

## PDF hosted at the Radboud Repository of the Radboud University Nijmegen

The following full text is a publisher's version.

For additional information about this publication click this link.

<http://hdl.handle.net/2066/134630>

Please be advised that this information was generated on 2019-09-18 and may be subject to change.

## Zanzibar Readiness Towards e-Government

M.M. (Maryam) Khamis, Radboud University, the Netherlands, m.khamis@cs.ru.nl

Th.P. (Theo) van der Weide, Radboud University, the Netherlands, tvdw@cs.ru.nl

### Abstract

E-government is an expedient tool to overcome social economic challenges. Being in an initial phase of e-government introduction, Zanzibar has to include the use of ICT in its policy documents such as vision 2020 and MKUZA II. In particular, Zanzibar has established a communication infrastructure and a department to implement e-government activities. This paper analyses the readiness of Zanzibar towards e-government implementation. We do a SWOT analysis to identify the government acceptance of e-government implementation. We identify the major strengths for a successful implementation. A major threat however the technological evolution may be resistant to the majority. Therefore the government should take action by giving clear understanding of the ICT technology to the community.

**Keywords:** Tanzania, Zanzibar, e-government, SWOT analysis.

### Introduction

Information and Communication Technology (ICT) is the key tool to overcome the technological challenges and create good strategies towards development and economic competition around the world. Good leadership, a strategic plan and an e-government framework facilitate the country to achieve the desired objectives as formulated in OECD (2005). E-government cannot solve all the problems of public and private organisations. It creates an option for country development to structure activities, process services, manage human resources and public administration (Canteno et al. 2005). E-government may jeopardise information privacy and government information security. Physical and cyber security deployment is needed to avoid e-government failure. (Jacobi et al. 2013, p. 45)

In this study, combining various sources like OECD (2005) and CEC (2003), e-government is defined as the use of ICT to support government to improve information flow and service delivery in a reliable way, to increase production, revenue and transparency.

The use of ICT provides a promising opportunity for economic development, production improvement and international business competition. ICT is a powerful tool to overcome barriers and challenges for future economic growth. ICT can be used to collect, store and process large amounts of information at minimum cost and time but also for network interaction and communication internationally (Ndou, 2004). The government of Zanzibar has realised the importance and the use of ICT; it was encouraged to ensure sustainable services at high quality. Efficient results have been achieved to help poverty reduction in the next coming years. This has been seen when government introduced the use of ICT in every sector in MKUZA II (2010) and (vision, 2020). The complexity of e-government initiatives involves a variety of challenges and barriers which hinder its implementation. ICT infrastructure and policy documents bring full meaning of e-government implementation. This is the main challenge to many developing countries (Ndou, 2004).

### Background

Tanzania is a developing country in sub-Sahara Africa with a population of 45 million. Zanzibar is a semi-autonomous part of Tanzania with its own government (the Revolutionary Government of Zanzibar), consisting of the Revolutionary Council and the House of Representatives in a population of 1.3 Million. The Revolutionary Council has as its principal role to advise the President of Zanzibar being

the Head of government. The House of Representatives consists of 81 Seats in which 50 members are elected by people, 10 members are president appointee, 20 members are special seats for woman and attorney general. House of Representatives of Zanzibar (2014) is a legislative organ in Zanzibar and has the function of legislating, oversight and presenting legislative matters. Zanzibar government implements three tier authorities from central government to the local authority. The local authorities have a direct implication with the community. UNDP (2003) reported that Zanzibar have a total of 236 shehia within 10 districts distributed in 5 regions.

Since 2009 when the National ICT Broadband Backbone (NICTBB) was started there has been an enormous change in the use of ICT in Tanzania due to the effectiveness and reliability obtained by the International connection through undersea cable (SEACOM, EASSY). This implementation enables Tanzania to implement e-government services more efficiently (Pazi and Chatwin, 2014), (NICTBB, 2014) confirm price decrease by 56% for internet retailers of 20GB broadband from 2006 to 2011, the price is even decreasing each year. The number of internet users in Tanzania has been growing tremendously from 2008 with an average yearly growth of 49% (Global report, 2014). Private and public organisations increase the use of ICT technology in their working environment (Karokola, 2010). Various computer training workshops have been conducted, (Braa, Heywood and Sahay, 2012) to equip people to computer literacy. Moreover the government has introduced ICT as subject in primary education (Education policy, 2006).

## **Readiness Analysis**

In this section we will discuss the position of Zanzibar with respect to its readiness to introduce e-government. In order to achieve this we will perform a SWOT (Strength, Weakness, Opportunity and Threats) analysis in Zanzibar context, and then discuss the confrontation matrix (Table 1). First we will discuss the internal factor (strengths and weaknesses) then the external factors (opportunities and threats). The confrontation matrix is the element of the SWOT analysis that combines internal and external factors. After that we draw some conclusions.

## **Strengths and Weaknesses**

Zanzibar wants e-government to implement the country strategic plan. This includes ICT policy formulation and implementation; enhance the use of ICT in all sectors together with capacity building on the use of ICT. A successful introduction of e-government is highly dependent of a mature ICT infrastructure. The use of ICT was prioritised and emphasised in the Zanzibar Strategy for Growth and Reduction of Poverty (ZSGRP II) 2010-2015 also known as MKUZA II. MKUZA II (2010) is a tool that the Zanzibar government will deploy to realise the Millennium Development Goals, improve living standards and strengthen good governance. In this policy document ICT is seen as a major issue at several places. This ambitious view on ICT is a strong point referred as Sp1.

Building an ICT infrastructure for e-government implementation is a government asset since the isles of Unguja and Pemba in Zanzibar were fully wired with fiber cable. The installation of the fiber cable in Zanzibar has increased data and voice traffic volumes, high security and promising data transmission at minimum cost, compared to traditional microwave transmission. This strong point is referred as Sp2. The establishment of e-government and a data centre office in Zanzibar will simplify implementation since all related issues, such as system security, control and monitoring, will be in one stop centre. This is strong point Sp3.

A District Health Information System (DHIS) has been established to record information for both public and private healthcare in Zanzibar (Lungo & Igira, 2008). The data is collected from the Primary Health Care Units (PHCU) to the Referral Hospitals; data are managed at ministry level and used in decision making, planning of activities and monitoring of healthcare delivery. To have this application running for more than 5 years is a strong point referred as Sp4. The project was funded by the University of Oslo, Norway. Being funded by external agents is considered a weak point and referred to as Wp1.

Rapid technological growth has an impact on both infrastructure and surrounding people who will be affected by it. On the side of infrastructure, it leads the country to the technological evolution in which the infrastructure is not fully prepared. This is weak point Wp2. Surrounding people such as citizens, government and non government officers may not have the skills to use ICT technology, this is Wp3.

### **Opportunities and Threats**

The submarine cable is a single point of failure. When broken, repair may be difficult. Internet access then is hindered especially in some rural areas, since Zantel, the leading telecommunication company, has a weak coverage to these areas (Zantel 2014). Breaking the cable is a threat and referred as Tp1

E-government implementation is not new, many developed and developing countries have already experienced different scenarios as described in (CEC, 2003) and (UN, 2014). There are reference sites for learning good practices. This is an opportunity referred as Op1. The openness of e-government creates a room for two way communication between government and citizens. Rules and rights are open to everybody increasing transparency and service delivery. This is an opportunity referred as Op2. Using internet, individuals can qualify in various disciplines at all educational levels. Various professionals are available online for training people; learners may obtain a degree from many universities around the world without attending class such as Stanford University of California, USA. This is opportunity Op3.

E-government reduces administrative cost and provides for efficient service delivery. It reduces corruption which is the key challenge in many public sectors, thus improving the quality of leadership (Kim 2013). The use of e-government thus creates an opportunity of poverty reduction in developing countries. This is opportunity, Op4. On the other hand the use of e-government needs very high consideration of data security without violating trust of the majority. This is a threat, referred as Tp2

Depending on how they perceive e-government and priority settings, Government officials may hamper the introduction of e-government. This is a threat, referred as Tp3. Furthermore, the exponential growth of technology enforces society to enter the digital evolution.. Society should understand new concepts such as information sharing and control practice. Being not ready to adapt the changes is threat Tp4.

### **Confrontation Matrix**

The confrontation matrix combines internal (strengths and weaknesses) with external factors (opportunities and threats). In Table 1 indicate the relevancy of internal factors for external factors.

### **Analysis of confrontation matrix**

In this section we explore internal factors with the external factors available in Zanzibar to have sustainable development towards e-government implementation. Special combinations of strong points and opportunities are:

1. Policy Sp1 - International Op1: Having government emphasis on the use of ICT to every sector available in MKUZA II and Zanzibar vision 2020 is an opportunity to have successful implementation.
2. Connection Sp2 – Communication Op2: Strong connection of Zanzibar districts and regions through fiber cable creates and opportunity for communication availability over the country. Government services can be accessed at minimum cost.
3. Department Sp3- Cost Reduction Op4: Central services are required to be available 24/7 basis. This creates an opportunity to minimise running cost since no need to have duplicate resources of the same functions. Also having centralised services help to enforce standard security policy over the country.

- DHIS Sp4 – International Op1: The success of DHIS project builds strong opportunity to implement other electronic projects.

5. Table 1. Confrontation Matrix

		Op1	Op2	Op3	Op4	Tp1	Tp2	Tp3	Tp4
		international	Communication	equal distribution	Cost reduction	single point of failure	security	power structure	adaptation
Sp1	Policy	xx							
Sp2	Connection		Xx						
Sp3	Department				xx				
Sp4	DHIS	xx							
Wp1	Dependency					Xx			
Wp2	Infrastructure						xx		
Wp3	Basic training								xx

The following combinations of weak points should be considered:

- Dependency Wp1 – Single point failure Tp1: The government should formulate the future plan to handle any infrastructure failure. This is very important as Zanzibar experiences electricity blackout for three months consecutives (Hankinson et al 2011).
- Infrastructure Wp2– Security Tp2: Infrastructure security is the threat in the e-government implementation system. Infrastructure implies physical and cyber security.
- Basic Training Wp3 – Adaptation Tp4: The main users of e-government system are citizens. If the society does not accept, the implementation won't be smooth and may fail. People may reject the system if they do not have knowledge of using it (Lean et al. 2009). Government should provide ICT training, workshop and seminar to its nation

## Conclusion

Zanzibar has many reasons to change the current government services to the electronic based service delivery to speed up economic transformation in the country. The existing weaknesses and threats should be considered before and during initiation phase. Moreover the opportunity and strengths will help to build strong and sustainable implementations. Technological evolution conveys more challenges, but when lesson learned from other countries will reduce the implementation snags. Based on government formulation and government structure there is a very large opportunity for Zanzibar to adapt and employ e-government services.

This is the starting point for a PhD research with the intention to define an optimal framework for the introduction of e-government in developing countries in general, and Zanzibar in particular

## Acknowledgment

This study is part of the PhD research by the first author and is sponsored by Ministry of Higher Education, Sultanate of Oman.

## References

- Braa J, Heywood A & Sahay S,(2012), Improving quality and use of data through data-use workshops: Zanzibar experience ,*Bull World Health Organ*; 90:379-384
- Centeno C, van Bavel R and Burgelman JC,( 2005) “A Prospective View of e-Government in the European Union” *The Electronic Journal of e-Government* Volume 3 Issue 2, pp 59-66,[Retrieved October 2014],[www.ejeg.com](http://www.ejeg.com)
- Commission of the European Communities,(2003), “The Role of eGovernment for Europe's Future”
- Global Report, (2014),” Number of Internet users still low in Tanzania”, The Guardian on sunday, [Retrieved October 2014] <http://www.ippmedia.com/frontend/?l=64361>
- Hankinson, D., Pierce, L., Chaplin, D., Mamun, A., Chatterji, M., Powers, S., et al.(2011), Tanzania energy sector impact evaluation: Findings from the Zanzibar baseline study. Washington, US: MATHEMATICA, Policy Research, Inc.
- Jacobi, A., Jensen,M.J., Kool,L., Munnichs,G., Weber, A.,(2013) Security of eGovernment Systems, Conference Report ,STOA.[Retrieved October 2014], <http://www.ep.europa.eu/stoa/>
- Karokola G., (2010), A Systemic Analysis of e-Government Maturity models: The Need for Security Services: A Case of Developing Regions. Licentiate of Philosophy Thesis, Department of Computer and Systems Sciences, Stockholm University /Royal Institute of technology.
- Kim, J. Y., (2013),” Corruption is ‘Public Enemy Number One’ in Developing Countries”, press release, World bank,[Retrieved October 2014], <http://www.worldbank.org/en/news/press-release/2013/12/19/corruption-developing-countries-world-bank-group-president-kim>
- Lean,O.K, Zailani, S. , Ramayah,T., Fernando,Y., (2009), Factors influencing intention to use e-government services among citizens in Malaysia, *International Journal of Information Management*, 29, 458–475.
- Lungo, J. H., & Igira, F., (2008), Development of health information system in Zanzibar: practical implications, *Journal of Health Informatics in Developing Countries*, 2, 24-32, [Retrieved October 2014] <http://www.jhidc.org/index.php/jhidc/issue/view/4>.
- National ICT Broadband Backbone, (2014), [Retrieved October 2014] <http://www.nictbb.co.tz/>
- Ndou, V.D,(2004), “E-Government for Developing Countries: Opportunity and Challenges”, *The Electronic Journal of Information System in Developing Countries*, 18, 1, 1-24
- OECD,( 2005 ), E-Government study, E-Government Imperative,
- Pazi,S. & Chatwin, C, (2014), “The Impact of NICTBB in Facilitating the EServices and M-Services in Tanzania, World Academy of Science”, *Engineering and Technology International Journal of Social, Management, Economics and Business Engineering* Vol:8 No:3
- Revolutionary Government of Zanzibar (RGoZ), (2002),”Zanzibar Vision 2020”.
- Revolutionary Government of Zanzibar, Ministry of education and vocational training (2006) Education Policy.
- The House of Representatives, (2014), Establishment & Composition of the House of Representatives. [Retrieved October 2014] <http://www.zanzibarassembly.go.tz/establishment.php>

The Revolutionary Government of Zanzibar (RGoZ), (2010),”MKUZA II, Zanzibar Strategy for Growth and Reduction of Poverty (ZSGRP II) 2010-2015”. A successor to the Zanzibar Strategy for Growth and Reduction of Poverty 2007-2010,[retrieved October 2014] [zanzibar.go.tz/admin/uploads/MKUZA%20II%20Final.pdf](http://zanzibar.go.tz/admin/uploads/MKUZA%20II%20Final.pdf),

United Nations Development Programme (UNDP), (2003), Local government in Zanzibar report

United Nations (UN), Department of Economic and Social Affairs, (2014), United Nations E-government Survey

Zantel,(2014), Zantel set to increase services country-wide. Internal paper, [Retrieved October 2014] [http://www.zantel.co.tz/press\\_release/Zantel%20Story%20-%20Data.pdf](http://www.zantel.co.tz/press_release/Zantel%20Story%20-%20Data.pdf)