AFRICA'S WEB CONTENT: CURRENT STATUS

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ABSTRACT

This paper addresses the subject of Africa content online, looking at the current status of Africa's Internet infrastructure and Web presence. The paper assesses the forms of content available and provides benchmarking criteria for quality. Comparative statistics of Africa's Web content with other regions of the world are given based on e-government indices. This paper assumes that e-government indices defined as the mean figures derived from variables such as the web presence, telecommunication infrastructure and human capital measures can provide fairly accurate measure of web content of any country. The paper provides strategies to stimulate online content creation in Africa. Current developments within Africa that have some bearing on local content creation are discussed. Finally the paper discusses challenges in local content creation in Africa and makes suggestions for the way forward. Throughout this paper, Africa Web content is taken to refer to content generated in Africa and mounted on the Web or any other global networks and accessed either remotely or locally.

Keywords: Africa web content; Africa content online; Africa local content, Africa e-content, Africa indigenous knowledge online

INTRODUCTION

The revolution in information and communications technologies, especially the Internet and the World Wide Web has been unprecedented in the history of technological developments. By May 2002 the number of people online worldwide was estimated at 580.78 million distributed as follows: Africa 6.31 million, Asia/Pacific 167.86, Middle East 5.12, Europe 185.83, Canada/USA 182.67 and Latin America 32.99 million (Nua Internet Survey by Area, 2002: www.nua.com/surveys/). These statistics show that most of the global Web content is largely generated either in Europe and the United States. Today, all Africa's 54 states have attained some form of Internet connection. Africa is known to have vast pool of local or indigenous content such as political institutions, rites, art and drama but the continent's contribution of online content is insignificant. The continent's proportion of Web content was estimated in 2001 to be 0.04% of the global Web content and if South Africa was excluded, the rest of Africa had a mere 0.02% (United Nations, Division for Public Economics and Public Administration, 2002; Taylor, 2002). 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. The challenge of what content can meet the users' needs has recently preoccupied international development agencies, service providers and content creators (Quek, 2001).

FRAMEWORK FOR AFRICA'S WEB CONTENT DEVELOPMENT

The framework for developing Africa's Web content can be said to be basically in place. In 1980, the Organisation of African Unity, through the Lagos Plan of Action, placed great emphasis on locally generated information to solve Africa's development problems. The Lagos Plan recognised the strength of the indigenous information systems as lying in the content of valuable social, scientific and technological information, as well as traditional channels of information exchange. The Plan recommended that African countries should enact policies that adequately reflect socio-cultural values in order to reinforce cultural identity (Onyango, 1996). Similarly, the African Information Society Initiative (AISI)- a United Nations Economic Commission for Africa effort, aims at creating an enabling environment that facilitates the development of Africa's information society. The AISI envisages that by the year 2010 Africa should have availability of African information resources that reflect the needs of government, business, culture, education, tourism, energy, health, transport and natural resource management (UNECA, 1999).

Today, Africa's new initiative, the New Partnership for Africa's Economic Development (NEPAD), places great emphasis on Africa's economic recovery and development based on locally generated solutions (Sommet Kananaskis Summit, Canada, 2002, http://www.g8.gc.ca/summitafrica-e.asp). Regrettably, NEPAD does not yet have effective framework for local content creation. On the other hand, several international development agencies are currently involved in the revitalisation of local content especially in developing regions including Africa. In 1992, for example the Rio Earth Summit catapulted indigenous knowledge practices to the forefront of development discourse. Since then, the World Bank, UNESCO, the ITU and the World Intellectual Property Organisation (WIPO) have led collaborative initiatives to mainstream indigenous knowledge into development processes in order to optimise the benefits of development assistance to the poor (Quek, 2001). The United Nations General Assembly designated the 1980s as the industrial decade for Africa, and placed emphasis on Africa continent developing local capacities as means of satisfying internal needs and creating indigenous capability for modifying and adapting foreign technologies to peculiar conditions and economies (Onyango, 1996).

JUSTIFICATION FOR HAVING AFRICA'S CONTENT ON THE WEB

The main causes of conflicts in Africa are traced largely to several factors such as availability of small arms, absence of good governance, human rights abuses and uneven distribution of material resources. In addition, the issue of debt burden on the

continent resulting in serious economic crises, with the citizens wallowing in abject poverty is frequently cited. The conflicts are also known to be the resultant effect of colonial legacy that arose out of arbitrary boundary demarcation and displacement of people with same cultures and values into different countries (Ahiante, 2002). In Burundi, the Democratic Republic of Congo, Rwanda and other parts of Africa for example, conflicts are also traced to differences in indigenous practices and values, whose resolution would better be achieved through understanding of local cultures of these populations (Shah, 2002, http://www.globalissues.org/Geopolitics/ Africa/DRC. asp). In no other place than Uganda has indigenous practices successfully been turned into mitigating approach to stemming the incidences of HIV/AIDS. Open-air shows feature prominently in village life where they are performed as a part of different ceremonies such as births, marriages, deaths, rituals, initiation ceremonies and celebrations. Consequently drama and community theatre have successfully been used to disseminate information on topics like HIV/AIDS, child abuse, domestic violence, corruption and development activities. The open-air show theatre has particularly been cited as successful in stemming the HIV/AIDS pandemic in the country where the HIV incidence rate decreased from 14 % in 1990 to 8% in 2000 (Staff Writer, 2002). These experiences can provide worthy learning experience when they are repackaged and mounted on the Web for wider access.

Africa's local content, especially the indigenous knowledge has for a long time been exploited by the developed world more so in the area of environment and biodiversity at the expense of local people. The rapid increase in globalisation has awakened many countries and development organisations to the threat of losing their knowledge and cultural values. Putting Africa's knowledge online is one way of raising awareness about Africa's cultural identity, values, practices and innovations. By registering herbal medicine on the Web for example, it is possible to prevent others from wresting the patent rights from the locals. In addition, such local content could be of value for researchers who wish to undertake studies on diverse subjects in Africa. Today, the attention of international organizations and interest in indigenous knowledge, values and practices have brought to the fore the potential economic value of the indigenous innovations. Today, increasingly, the pharmaceutical industry is getting interested in reducing the costs of research and fast tracking of experimentation on therapeutic agents, on the basis of knowledge of medicinal use of known plants by local communities. Genetic engineering has gained a lot of prominence and its success is rooted in understanding people's evolution (Pidatala, 2001). Additionally, local content is important in conflict resolution, environmental conservation, and community development. Indigenous knowledge systems have been established as significant areas of scholarship in anthropology, archaeology and history. Local content draws on local resources and makes people less dependent on outside supplies, which may be costly, scarce and irregularly available. It is therefore important that Africa joins the rest of the world in building a super network of global information society by making its knowledge available far and wide through the World Wide Web.

Most people usually are interested in information that would address their immediate needs whether for survival, education, business, research, or politics to mention but a few. Africa is ravaged with HIV/AIDS, and content in such areas as HIV/AIDS counselling services, treatment, prevention, and methods of transmission of the pandemic is of great interest and need for the people. Other information that is of immediate appeal include small-scale business and agricultural information; information on markets for sale of locally produced wares (e.g. art and hand craft), job opportunities, education destinations, government services, sources of credit, etc. In Mozambique for example a portal for the promotion of small and medium business enterprises is heavily used because it has relevant content to meet the needs of the people (MZ Business 2002, http://www.mzbusiness.com). Similarly, in Zimbabwe, Bargain Hunter an NGO recently introduced online advertising site for job seekers for local and foreign jobs and in short span of time, the site has gained high use (The Bargain Hunter, 2002, www.bargainhunter.co.zw). For tourists, content relating to the tourism industry would be of value. In Kenya, a recent online coffee auction launch has elicited tremendous excitement from coffee producers who are able to sell their coffee and reap maximum profits by avoiding middlemen who charge high fees for their services (Silicon Valley and Wire Services, 2002).

Local content that includes professional information to meet the needs of diverse people whether in medicine, law, business, management and teaching would of great appeal. In Kenya for example the Teachers Service Commission (TSC) recently launched a Web site to give teachers crucial information on most frequently asked questions. Through this site, commonly used forms will be provided online and teachers can fill them from any service provider in their regions. This will minimise travelling by Teachers to Nairobi the capital where TSC is centralised (The East African Standard, 2002: http://www.balancingact-africa.com/news/back/balancing-act_119.html). Local content should also aim to provide specialised information through gateways to address the unique needs of various people in society.

The diversity and richness of Africa's knowledge systems is reflected in the peoples' practices. In Uganda for example, health workers in Ikanga district of Southern region rely on indigenous knowledge in reducing maternal mortality rates. Additionally, Uganda communities employ indigenous knowledge in the management of matoke crop (banana plant) to reduce harmful effect of Sigatoka disease. Similarly in Senegal, women in village of Maliconda have successfully led campaigns to stop female genital cutting in 200 communities (Bodeker, et al, 2001).

In South Africa, indigenous fruit Marula is used to produce beer, jam, poultry feed, juice, cooking and cosmetic oils; treat dysentery, diarrhoea and insect bites abscesses. The wood is used for carving of furniture and other household items. The fruit is used to prepare cattle feed and is rich in vitamin C, oil and oleic acid for maintaining healthy skin. In Kwazulu Natal, an extract from an indigenous plant – Sutherlandia

frutescens - has long been used since 1895 for curing malignant tumours and cancers. The fruit was used in the worldwide flu epidemic of 1918. Today it is used as an Aids relief for treating wasting and tuberculosis (Nhlapo, 2001). Similarly, Botswana's Devils Claw (Singaparile) and East Africa's Mwarobaine are some of the herbs known for treating various ailments.

FORMS OF AFRICA'S WEB CONTENT

Governments worldwide generally provide a wide range of local information on policies, political information, lists of departments, reports, speeches, tenders and drafts bills to mention just but a few. Among the African governments which have established websites include South Africa, Botswana, Kenya, Nigeria and Zimbabwe. In South Africa, the government is moving towards providing sophisticated e–government services by establishing Public Internet Terminals (PITs) across the country's post offices (Government Communications, 1998, www.gov.za). It is important for government to take advantage of the Internet to take services to the people as government information service is at the heart of every policy decision, response activity, and initiative with its citizens, and business community (United Nations, Division for Public Economics and Public Administration, 2002). A country's e-government environment is an important indicator of the level of a country's web presence.

Africa's Web content is in various forms. *Africa Online* is well known in Africa as an ISP as well as bandwidth and content provider. It has played an important role in organising Africa's local content on the Web. *Africa Online* offers single portal of access to information on various countries in Africa on diversity of subjects. The provider maintains a directory that offers access to different local content. However, the content is largely specialised for professionals and is in English Language and therefore reaches small number of users (*Africa Online*.Com Ltd, 2002, http://www.africaonline.com/site/). Increasingly online radios are becoming a common feature in Africa's communication and information environment in generating local content. However the major problem of these radios in Africa is that they are commercially driven and broadcast news and entertainment that favour audiences who are English-educated, rather than diversifying news in local languages to attract large populations who do not speak English. In some parts of Africa, notably Uganda, South Africa, and Ghana, it is encouraging that community radio industry is developing fast. Community radios are important in reaching to the grassroots by airing news in the languages most local communities understand, as well as giving them the opportunity in content development (*Africa Online*.com Ltd, 2002, http://www.africaonline.com/site/Articles/1,3,43607.jsp).

Many media houses in Africa are now hosting news online. Examples include: *Sunday Times in South Africa*, the *Daily Nation* (Nation Media Group Ltd, 2002, http://www.nationaudio.com) and the *East African Standard* (The Standard Limited,

2002, http://www.eastandard.net), both of Kenya, the *Van Guard of Nigeria* (Vanguard Media Ltd, 2002, http://www.vanguardngr.com) and *Nigeria Guardian News* (The Guardian Newspapers Ltd, 2002, http://www.ngrguardiannews.com). The major challenge that faces these online newspapers is the fact that they provide content largely in English and as such limit access to only those who are English literate. It is also important to mention that most of the online news is largely meant for those who can see and read as the visually impaired are not catered for. The other shortcoming of online news in Africa is the multiplicity of papers without adequate content scrapers to facilitate access to news through single portals. This makes searching for information both cumbersome and time consuming. Despite limited content scrappers, there are some efforts in Nigeria, where a single portal access to news online is provided (*All Africa Global Media*, 2002, http://www.nigeria.com/ News_Room/Newspapers/newspapers.html). Other initiatives at content scrapping include moreover.com (*Moreover Technologies*, 2002), All Africa.com (*All Africa Global Media*, 2002, http://allafrica.com/), *Africa Online* (Africa Online.Com Ltd, 2002, http://www.africaonline.com/site/), and iafrica.com (2002, http://iafrica.com/).

The cell phone service providers have not exploited the potential of cellular handset for local content provision. It is possible that the cellular handset could be used to provide variety of news to subscribers in areas such as weather forecasts, news headlines, advertisements, etc. In Africa cell phone has penetrated into the remotest parts of countries where fixed line is difficult to deploy because of unfavourable terrain. In most African countries, cellular phone penetration exceeds fixed line telephony and it is estimated that by the year 2003, Africa will have approximately 38 million cell phones (AC 2002, http://www.cellular.co.za/stats/stats-africa.htm). It is believed that the GRPS (General Radio Packet Systems) cell phone technology that is currently undergoing implementation in South Africa will spread to the rest of the African countries and provide opportunity for web access and content creation.

Within Africa, banks are increasingly offering wide range of online services and so are educational, academic and research institutions. Educational and research institutions are posting their content on the Web to advertise the courses they offer in order to attract students from far and wide, as well as to provide online and distance learning (Haggard, 2002, http://www.computingsa.co.za /2001/02/12/Topnews/ top03.htm; University of Pretoria, 2002, http://www.up.ac.za/; University of Botswana, 2002, http://www.ub.bw; University of Cape Town, http://www.uct.ac.za). Most content from academic institutions consists mainly of course syllabi, admission requirements, fees, examinations requirements, faculty and administrative staff, structure and duration of academic programmes. Additionally some library catalogues of tertiary institutions are accessible through the Web. Such catalogues act as gateways to other resources on the Internet. There are also efforts by libraries to digitise parts of their collections to enable them to be accessed through the Web. The University of Botswana Library for example has digitised its past examinations papers

and mounted them on online public access catalogue accessible over the Internet (University of Botswana Library, 2002, http://medupe.ub.bw/). Similarly, Rhodes University in South Africa has a project of electronic theses and dissertation, ETD (Ubogu, 2001). Generally, libraries in Africa are known to stock vast amounts of grey literature in the forms of dissertations, accession lists or specialised bibliographies of local information. Such resources are good candidates for local online content. However the digitisation of such materials, estimated at 60% of Africa's publications (Sturges and Neil, 1998), is quite expensive. Consequently such materials are rarely accessed, yet they form unique source of information. Several other libraries have made efforts to compile databases using CDS/ISIS, a free free software developed by UNESCO. For example, the University of Nairobi library has developed databases of list of theses and periodicals in Kenyan libraries using CDS/ISIS software but these databases remain only locally accessible for various reasons that range from the lack of infrastructure and skills to the limitation of software functionality (Mutula, 2000).

Other sources of rich local information content in Africa are to be found in archives and museums. However museums and archives have not kept pace with automation compared to libraries. Most of the information found in archives and museums is stored in printed or archival formats. Such information cannot be made available on the Web for wider accessibility until it is digitised.

BENCHMARKING AFRICA'S WEB CONTENT

The importance of ensuring that local content mounted on the Web is useful and of acceptable quality need not be emphasised. A cursory look at the Web shows that although the number of African websites is increasing, the degree of comprehensiveness and quality of content varies greatly. A number of problems face Africa, which mitigate against content development. Generally the continent lacks adequate capacity for content development and policies for content creation. Nevertheless, progressive governments on the continent are upgrading their sites regularly, expanding the types and quality of their online services and improving their content daily in an effort to achieve highest user satisfaction, administrative efficiency and cost effectiveness. A look at E-government indices of most countries reveals this scenario. E-government index is a good measure for a country's online content. It represents a more inclusive and less subjective measure of a country's e-government environment. E-government indices are computed based on several variables such as strength of human resource and policy on content development, telecommunication infrastructure - number of PCs per 100 individuals, number of Internet hosts per 10000 individuals, the percentage of a nation's population online, number of telephone lines per 1000 individuals, number of mobile phone per 1000 individuals, number of television per 1000 individuals, Information Access Index (IAI)
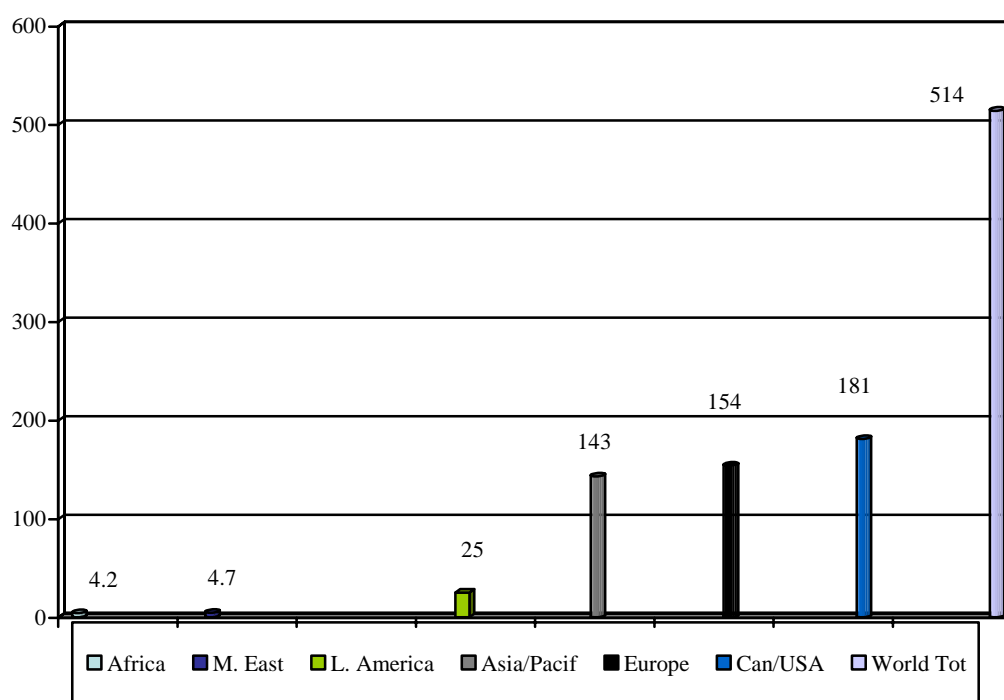
and UNDP human development index (United Nations, Division for Public Economics and Public Administration, 2002).

It is important that as Africa makes efforts to improve its Web content, the quality of the information placed on the Web should receive utmost consideration. Measures of web content quality include: interactivity with users, dynamic content, community-centric content, regularly updated content, downloadable content, rich and accurate content. A country's online presence can also be measured by the stage of Web presence evolution. According to United Nations' Division for Public Economics and Public Administration (2002), there are five stages of web evolution in terms of content development namely, emerging, enhanced, interactive, transactional and fully integrated or seamless. At the emerging stage, a country commits itself to becoming e-government player and starts by providing formal limited Web presence with static organisation and political information. In Africa, 20 African countries are listed in this group, among others, Botswana, Malawi, Ethiopia, Gambia, Lesotho and Angola. The enhanced stage comprises countries that possess an increasing number of official Web sites, with contents that are usually dynamic, specialised (government publications, legislations, etc) and frequently updated. In Africa, 16 countries are in this group; among them are Algeria, Cote Devoir, Ghana, Kenya, Namibia, Mozambique, Nigeria, Tanzania, Zimbabwe, Senegal, Zambia and Uganda. The interactive stage is characterised by a dramatic increase in Web presence with access to a wide range of government institutions and services; capacity to search specialised databases, download forms and make applications online. In Africa there are so far four countries that are at this stage of Web evolution namely: Morocco, Egypt, Mauritius and South Africa. At the transactional stage, secure transactions such as obtaining visa, passports, death records, licenses and permits online are provided for. No African country has yet reached this stage. At the fully integrated or seamless stage, the website has capacity to access any service clustered along common needs in a unified environment. It is envisaged that no single country worldwide has attained this stage (United Nations, Division for Public Economics and Public Administration, 2002).

CURRENT STATUS OF AFRICA'S WEB CONTENT

The Internet has become ubiquitous worldwide as more people get hooked up to it, partly because of the growth of data on the Net, more rich and relevant applications and decreasing costs. Despite the increasing growth of data on the Web, Africa in general is deficient in Web content. Using e-government index as a measure of Web presence reveals that most African countries are e-government deficient because they by and large lack basic infrastructure such as PCs and have partial Internet access, inadequate telephone lines, and limited economic resources (United Nations, Division for Public Economics and Public Administration, 2002). Figure 1 depicts global Web population with Africa trailing other regions of the world.

Figure 1: Global Web Population (Million) - August 2001

Table 1 shows various comparative determinants of web presence for various regions of the world in 2001. The Web content determinants shown are used to generate e-government index. Based on these determinants of Web content, Africa ranks last compared to other regions in the world.

Table 1: Web Content Determinants

Region	Web presence	PCs /100	Internet Hosts /10000	% pop online	Tele-density	Mobile phone /100	Tvs /1000	HDI	IAI	E-gov Index
N. America	4	34.20	1251.18	37.4	50.03	26.38	607.67	.887	.916	2.60
Europe	3.25	21.14	280.93	24.97	45.41	43.54	431.75	.861	.863	201
S. America	3	3.95	30.22	5.19	14.19	11.28	200.83	.760	.740	1.79
M. east	2.77	6.46	37.23	7.08	14.11	16.89	279.53	.733	.278	1.76
Asia/Oceania	2.46	7.07	96.77	8.89	14.55	11.1	227.87	.709	.446	1.37
Caribbean	1.86	3.35	10.19	2.62	19.76	7.35	308.71	.739	.678	1.34
C. America	2.18	4.05	13.15	2.9	11.25	4.14	201.43	.711	.785	1.28
Africa	1.3	1.13	3.48	0.96	2.26	1.75	50.12	.453	.446	0.84
Global	2.6	10.17	215.39	11.25	21.44	15.3	288.49	.731	.646	1.62

Table 2 shows the Web content presence of African countries using e-government indices as a measure. All the African countries were below the world average of 1.62 during 2001

Table 2: National Web Content Status in Africa

	Country	E-Gov index
1	South Africa	1.56
2	Djibouti	1.35
3	Gabon	1.05
4	Cote Devoir	1.02
5	Nigeria	0.98
6	Botswana	1.01
7	Cameroon	0.99
8	Central Africa Rep	0.98
9	Ghana	0.94
10	Congo	0.91
11	Mauritania	0.91
12	Kenya	0.90
13	Angola	0.85
14	Mauritius	0.84
15	Tanzania	0.83
16	REGIONAL INDEX	0.84
17	Senegal	0.80
18	Madagascar	0.79
19	Zimbabwe	0.76
20	Burkina Faso	0.75

(Source: Nua Internet Survey by Area (2002), www.nua.com/surveys/)

STRATEGIES FOR STIMULATING DEVELOPMENT OF AFRICAN WEB CONTENT

The improvement of African content online will require multi-pronged approaches. There are different kinds of infrastructures in Africa that can be used to enhance content development. Government websites, online media houses, Internet service providers, cellular phone providers, community radios, and community tele-centres can be exploited effectively for content creation and access. The increasing number of Internet radios as well as online news should integrate local language into their content to cater for large diaspora of users. It is important that partnerships and collaboration between businesses and local communities in the areas of social networking and production of local content be enhanced. Key informants within communities such as traditional healers, church leaders, and village elders should be approached to tap into their knowledge and expertise for content creation in appropriate formats. For content to be effectively developed, policies to guide content development should be put in place by respective governments. Such policies should

have support at the highest level of political leadership. The policies should address issues such as infrastructure development and rural connectivity. Governments being major consumers of IT should play a key role in local content creation and maximize information access and transfer through incentives to encourage infrastructure and content development.

New emerging technologies can be explored for content creation and dissemination. Interactive TV is a technology that marries the power of video and Internet. It can be a useful tool in facilitating local content creation. One World, a non-profit NGO is using interactive TV in developed countries to enable people to tell stories on TV and integrate such stories with those on similar topics from peers in other countries (OneWorldtv, 2002, http://www.oneworld.net/tv). This technology has great potential for content creation in Africa where oral tradition is still largely practiced. The technology can allow voices from Africa to tell stories to audiences from other parts of the world who cannot easily be reached for interaction.

Service providers could explore mobile phone telephony for content developments. The new third generation mobile telephony could be used for local content creation because it promises high-speed and multimedia features. The third generation mobile phone could be a boon for Africa where in several countries mobile telephony has surpassed fixed line telephone and has spread in the remotest areas. It is incumbent upon cell phone service providers to add value to the services they provide through cellular phone technology. Similarly telecommunication operators in Africa should be urged to allow voice over the Internet. Voice over the Internet could provide a cheaper way of communicating local content in Africa. Many governments in Africa are not keen to license service providers presumably because it will result in loss of revenue by state owned operators. In addition, African governments have generally restricted the use of VSAT technology to provide connectivity in rural areas. In Kenya for example, UUNET, a bandwidth and service provider has expressed the need to provide free Internet access in rural based schools if the government would allow it to operate VSAT technology (Parak, 2002, http://www.computingsa.co.za/ 2001/06/18/Topnews/top07.htm).

There are new developments in South Africa where open software is being used to translate computer programs into local languages. Translate.org.za (Translate.org, 2002, http://www.translate.org.za), an NGO, has managed to translate the desktop, web browser, word processor, spreadsheet and mail applications into Xhosa, Zulu and Venda languages. The programmes run on Linux open source software (Linuxlab.or.za, 2002, http://www.linuxlab.org.za). Translate.org.za is set to translate computer applications into all the 11 official languages of South Africa by the end of 2002. This development is expected to enhance communication with computers in own languages and will be an essential way for local communities to express their own knowledge and ideas, create and communicate local content (Martindale, 2002).

Figure 2 shows the MS application screen translated into one of the South African local languages.

Figure 2: MS Application in Xhosa Language
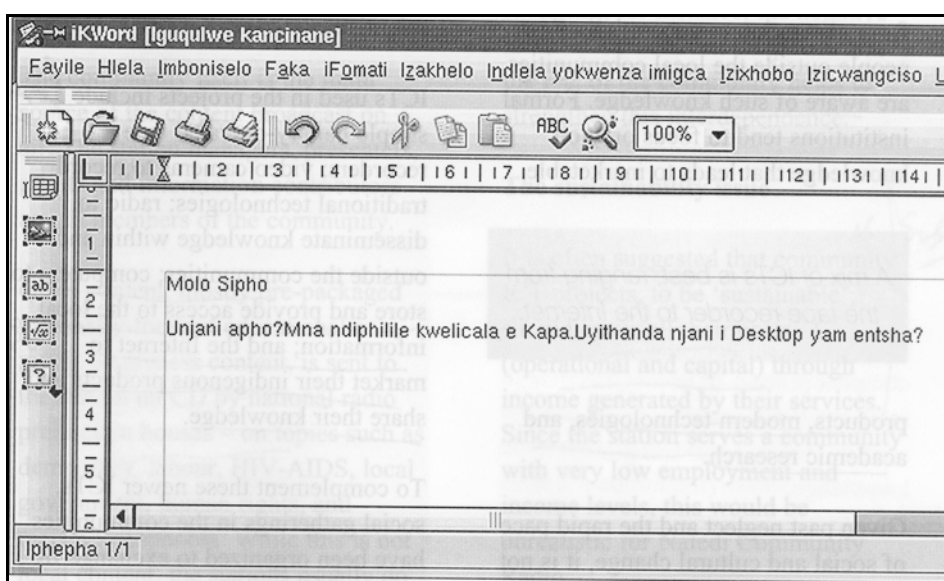
(Source: Martindale, 2002)

UNESCO through its extensive information infrastructure in Africa has helped several countries on the continent to evaluate and disseminate information to the grassroots level through digital libraries. The project involves information publishers, government ministries and universities. The approach of UNESCO in this project is not to generate new information but rather to collate and repackage existing information through digitisation, store it onto CD-ROMs and finally disseminate it (Rose, 2002).

POTENTIAL FOR WEB CONTENT DEVELOPMENT IN AFRICA

There are several African programmes and initiatives that provide a conducive environment for local content creation. In Uganda for example, three pilot tele-centres, two of which are fully funded by the International Development Research Centre (IDRC,) were established three years ago. The pilot tele-centres are meant to provide opportunity to study their efficacy and operational complexities. The tele-centres include: Buwama Multipurpose Community Tele-centre located approximately 80 km south of Kampala along a major highway and off a small trading centre built around a local administration headquarters; Nabweru Multi-purpose Community Tele-centre located approximately 8 km north of Kampala city; and the third multipurpose community tele-centre is located 80 km north of Kampala

city in the hinterland in a village and a small trading centre known as Nakaseke which is situated 30 km from the main high to the north of Uganda. All the three tele-centres are equipped with computers with provision of access to Internet, fax machines, photocopiers, television and video, radio and projectors. They are also equipped with generators for power back-up (Nyiira, 2000)

In 1998 IDRC, ITU and UNESCO funded pilot projects of setting up school-based tele-centres in Uganda and Zimbabwe. The purpose of the projects is to overcome the problems of infrastructure disparity and use of ICT to promote rural community developments. The tele-centres were found to be more relevant especially if the local communities were allowed to participate in their planning and implementation. Similarly, the International Plant Genetic Resource Institute (IPGR) and its partners are helping farmers in Malaysia and Kenya to promote the documentation and sharing of indigenous knowledge within and across local communities. Video cameras are used to record traditional technologies while radios are used to disseminate knowledge within and outside the communities. The computers on the other hand store and provide access to local information while the Internet is used to market the indigenous products and sharing of knowledge (Quek, 2002). AfrAfya in Kenya, a community health initiative made up of several NGOs and the Ministry of Health is exploring practical ways to harness ICTs to improve access to relevant up- to-date health information for rural and other marginalized communities. The consortium has succeeded in translating information into local languages of target communities and has repackaged information into songs, drama and poetry (Nyamai, 2002; AfriAfya.org, 2002, http://www.afriafya.org/). The project is currently developing knowledge management unit to be accessed over the Internet. On the other hand, 28 digital villages in South Africa have been set up for community use by the government in partnership with the private sector. Digital villages are computer resource centres managed by members of the community who are trained in the necessary IT and management skills. One such digital village is in Alexandra, a low-income suburb in Johannesburg. The village is funded by Microsoft South Africa in partnership with Hewlett-Packard South Africa and the Ministry of Local government. Microsoft and HP contributed towards infrastructure development by linking 20 HP workstations, 2 HP servers and 2 HP printers on local area network and enabling Internet connectivity (Microsoft Corporation, 2002, http://www.microsoft. com/southafrica/press/press-501.htm).

Telisa, (the Technology Enhanced Learning Initiative of Southern Africa) conceived by the Centre for Lifelong Learning in cooperation with several partners such as World Bank and UN Economic Commission for Africa is aimed at facilitating the establishment of ICTs centres throughout SADC region and a series of information servers to provide appropriate support material to existing institutions, lecturers, teachers and businesses. Telisa concept has five major areas of action namely: Internet connectivity, information clearing house, institutional connectivity, educator

training, and projects. One such centre is established by the Kgautswane community in Mpumalanga province of South Africa that was set up with the assistance of Old Mutual companies and Safmarine. The centres provide payphones, photocopying, document lamination, scanning of documents, Internet access, community information and access to computers (West, 2000, http://www.pgw.org/telisa/Concept_Document/concept_document_9807.htm).

The Rhodes University in South Africa mounted electronic theses and dissertations on the Web in 1998. This was a milestone given that in Africa research results are poorly covered by international bibliographic databases. It is estimated that only 1% of research work done in Africa is available in many of the international databases and that 60% of publishing in Africa is grey literature and not accessible (Ubogu, 2001; Sturges and Neil, 1998). Further, the South African Bibliographic Network (SABINET) and Ain Shams University Network (ASUNET) in Egypt form very important infrastructure that can be exploited for both content creation and dissemination (Sabinet Online, 2002, http://www.sabinet.co.za; Ain Shams University, 2002, http://www.asunet.eun.eg/).

In Senegal, the Joko project for Internet training for the illiterate was launched in August 2001 and has local content website. Joko project is a partnership of the local community and Hewlett Packard. To date, over 3000 people have been introduced to the Internet through the project. The project offers Internet access to community at minimal cost, and provides platform for local content development, literacy training, etc. The training program is adapted to the needs of adults illiterate population to offer them insight into new technologies and opportunities to select most useful and immediate skills for their own development. Training courses are translated from French to the local language, Wolof. Acacia Foundation and HP provide funding for the project. So far over 2200 illiterates have been taught and trained especially in small-scale business skills (Carney, L and Firpo, 2001)

CHALLENGES OF WEB CONTENT DEVELOPMENT IN AFRICA

There are several challenges that are facing the African countries in their efforts to enhance Web content creation. Media houses are increasingly generating a lot of local content but fall short of adequately covering grassroots information to benefit local communities. A look at information on the Web from Africa's media houses paints a picture of largely English dominated content. English dominated Web content does not augur well for Africa's high illiteracy level. Though efforts are being made in some parts of Africa to translate Web applications and content into local languages, literacy level of people need to be raised to have the desired impact. The school based tele-centres project in Uganda has shown that one of the key success factors in

creating content and providing access to it is through linking the centre with community needs (Mayanja, 2002).

In Africa most of the information is not documented but passed over through oral channels. Such information should be collated and reformatted if it has to be mounted on the Internet in various formats- textual, voice, graphics or animation. Additionally, the disparity in infrastructure layout with urban centres being favoured compared to rural communities in Africa exacerbates the digital divide phenomenon. In addition it is important to consider issues relating to copyright in order to give incentives to content creators. Those people who contribute content on the Web should be recognised, as the owners of the copyright and their authority need to be sought for its use. The problem of power supply and telephone infrastructure is another handicap to local content creation in Africa. Until the power infrastructure is improved especially in rural Africa, content development more so from grassroots communities will continue to be hampered.

It is important to recognise that pushing ICTs to communities without adequately integrating such technologies in the community's socio-economic milieu stands little chances of success. Adequate ICT awareness should be created within communities to enhance technology pull. It is also important to integrate technology with practical content and applications that mirror the communities' real life situations. Users are likely to be attracted to the Web if content in areas such as e-commerce, agriculture and small-scale business, is available (Carnet and Firpo, 2002). In Mozambique for example despite the fact that costs of Internet access at cyber cafes are lower at USD 2.00 per hour and dial up charges of USD 30 per month, the Internet uptake is growing at very slow rate. On average, it is estimated that 25 customers/month sign up for dialup and one for leased line every two months. 92% of the ISPs clients are organizations and ministries. The low use is attributed to lack of appropriate content to the majority of the people who live in rural areas (IDRC, 2002, www.infopol.gov.mz/proj_pol/)

At the moment there is no effective business model that has been developed to enhance ICTs uptake within local communities in Africa. However, the school based tele-centres model in Uganda and the Joko project in Senegal appear to have some level of success through effective involvement of communities by offering applications that have relevance to peoples' life activities. It is important for viable models to be developed to enhance ICTs intake in rural communities. It is pointless to expect that services will always be provided for free and that the private sector will always subsidise. It is equally important to address the problem of language divide. The language divide is a great handicap in local content development especially in Africa where thousands of languages are spoken. Efforts should be made to generate content in national languages spoken by many people. However, access to local content both in English and local languages are likely to be enhanced if the people for

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whom content is developed can at least read. The low literacy level in Africa undermines content creation and use.

Attitude change is important if efforts to enhance content creation and access to ICTs by local communities are to be enhanced. In Mozambique for example a survey in the year 2000 revealed that computers were perceived as luxuries that were not affordable. Other findings showed that businesses were heavily dependent on email as opposed to searching the Web for information and that IT was not widely used in the country. Content was not perceived as important for company profitability (Southwood, 2002). The cost is a big hindrance for gaining access to technology for content creation. Generally in Africa, Internet access has improved in the last two years but the cost of access is still a prohibiting factor for many people. Currently the average cost of using local dial up Internet account for 5 hours a month in Africa is about USD 50 (this include usage fees, telephone time included but not telephone line rental). ISP charges vary between USD10 and USD 100 a month due to different levels of maturity of the markets, varying tariffs policies of the telecom operators and national policies regarding private wireless networks and access to international telecommunication bandwidth. Due to high cost of full Internet access, many ISPs have moved to establish low cost e-mail services. However costs for electronic mail boxes from Africa's ISPs are still high compared to those in Europe and America so users use free-based Internet mail service (Africa Online Holdings Ltd, 2002 http://www.africaonline.com/search/search.jsp?=v&contentid=1952&languageis=1).

Though most countries on the African continent are developing e-government services, this is not happening with coordinated national strategic programs. In such situation the content development evolution is likely to occur irregularly and bring about disparity in access and use of government services.

CONCLUSION

For Africa's contribution on the web to be enhanced, it is important that first and foremost, the dearth of Africa's information resources lying fallow should be revitalised. This would be achieved through a number of strategies including: - harnessing the local knowledge from the gatekeepers in local communities who are the custodian of community information in such areas as smelting, and the artwork, jewellery-making; traditional healing, etc (Raseroka, 2002). Additionally, development of research policies and legal structures that support local communities in the validation of the worth of their indigenous knowledge is needed. Such policies need to be based on mutual respect, partnership and principles of informed consent, and right such as intellectual property, compensation, culture and other generally recognized human rights. In education, policies should aim at including local content into the curriculum at school and tertiary level. Libraries and publishers on their part should be encouraged to get more involved in local content creation because they are

best placed to synthesise and adapt information for local end users as they have the expertise in both writing and editorial skills.

Local content creation cannot just target the elite but must cater for all with emphasis placed on local communities. Information professionals need to take the lead in documentation and repackaging of information while the media can help to disseminate such information. On the other hand the private sector can be encouraged through social responsibility obligations not to tire but continue to come forward and fund community initiatives aimed at creating local content. The digitalisation of documents, as well as creation of electronic databases that are of use to local communities should be encouraged. It is important to invest in training of information professionals in Web design, digitalisation of documents, setting up and maintaining information gateways, and using software that address different languages, as well as strengthen copyright and intellectual property laws. Preservation of community knowledge demands effective government interventionist programmes that recognise the rights of traditional intellectual efforts.

As access to the Internet increases in Africa, it is important to address the issue of security threats to prevent hackers and other cyber criminals from stealing information for monetary gains through enacting appropriate IT policy and using appropriate technology for monitoring mechanisms.

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