Public Internet Access and E-government Distribution in Developing Countries: Evidence from Tanzania

Associate Professor Bjørn Furuholt[1]
University of Agder, Norway
Bjorn.Furuholt@uia.no

and

Lecturer Edmund Matotay
Mzumbe University, Tanzania

abstract: One of the main contributions in order to create development in poor countries is to give people access to information and communication. Most people in poor countries can not afford to buy their own computer equipment, and access has therefore to be facilitated by arrangements for public use. Today, Internet cafés and telecentres are the two main sources of public Internet access in developing countries.
One area where information technology and public internet access can be particularly useful for the development of poor countries is as a tool for promoting good governance through e-government systems. Generally, developing countries are lagging behind in e-government adoption, and in this paper we investigate to which degree public Internet access points, like telecentres, are used for accessing e-government information and services today, and how they can contribute to increased use, in order to support good governance in developing countries in the future.

keywords: *Good governance, Africa, telecentres, Internet cafés*

[1] Corresponding author

1 Introduction

Information technology (IT) has the potential to support development in developing countries, mainly through providing access to information and through building communication lines between people. In countries and regions with limited access to the Internet and other ITs information for personal development, business start-up and growth, or political participation are lacking, education is suffering, and people cannot compete in the global economy. This leads to poor countries suffering greater economic downfall and thus stay in a vicious circle.

Therefore, one of the main contributions to create development in poor countries is to give people access to IT and the Internet, to information and communication. Information has become one of the primary inputs in economic processes, and information technology gradually become more crucial for the ability of enterprises, communities and individuals to participate successfully in the global economy (Hollifield & Donnermeyer, 2003).

For most people in poor countries it is out of the question to buy their own computer equipment, and access to this new technology is facilitated by arrangements for public use. These public Internet access points, variously referred to as information kiosks, telecentres, cybercafés, community technology learning centres, and the like, have experimented to varying degrees of success with a variety of approaches (e.g., business models, service offerings, target populations, technologies employed) in service to their customers (Bell, 2006). Public access points like telecentres and Internet cafés has been successfully spread to poor countries mainly because it combines a reasonably priced access to the Internet with the chance to socialise with fellow users and to pick up new knowledge and ideas in computer usage.

Telecentres operate mostly as not-for-profit organisations, relying on sources of external funding, including government institutions, multilateral agencies, and non governmental organisations and with an explicit objective to support the community, which often mean to support development among underprivileged and marginalised populations. Internet cafés, on the other hand, are normally owned by local entrepreneurs and represent business opportunities for the owners. As private enterprises, their primary purpose is to generate profit for their owners. Both Telecentres and Internet cafés varies considerably in size and variety of services. “Multipurpose Community Telecentres” (MCTs), for example, is an advanced concept promoted by the International Telecommunications Union (ITU), including facilities such as libraries, training workshops, seminar rooms and office space, and providing services such as videoconferencing, distance education, training and e-commerce (Oestmann & Dymond, 2001).

Today, Internet cafés and telecentres are the two main sources of public Internet access in developing countries and these are the principal means of accessing the Internet in countries such as Tanzania, Indonesia and Peru, where as much as two thirds of Internet users get their access through public Internet access points (Wahid et al., 2006).

One area where information technology and public internet access can be particularly useful for the development of poor countries is as a tool for promoting good governance through e-government systems. Kristiansen (2004:11) states that: ”there seems to be a clear relationship between information asymmetry, corruption and bad

governance". This view is supported by UNDP, which claims that:

> Access to information is a pivotal empowerment tool and underpins effective interventions in the area of democratic governance which is central to sustained poverty reduction and the achievement of the MDGs. It is vital for strengthening accountability, transparency, participation and rule of law (UNDP, 2010).

During the last 10-15 years, governments from all over the world have tried to take advantage of information technology in general and the Internet in particular to improve governmental administration and communication with their citizens and businesses.

Adoption of e-government has increased in most countries but at the same time the rate of adoption varies from country to country. Generally, developing countries are lagging behind in e-government adoption compared to developed countries, and among the developing countries, Tanzania and its East-African neighbours are at the bottom of the United Nations' Global e-Government Readiness rankings (United Nations, 2008). Based on the 2008 global e-government survey, Tanzania was no 143 out of the 182 surveyed countries, Kenya no 122, Uganda no 133, Rwanda no 141, Malawi no 146, Mozambique no 152, and Burundi no 174.

It even shows that the Eastern African region showed little improvements and that the majority of the countries surveyed had a lower ranking in 2008 compared with 2005. This lack of access for the millions of inhabitants of the region contributes to exclusion from the benefits of the information society.

In this paper we investigate to which degree public Internet access points in general, and telecentres in particular, are used for accessing e-government information and services in Tanzania today, and we aim to improve our understanding of how they can be used in order to contribute to good governance in developing countries in the future.

The paper is organised as follows. After this introduction, we present an overview of relevant literature discussing e-government services and public Internet access in developing countries. Section 3 presents the three cases studied, followed by a closer description of the findings from this work, while section 6 provide our conclusions, limitations and prospects for the next phases of this project.

2 Literature on e-government and public Internet access

E-government can be defined broadly as the use of information and communication technologies in the public sector to improve its operations and delivery of services. Although e-government encompasses a wide range of activities and actors, three distinct sectors can be identified. These include government-to-government (G2G), government-to-business (G2B), and government-to-citizen (G2C) (Furuholt and Wahid, 2008:2).

The term e-governance has a wider meaning than e-government, and it is directly linked to the concept of good governance. UNESCO (2010) defines e-governance as:

> "… the public sector's use of information and communication technologies with the aim of improving information and service delivery, encouraging citizen participation in the decision-making process and making government more accountable, transparent and effective".

According to Heeks (2001), e-governance lies at the heart of two global shifts: the information revolution and the governance revolution. Both shifts are changing the way

society works and the way that society is governed. But it is only those who have access to IT and digital information and knowledge, who benefits from reforms in governance. We can thus talk of an 'e-governance divide' that is increasingly separating developed and developing countries, and elites and ordinary citizens within developing countries.

Some literature has dealt with the opportunities and challenges of e-government in developing countries and it shows that the main opportunities for e-government in general, like cost reductions, improved efficiency, and quality of services, also apply to projects in developing countries. Some motivation, however, seems a stronger and more important factor for transitional democracies and developing economies which may emphasize reforms such as transparency, increased citizen participation and attracting economic development (Seifert & Bonham, 2003). A common theme is the focus on transparency and fighting corruption. Grönlund et al. (2005), for example, have studied a selection of handbooks for managing e-government projects in general, and for developing countries in particular, and found that, apart from a particular focus on corruption in the developing countries, these handbooks are strikingly similar.

To be effective, e-government projects, like information systems in general, must focus on the social contexts into which they are introduced. This is even more important in developing countries, many of them African countries, with great cultural differences from the "western" world where the technology and systems normally are designed and developed. According to Heeks (2003) there is often a large design-reality gap when you try to introduce an e-government system designed in and for an industrialised nation into a developing country.

Schuppan, (2009), as well, addresses the different institutional and cultural contexts which must be considered when implementing e-government in Sub-Saharan Africa. Although e-government is a global phenomenon, simply transferring IT solutions and related organizational concepts from developed to developing countries seems inappropriate. More than in developed countries, the different initial institutional, cultural, and wider administrative contexts must be considered to avoid unintended effects. Therefore, especially for African countries, a context-oriented approach seems to be a more promising route to the successful implementation of e-government.

Despite some initial success, e-government has yet to prove successful in developing countries. E-government initiatives face serious challenges and broadly speaking, these challenges seem to fall into three categories: *management, infrastructure*, and *human* factors (Furuholt and Wahid, 2008). While the first category is solely linked to the supply side, the infrastructure and human factors belong to both the supply and demand side, i.e. citizen issues. Few projects meet these challenges, and the failure rate is high. Heeks (2003) has analyzed more than 40 e-government-for-development projects in developing countries and estimates that only 15% were successes.

Also Sein (2009) points to critical developing country challenges, and he highlights the human factor. He states that the main hurdle has been that an overwhelming part of the citizens in these countries do not have the capability to either access government information physically or to use it effectively even when they can access it. He suggests that linking citizens to government in developing countries require an intermediary. Sein and Furuholt (2009) further develop this idea of intermediaries, and suggest that this role could be played by telecentre and Internet café staff, and thus that these public Internet

access points have the potential to play an important role in the spread and use of e-government services.

Apart from the few articles mentioned above, very little research is published on e-government use in East-Africa and Tanzania. The UN annual e-government readiness survey (United Nations, 2008) has been published at regular intervals since 2003 (See section 1 above for East African details). The Survey aims to identify and help address disparities among countries around the world; especially, in support of a move towards a more inclusive information society, as envisaged in the World Summit on the Information Society (WSIS). The Survey tracks the progress of the member states in implementing e-government programmes. It compares their state of e-government readiness via a benchmarking tool and measures the use of the Internet and the World Wide Web (WWW) for the provision of information, products and services; plus the level of telecommunication and human capital infrastructure development.

Another survey, also with a supply side focus is presented by Kaaya (2004). She conducted a content analysis study to determine the status of government websites of three East African countries - Kenya, Tanzania and Uganda. The results were matched with a four-stage model of e-government growth based on the status of websites from simple to sophisticated features. The study identified 98 government websites including 33 for Kenya, 37 for Tanzania and 28 for Uganda. More than 83% of the identified websites were established between 2000 and 2003 and their creators were still (in 2004) undergoing the learning experience. The study concluded that all of the East African websites are at the first and second stages of the website development and corresponding e-government services.

As mentioned above, improving transparency and fighting corruption has been main drivers when introducing e-government in developing countries. Schuppan (2009) describes implementation of a tax administration system in Tanzania, and he claims that this project has reduced corruption because the users now can go to a special dedicated one-stop office instead of having to contact back-office employees. Even if this is a governmental office, this public access point has increased transparency and tax revenue, and reduced processing time and the possibility of fraud.

A thematic report by Tan (2007) describes lessons learned from setting up and managing five rural communication access centres in Tanzania, including the Sengerema telecentre (see below). From this study and subsequent discussions at a following-up workshop, he present a long list of lessons learned and derived, without even mentioning the role of these centres as e-government service providers, which clear illustrates the need for making up for this shortage and study their potential closer.

Our literature review thus reveals that there has been very little research which shed light on our research question, and to build our work on, and that we, therefore, have to start with an explorative approach to our study of e-government use from public Internet access points.

3 Cases and data collection

From our previous Internet café research (e.g. Furuholt and Kristiansen, 2007) we found very few traces of e-government use from Internet cafés in Tanzania. Our next step was therefore to look into telecentres, the other main type of public Internet access points. The

Sengerema Telecentre (STC) in Mwanza region was then chosen as our primary case, because it is known as a model and a pilot telecentre in Tanzania. The other cases are the broadband networks in Bunda and Serengeti districts in the Mara region, and the Soma Book Café in Dar es Salaam, all in all three very different types of not-for-profit Internet access points.

In this study, as the first step, we have interviewed the supply side stakeholders; staff, management and support organisation. Data collection was conducted in September - November 2009, using semi structured face-to-face interviews and informal focus group discussion with the actors. The interviews were carried out with the acting director of the Directorate of Information and documentation at the Tanzania Commission for Science and Technology (COSTECH), staff from the the ICT for Rural Development (ICT4RD) research and development programme at the Dar es Salaam Institute of Technology, the STC manager, and with the Soma Café manager. The focus group discussions were made with the Head of the Operations and the IT manager at STC, in their premises.

The interviews and focus group discussions focused on the participants' experiences with e-government implementation and use, and their opinion on the development of e-government services in the region and in Tanzania in general.

3.1 The Sengerema experience

Sengerema telecentre was initiated by (COSTECH) with support from the International Development Research Centre (IDRC) and other international donors back in 2001. At that time it was the country's pilot rural telecentre.

Today, STC offers a wide variety of IT related services, with many community development aspects, like an Internet café where staff are instructed to help customers to operate the computers, and to search for relevant information and services. They also run their own library and community radio station, in order to reach out to the rural villages with relevant information, training and distant learning courses, ISP services to various organisations (NGOs etc), and they run ISP services for the local and district government. Their intention is to develop the governmental bodies to e-governments. They also offer a variety of IT consultant and secretarial services, like desk top publishing and web design.

The ISP services are their main source of income, together with the Internet café. An interesting feature of the centre in terms of staffing is that they to a high degree are relying on volunteers. Only five people have fixed position out of 18 employees. In addition to relying on volunteers and paid staff, the centre also gets assistance from local NGOs like women belonging to Sengerema Women Information and Communication Group, for dissemination of information and on local dance groups and musicians for creating awareness and promoting the telecentre.

3.2 The Bunda and Serengeti networks

The starting point for these projects was the support provided by Swedish International Development Agency (SIDA) to the Tanzania Electrical Supply Company (TANESCO) to link up 12 villages in Bunda and Serengeti Districts in Mara Region with the national electric grid (Mascarenhas and Kimasha, 2007). A fibre optic cable was included in the electrical overhead cables provided for this project primarily to monitor the supply of electricity. However, the capacity was large enough to accommodate other forms of data

transfer and internet connectivity using broadband.

IC-Tanzania is a national committee of stakeholders in the IT sector with representatives from public and private institutions as well as development partners. One of its projects is ICT4RD, a four year program with the objective to explore the possibilities of having affordable internet connectivity in the rural areas in Tanzania. The essence of the project is to test different infrastructures, technical solutions and different business models, and to investigate usage and impact of the connectivity.

The networks are connecting the headquarters of the two municipalities, the Serengeti district in Mugumu and Bunda district in Bunda**.** The primary focus of the network is to connect the two local government authorities, some education institutions and health facilities in the two municipalities. The network is hosting the website (www.bunda.go.tz) where it's content management is being done in Bunda, a local email server, telecommunication services via voice over IP, and a wireless LAN across and between the connected centers. So far the two municipal councils are connected together with one primary health centre and one secondary school.

3.3 Soma Book Café

Soma Book Café in the Kinondoni area of Dar es Salam is run by Soma, a non profit organisation with a vision to fight poverty by transforming Tanzania into an informed society that values knowledge, creativity and independent thinking. The café premises houses a bookshop and a mobile library, with a focus on African culture, café services based on East African cuisine, a number of computers with Internet connection and a wireless network for rent for visitors bringing their own equipment. They run various educational and networking forums and publish a quarterly literary magazine. The Soma organisation receives some external financial support from Swiss Development Cooperation and other donors.

4 Findings

In general, most citizens have to access e-government services either in a governmental office, or in a public Internet access point.

Sengerema telecentre (STC) is providing Internet services for the local governments, as an ISP, in order to make them capable of offering e-government services. This is their first step towards building up an effective e-government service. The second step has been to support the local and regional governments when developing their web presence and the third step has been to make these services available for citizens, by running the Internet café services, and by supporting other Internet cafés in the region in their supply of Internet based services. Today we can see some, but very weak traces of use of e-government services from the demand side (G2C), limited to some access to static web sites with governmental information. The STC management, however, has a clear vision of providing the local community with relevant content, in particular in collaboration with the local authorities and educational institutions.

In the Bunda and Serengeti districts, the use of the Internet is, in general, low. There is no local ISP and not a single Internet café. Within the local government offices, however, there are adequate equipment and many of the district staff have been trained in the use of computers. There is also some use of the Internet. It is being used by

departments in both district councils, by the district hospital in Bunda district, and by businesses like Varrian Tanzania and the Bunda Oil Mills. Website information updates and changes are still poor. It took, for instance, nine months to change or update the current information in the website. Moreover an informant has revealed that:

> "… still there is a problem of community awareness of this important community project, People don't own the project; they perceive it as a government project, for the government and not the community purpose, only students and youth see it as an opportunity".

The establishment and deployment of the technology in between and across these two municipalities had in mind the whole aspects of enhancing e-government in the municipalities. But so far, it is only government institutions that are connected (G2G). The main informants claimed, however, that:

> "if you serve these municipal councils and their respective health and education institutions very well, then, then the community will benefit through improved services, and you have served the people" (G2C).

While the two first cases are mainly supply-side oriented in their e-government approach, Soma Café is focusing on the demand side (citizens). Their vision is to empowering people by giving them access, and inspiring them to use it for knowledge development and e-participation. People are coming to the café both for pleasure and work, and the manager told us that they (the Soma organisation) look at the café as a "community knowledge centre", recognising that "information is power". They promote life long learning and aspire to take the role of "intermediary", in order to proactively supporting their clients in debating, networking and building up an active reading culture on the Internet.

Even if all three telecentres had explicit development objectives, and had high ambitions regarding use of e-government services and e-participation for their clients, we found, so far, very few traces of actual use of such services when we visited them. As far as we understand this is due to infrastructure as well as management and human factors.

5 Conclusions and recommendations

This paper describes research in progress which started with asking to which degree public Internet access points are used for accessing e-government information and services in Tanzania today. As it appears from the cases described above, the use is highly limited, if any at all, and the reason for this has several explanations, from the supply side as well as from the demand side.

There is a pressure from international organisations and national NGOs to offer e-government services in developing countries. This pressure is forwarded from central governments to local government agencies. As a general experience, however, it seems like the G-side in the G2C context has focused very little on how the citizens may achieve access to the services. They offer it, and that's it. It seems to be the citizen's own responsibility, or up to "intermediaries" like telecentre staff, to arrange for the access and to make efforts in order to utilise the information and services. In our opinion, the public sector has to take on responsibility also for the demand side. This can be done through a public/private partnership with these potential intermediaries.

Our first recommendation has, therefore, to do with the general attitude toward

Internet access in general and e-government services in particular. If access to Internet services is as important an advance for the development of poor countries as the 2005 United Nations Summits claims, then we contend that governments should consider Internet access as a 'public good', an essential part of the local, community infrastructure like electricity or schools. To this end, governments could collaborate with private companies or international organisations and could provide the infrastructure for access in all parts of the country, like we see some signs of in the cases, in particular in Sengerema.

The second recommendation deals with the public sector's attitude toward Internet access points. Some authors suggest that public telecentres should be developed in the same manner as Internet cafés by using the same kinds of business properties. Our suggestion is broader, by including privately owned Internet cafés in this partnership as well. We therefore propose that the public and private sectors establish a partnership, where the public sector supplies the thousands of already existing privately owned Internet cafés with Internet based e-government content and services. These services, in turn would benefit both the private and public sectors. This would also give more benefits to the users and thus help build up a basis of sustainable Internet access points.

Our next research step will address the other stakeholders, namely central and local government agencies, policy makers, users and potential users to improve our understanding of how the public Internet access points can be instrumental in order to increase the use of e-government services with an objective of contributing to good governance in developing countries in the future.

References

Furuholt, B. and Kristiansen, S., 2007. A rural-urban Digital Divide? Regional aspects of Internet use in Tanzania. *The Electronic Journal of Information Systems in Developing Countries*, 31, 6, 1-15.

Furuholt, B. and Wahid, F., 2008. E-government Challenges and The Role of Political Leadership in Indonesia: The Case of Sragen. *The 41st Hawaii International Conference on System Sciences (HICSS)*, January 7-10, 2008, Hawaii, US.

Gorla, N. (2009) A Survey of Rural e-Government Projects in India: Status and Benefits. *Information Technology for Development,* 15, 1, 52–58.

Grönlund, A., Andersson, A., and Hedström, K. (2005). "NextStep E-Government in Developing Countries," *ProjectReport*, Örebro University, Sweden.

Heeks, R. (2001). Understanding e-Governance for Development*, iGovernment Working Paper Series*, Institute for Development Policy and Management, University of Manchester, UK, paper no. 11.

Heeks, R. (2003). Most E-Government-for-Development Projects Fail: How Can Risks be Reduced*? iGovernmentWorking Paper Series*, Institute for Development Policy and Management, University of Manchester, UK.

Hollifield, C.A., and J.F. Donnermeyer (2003). Creating Demand: Influencing Information Technology Diffusion in Rural Communities. *Government Information Quarterly,*20,2, 135-150

Kaaya, J., (2004) Implementing e-Government Services in East Africa: Assessing Status through Content Analysis of Government Websites, *Electronic Journal of e-Government*, Volume 2, Issue 1, pp 39-54.

Kristiansen, S. (2004). Information asymmetry, corruption and governance. *The Norwegian Network on ICT and Development Annual Workshop: e-Governance, e-Democracy and Development,* October 11-12, 2004, Kristiansand, Norway

Mascarenhas, O. and Kimasha, E. (2007). A baseline study for assessing the impact of fiber optic broadband in Bunda and Serengeti Districts", March 2007. URL: (Accessed Oct 2009): http://www.ict4rd.ne.tz/files/docs/ICT4RD_Baseline_MainDoc.pdf

Oestmann, S. and Dymond, A.C.(2001). Telecentres — Experiences, Lessons and Trends, in: *Latchem and Walker (Eds.) Telecentres: Case studies and key issues*, The Commonwealth of Learning, Vancouver, Canada.

Schuppan, T. (2009). E-Government in developing countries: Experiences from sub-Saharan Africa. *Government Information Quarterly*, 26, 118–127.

Seifert, J.W., and Bonham, G.M. (2003). The Transformative Potential of E-Government in Transitional Democracies*, the International Conference on Public Administration in the 21st Century: Concepts, Methods, Technologies*, School of Public Administration, Lomonosov Moscow State University, 26-29 May 2003.

Sein, M.K., Ahmad, I. and Harindranath, G. (2008). Sustaining ICT for Development Projects: The Case of Grameenphone CIC. *Telektronikk,* 104, 2, 16-24.

Sein, M.K. (2009). E-Government in Developing Countries: Linking G to C through I. *Proceedings of the 1st international conference on Egovernment & Egovernance,* March 12-13 Ankara, Turkey

Sein, M.K. and Furuholt, B. (2009). Intermediaries in ICT4D: The other "I". *Proceedings of the Association for Information Systems 2nd Annual SIG GlobDev Workshop (Pre-ICIS Meeting)***,** Phoenix, Arizona, December 14.

Slack, F. and Rowley, J.E. (2004). Challenges in the delivery of e-government through kiosks. *Journal of Information Science*, 30, 4, 369–377.

Tan, L. (2007). Rural Communication Access Centres in Tanzania. Thematic Report. The International Institute for Communication and Development (IICD). URL (accessed Sep 2009): http://www.iicd.org/files/Rural-Communication-Access-Centres-Tanzania-2007-Liang-Tan.pdf

UNDP (2010). E-Governance and Access to Information for Citizens' Participation. Practice Notes. URL (accessed Jan 2010): http://www.undp.org/governance/sl-egov.htm

UNESCO (2010). Web World. Communication and Information Activities. URL (accessed Jan 2010): http://portal.unesco.org/ci/en/ev.php-URL_ID=3038&URL_DO=DO_TOPIC&URL_SECTION=201.html

United Nations (2008). United Nations e-Government Survey 2008: From e-Government to Connected Governance, United Nations, New York, 2008. URL (accessed Oct 2009):

http://unpan1.un.org/intradoc/groups/public/documents/UN/UNPAN028607.pdf

Wahid, F., Furuholt, B., Kristiansen, S., 2006. Internet for development? Patterns of use among Internet café customers in Indonesia, *Information Development*, 22, 4, 278-291