions address other aspects that are not related to usability or accessibility of the website.

The website also lacks privacy policies, terms and conditions of use and copyright/disclaimer information. Instead of showing copyright information, the copyright symbol is linked to a webpage with Uganda's tourism information.

7.4 Ministry of Foreign Affairs website

This website has a consistent design structure and an outstanding visual design for text. It does not have interactive communication tools such as forms. However, contact information such as physical address, telephone, fax and email are provided. In addition, webpages do not have zoom options nor do they have webpage content tools that enable acquisition and sharing website information. The website does not provide information in audio format.

The web address of this website is clear. There is a good structure for all links and all webpage contents have clear titles that correspond to links. The website does not have a sitemap, but it has a search tool. However, the search tool always gives an error message: "Too many connections to the database!! Please try the search later" upon a search request. This website does not have a Help or Frequently Asked Questions page.

Finally, the website lacks legal information such as privacy policy, copyright notices and terms and conditions of use. However, similar to the Ministry of Justice and Constitutional Affairs website, this website has a copyright symbol which links to a page that provides tourism information instead of the website's copyright information.

8. Discussion

An evaluation of four government websites in Uganda showed fair results. The average score of inspected features is about 46 percent. In short, all websites have clear and unique addresses but 6 out of 14 features were missing. These missing features are: zoom options, page content sharing tools, audio content, sitemap, privacy policies, and terms and conditions of use.

In the first category of features, all but the Ministry of Education and Sports maintain design consistency in webpages and have good visual design. The Ministry of Justice and Constitutional Affairs website is the only website that has a functioning feedback form. The other three websites provide only contact addresses. None of the websites provides zoom options, page content sharing tools, or audio content. In short, there is much room for improvement regarding interactivity and accessibility. The lack of zoom options and audio content clearly shows that developers of these websites do not follow international standards and hence the websites are not usable for certain groups of users such as people with vision impairment. Among the four ministries, the Ministry of Justice and Constitutional Affairs has the highest score in the first category of design layout features.

In the second category of features, all websites have a clear web address. However, navigation is not so easy on two websites. The website of Ministry of Health has broken links, and that of Ministry of Education and Sports has no links to connect to previously visited pages or even other main pages within the website. No websites provide a sitemap facility and the websites are rather weak in providing help such as FAQ to users. Only the Ministry of Health and the Ministry of Justice and Constitutional Affairs provide search tools using atomz. However, searched results are displayed on the atomz website instead of within the ministries' websites. Again, the Ministry of Justice and Constitutional Affairs has the highest score in the second category of navigation features.

In the third category of features, no websites provide any privacy policy or terms and conditions of use. Three websites provide limited information regarding copyright. The Ministry of Education and Sports has a one-sentence copyright notice. There is a copyright symbol on the Ministry of Justice and Constitutional Affairs and Ministry of Foreign Affairs websites, but the symbol is linked to a webpage that provides tourism information of Uganda instead of providing copyright information. Overall, all four websites have low scores in this category in comparison to the previous two categories. However, results on this study regarding legal policies are comparable to other studies. For example, in the West (2008) study, 11 percent of national websites of Uganda had a privacy policy, but none provided any statement on security policy. Similarly, privacy and security statements appeared on only 11 percent of 121 websites of travel and tourism organizations in four African countries that included Uganda (Maswera et al., 2008). Studies have shown that concerns about privacy and information security prevent citizens from using e-government services (Chongsuphajaisiddhi & Chutimaskul, 2008). Failure to protect private information also affects public image and public confidence of government institutions. For example, Uganda's defense ministry website was hacked in March, 2009 (BBC, 2009), but the website had no legal terms that could deal

with such cases. Therefore, to make government websites usable, legal policies should not be overlooked.

Designing government websites, such as e-government portals, require planning. Planning includes, for example, selection of partners for service delivery and identifying various channels for service delivery (Maheshwari et al., 2007). Planning creates a clear understanding and realization of users' needs. Website development and management also requires strategic planning due to organization changes. Considerations in planning of government websites include:

- Defining the purpose of the website, that is, what the website will be used for.
- Identifying the intended audience, their cultural backgrounds, usability skills and interest.
- Checking for resources availability. Identifying the available resources to manage government websites is crucial in planning. Required resources include human resources, that is, people who would maintain the website, and web hosting services which maybe outsourced or hosted in-house. Resources planning leads to sustainability.
- Plans for updates. Planning of government websites should provide guidance on how often the websites should be updated so that users are provided with up-to-date information.

On the technical side, the plan should entail the technologies to be used, security and error handling measures to be applied before the website is built. Without careful planning, technologies that promise development and progress fall short of their promises and yield to problems such as lack of access to the means of communication (Putterill, 2004). It is common and normal that government agencies share resources such as information. Yet sharing of information requires interoperability of systems and applications. Therefore, using compatible technologies in website development can help government agencies overcome interoperability problems.

9. Conclusion and limitations

This research examined the usability of four Ugandan government websites. Using a parsimonious framework of 14 measures, we inspected thoroughly the features of four websites in terms of design layout, navigation and legal policies. Evaluation results show that the selected Uganda websites are partially usable. All websites have clear web addresses and most have consistent design of webpages. However, interactive features are rather insufficient and websites do not provide features that enhance accessibility of websites. All websites are rather weak in stating legal policies. To make their websites usable, web developers of Ugandan websites are strongly urged to have a clear and detailed plan. They should also follow international usability and accessibility guidelines to help overcome the identified usability problems. Weaknesses such as the lack of privacy policies should be rectified to enhance users' trust of websites. Of course this requires the establishment of related legislation in the country in the first place. The web content should be provided also in other forms other than text to facilitate usage by users with disabilities. To enhance interactions between the government and citizens, it is also vital for ministries to add interactive tools such as feedback forms to their websites.

Website usability is important for successful implementation of e-government. Therefore, it is vital for governments to make an effort to ensure their websites are developed according to international standards. For existing websites, it is equally important for governments to check how usable they are. For future research, we recommend researchers adopt the parsimonious evaluation template used in this study to evaluate government websites in other countries.

Some measures used in the evaluation such as design consistency were subjective. However, the use of only one expert is economically feasible for a developing country. If resources are available, more than one expert can be involved in the evaluation. However, the subjectivity issues should not be a problem if a clear scheme is in place in advance. The evaluation of only four ministerial websites limits the generalization of the results. To provide a more comprehensive picture of the usability of government websites in Uganda, future research can be extended to other ministerial websites in that country. However, we recommend the selective instead of the full-blown evaluation approach.

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References

Abanumy, A., Al-Badi, A. & Mayhew, P. (2005) “e-Government Website Accessibility: In-Depth Evaluation of Saudi Arabia and Oman”, *The Electronic Journal of e-Government*, vol. 3, no. 3, pp. 99-106.

Ahuja, J. S. & Webster, J. (2001) “Perceived disorientation: An examination of a new measure to assess web design effectiveness”, *Interacting with Computers*, vol. 14, no. 1, pp. 15-29.

Alexander, D. (2006) Usability and Accessibility: Best friends or Worst enemies? http://www.valaconf.org.au/vala2006/papers2006/99_Alexander_Final.pdf (Available 8 Apr 2009).

Baguma, R., Wanyama, T., Bommel, P. V. & Ogao P. (2007) Web Accessibility in Uganda: A study of Webmaster perceptions. In proceedings of the 3rd Annual International Conference on Computing & ICT Research (SREC'07), pp. 183-197

BBC (2009) BBC new: Uganda hit by anti-Israel hackers, http://news.bbc.co.uk/2/hi/africa/7932544.stm (Available 10 Mar 2009).

Cappel, J. J. & Huang, Z. (2007). "A usability analysis of company websites", *The Journal of Computer Information Systems*, vol 48, no. 1, pp. 117-123.

CIA (2009) Uganda; People: Population, https://www.cia.gov/library/publications/the-world-factbook/geos/ug.html (Available 5 Apr 2009).

Childers, L. (1989) “J. Grunig’s Asymmetrical and Symmetrical Model of Public Relations: Contrasting Features and Ethical Dimensions”, *IEEE Transactions on Professional Communication*, vol. 32, no. 2, pp. 86-93

Chongsuphajaisiddhi, V, & Chutimaskul, W. (2008) “Factors in Developing Thai Local Government Websites”, *Journal of Global Management Research*, vol. 4, no. 2, pp. 7-16

Gwardak, L. & Påhlstorp, L. (2007) Exploring Usability Guidelines for Rich Internet Applications. Masters’ thesis. Department of informatics, Lund University, http://biblioteket.ehl.lu.se/olle/papers/0002774.pdf (Available 11 Apr 2009).

Heeks, R. (2002). "e-Government in Africa: Promise and practice", *Information Polity*, vol. 7, No.2-3, pp. 97-114.

Heeks, R. (2006) *Implementing and Managing eGovernment: An International Text*, London: Sage.

Henry, L. S. (2002) Understanding Web Accessibility, http://www.adobe.com/macromedia/accessibility/pub/acc_sites_chap01.pdf (Available 8 Apr 2009).

Hillier, M. (2003) “The role of cultural context in multilingual website usability”, *Electronic Commerce Research and Applications*, vol. 2, no. 1, pp. 2-14

Hisai, E. (2007) Uganda Communications Commission: Review of sector taxation policies and determining the elasticity of penetration and price of the various telecommunication services in Uganda, http://www.ucc.co.ug/taxReport.pdf (Available 7 Apr 2009).

Holzer, M. and S.-T. Kim (2003). Digital Governance in Municipalities Worldwide - An Assessment of Municipal Web Sites Throughout the World, Report, State University of New Jersey, Campus at Newark and Sungkyunkwan University.

ISO (International Organization for Standardization) (1998) ISO 9241-11:1998(E)

Ivory, M. & Chevalier, A. (2002) A Study of Automated Web Site Evaluation Tools. Technical Report UW-CSE-02-10-01

IWS (2009) Internet World Starts: Uganda Internet Usage and Population Statistics, http://www.internetworldstats.com/af/ug.htm (Available 7 Apr 2009).

Kaaya, J. (2004) “Implementing e-government services in East Africa: Assessing status through content analysis of government websites”, *Electronic Journal of e-Government*, vol. 2, no. 1, pp. 39-54.

La Porte, M., T., Demchak, C., C. & Friis, C. (2001) “Webbing Governance: Global Trends across National Level Public Agencies”, *Communications of the ACM*, vol. 44, no. 1, pp. 63-67.

Mackey, S. (2003) “Changing vistas in public relations theory”, *PRism*, vol. 1, no. 1, pp. 1-9.

Maheshwari, B., Kumar, V., Kumar, U. & Sharan, V. (2007). E-Government Portal Effectiveness: Managerial Considerations for Design and Development. Proceedings of International Congress of e-Governance, Hyderabad, pp. 258-269

Markus, M., L. (1987) “Toward a 'Critical Mass' Theory of Interactive Media: Universal Access, Interdependence, and Diffusion”, *Communications Research*, vol. 14, no. 5, pp. 491-511.

Maswera, T., Dawson, R. & Edwards, J. (2008). "E-commerce adoption of travel and tourism organizations in South Africa, Kenya, Zimbabwe and Uganda", *Telematics and Informatics* vol. 25, no. 3, pp. 187-200.

Melitski, J., Holzer, M., Kim, S., Kim, C. & Rho, S. (2005). "Digital government worldwide: An e-government assessment of municipal web sites", *International Journal of Electronic Government Research*, vol. 1, no. 1, pp. 1-19.

Nielsen, J. & Mack, R., L. (Eds.) (1994). *Usability inspection methods*, New York, NY: John Wiley & Sons.

Parajuli, J. (2007). "A content analysis of selected government web sites: A case study of Nepal", *The Electronic Journal of e-Government* vol. 5, no. 1, pp. 87-94.

Putterill, G., L. (2004). The e-commerce race for Wales: another Aesop’s fable? *Journal of Small Business and Enterprise Development,* vol.11, no.3, pp. 382-389.

Riley, G., C. (2003) The changing role of the citzen in the e-government & e-democracy equation, http://www.rileyis.com/publications/research_papers/cgr_thesis.pdf (Available 13 Apr 2009).

Schuppan, T. (2009). "E-government in developing countries: Experiences from sub-Saharan Africa", *Government Information Quarterly* vol. 26, no.1, pp. 118-127.

Stowers, G. N. L. (2002). The state of federal websites: the pursuit of excellence. E-Government Series, San Francisco State University.

Suruma, E. (2007) Budget Speech-The republic of Uganda: Re-orienting Public Expenditure Towards Prosperity For All, http://www.finance.go.ug/ (Available 9 Mar 2009).
Suruma, E. (2008) Budget Speech-The republic of Uganda: *Strategic Priorities to Accelerate Prosperity for All,* http://www.finance.go.ug/ (Available 9 Mar 2009).
Traunmüller, R. (2003) "Electronic Government" Proceedings of the Second International Conference on Electronic Government. EGOV 2003, Prague, Czech Republic.
United Nations. (2008). United Nations e-Government Survey 2008: From e-Government to Connected Governance, http://unpan1.un.org/intradoc/groups/public/documents/UN/UNPAN028607.pdf (Available 5 August 2009).
Usabilityhome (2009) Feature Inspection, http://www.usabilityhome.com/FramedLi.htm?FeatureI.htm (Available 6 Mar2009).
Verma, N. & Ornager, S. (2005) E-Govenment TOOLKIT for Developing Countries, http://www.unescobkk.org/fileadmin/user_upload/ci/documents/UNESCO_e-Govt_Toolkit.pdf (Available 5 August 2009)
West, D. M. (2008). Improving technology utilization in electronic government around the world, 2008. Governance Studies at Brookings.
W3C (World Wide Web Consortium) (2009) W3C Web Standard Defines Accessibility for Next Generation Web, http://www.w3.org/2008/12/wcag20-pressrelease.html (Available 19 Mar 2009).

