

## *E-Government, E-Democracy, Freedom of Information and Open Government Data in Sub-Saharan Africa: An Overview of Progress, Challenges and Remedies*

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**Abstract**—ICTs have advanced considerably, globally and their use in public administration is no exception. In view of the numerous advantages offered by these technologies, they are now crucial for the work of the public sector, for civil society organizations and for governments, which use them for intra-governmental communication and for providing services and information. Significantly, proving to be effective platforms to facilitate of Information and Open Government Data in Sub-Saharan Africa.

**Keywords**—*ICT, e-Government, e-Democracy, e- Participation, FOI and Open Government Data.*

## I. INTRODUCTION AND BACKGROUND

Knowledge sharing, skills development, essential for. As the 21 century unfolds, Sub-Saharan Africa is

implementation of e-Government, e-Democracy, Freedom of Information and Open Government Data initiatives resulting in solutions and capacity-building for sustainable development among countries. Literature indicates that over the past decade, adoption of e-Government, e-Democracy, Freedom of information and Open Government Data is on the rise in Sub-Saharan Africa with some countries taking a leading role while others have lagged far behind. Therefore, this paper delves into countries such as Zambia, Malawi and Tanzania and try to understand why they seem to be lagging behind, specifically factoring on social, economic, political institution, legal and policy frameworks. The paper also captures best practice implementation examples from the exuberant and robust leading countries in the region such as South Africa, Kenya, Ghana, and Cape Verde. It is hoped that this paper is going to address the paucity of literature on e-Government, e-Democracy, Freedom confronted with two challenges, domestic and global – domestic include promotion of sustainable development, eradication of poverty, promotion of increased participation in the development processes, enhanced democracy and good governance [1], [2] & [3]. The global challenges encompass the promotion of competitiveness in global markets, based primarily on knowledge and less on physical labour through modern electronic information technologies [see 4 & 5]. Therefore, to answer this call, Sub Saharan Africa will need to develop and integrate ICTs with its own methods, techniques and best practices and experiences that would enable it to create and sustain an enabling environment that will facilitate the release of its energies, skills, talents, and enterprise of its people

and promote various types of sustainable human development. Thompson et al [4] asserts that ICTs can be used as the means of overcoming the challenges most African countries are facing. However, it should be noted that each country is compounded with different factors adversely affecting development, and logically hindering progress and priorities related to ICTs. Ngulube [6] adds that, it's not just technology inadequacy affecting the uptake of ICT related programmes in most African countries but other factors as well such as political institutions, legal and regulatory frameworks.

A number of literature have been undertaken concerning how ICTs can be utilized in promoting the adoption and implementation of e-Government, e-Democracy, Freedom of Information and Open Government Data to help solve some of the challenges the region is facing - each literature contributing in providing a strong theoretical understanding of the factors explored. However, most of this literature fails to highlight the importance of the interrelation existing among these programmes. There is also paucity in understanding as to why the implementations of these programmes is existing at varying levels from one SSA country to another. It is in this context that this paper attempts to understand why some countries in the region are failing in their implementation efforts by analyzing and discussing literature most cited factors; ICT infrastructure, social economic and legal and policy framework - specifically focusing on Zambia, Tanzania and Malawi and attempts to provide recommendations based on region best implementation strategies.

## II. RESEARCH METHODOLOGY

## A. Analysis and strategy

Information for this research was obtained mainly from academic journals, articles, books, reports, and materials available on the Internet. The focus was on literature review of published national and international information resources with special attention given to literature published by international organizations and national governments. This paper did not have the intention to include all, or even a majority of research papers and other published materials related to e-Government, e-Democracy, Freedom of Information and Open Government Data as that would be very difficult having in mind the amount of publishing activity covering some of these topics. So, the aim of the research was to cover, through literature review, major and most relevant papers and topics which would be regarded as sufficient for proper understanding of the studied phenomenon.

## B. Limitations

Although the research has reached its aims, there were some limitations. First, the research couldn't find many publications on e-Democracy and Open Government Data given the newness of the topics in the region. Second, there were limited publications on some countries as most of it was categorized as non-academic reports and sometimes not having an important impact factor or number of citations in Google scholar. The review presented here focuses on the main themes in the literature and does not extend to philosophical underpinnings, methodological approaches and theories.

## III. DEFINITIONS

### A. Defining ICTs, e-Government, e-Democracy, e- Participation, Freedom of Information and Open Government Data

Information and Communication technology (ICT) is often used as an extended synonym for Information technology (IT); however, ICT is

generally used to represent a broader, more comprehensive list of all components related to computer and digital technologies than IT. Okauru [7] defines it as the digital processing and utilization of information by the use of electronic computers comprising the storage, retrieval, conversion and transmission of information.

The term e-Government on the other hand is defined as: \_\_\_ the use by government of web-based internet applications and other information technologies, combined with processes that implement these technologies, to enhance the access to and delivery of government information and services to the public, other agencies, and other government entities [8]. According to Kitaw [9], e-Government is the use of ICT to promote more efficient and effective government, facilitate the accessibility of government services, allow greater public access to information, and make governments more accountable to citizens. All of these definitions presents e-Government as a new way taking advantage of ICTs to facilitate the citizens' access to government information and services in order to support social, economic and political development, improve the quality of public services, and provide an avenue for citizens to interact with government institutions and processes in a democratic, transparent and equitable way.

E-Government has been explained from two prominent perspectives; interaction and evolution.

The interaction perspective relates to enhancing the government 's relationship with four main constituencies of stakeholders; citizens, businesses, employees, and other government bodies. The interactions are commonly referred to as Government-to-Citizens (G2C), Government-to-Businesses (G2B), Government-to-Employee (G2E), and Government-to-Government (G2G) [see 10& 11]. A point of reflection: If the objectives of e- Government are to bring the government closer to the people, to create an available informed and mutually beneficial partnership to improve the capabilities of the government to deliver the required services in the manner desired by the people. Is it then possible to have an operative e- Democracy in the absence of e-Government? According to Mohiddin [12], he defines e- Democracy as a technology-based mechanism enabling people to effectively participate in the decision-making processes that affect their lives, livelihood and lifestyles. This is reaffirmed by Bruns [13] and Freeman [14] who defines it as ongoing digital civic participation activities that partially disperse governmental power in order to enable the public to actively influence political decision-making. Eldis [15] asserts that e- Democracy encompasses e-Participation. Authors like Tambouris [16] define e-Participation as efforts to broaden and deepen political participation by enabling citizens to connect with one another and with their elected representatives and governments, using ICTs. In other words, e-Participation is about the use of ICTs to disseminate information (e- information), to seek views and encourage discussions (e-Consultation) and to take these ideas into account when making decisions that affect citizens (e-decision-making).

However, in order for an individual to be able to freely express ideas, opinions and thoughts and fully participate, he/she should be very well informed and be able to express views freely. An

informed citizen can better contribute to governmental processes and express meaningful views that can help shape government policy [17] & [18]. This means that effective participation depends on information being made available freely to all the actors if unitary decisions related to governance are to be made. Nyokabi [19] defines freedom of information as the rights of citizens of a country to access official information held or in the custody of their government. She further adds that these rights invoke an obligation on the government to facilitate easy access to information under its docket, and, significantly, to publish important information pro-actively and regularly for the general public.

A noticeable trend in freedom of information is that it acts as a catalyst in the growing prominence of Open Data movement: the concept of making data publicly available for use and re-use in different forms and applications. TAI [20] asserts that, Open Government Data falls under the gambit of open government that has transparency, participation, and accountability at its core. United Nations report [21] defines Open Government Data as government information proactively disclosed and made available online for everyone 's access, reuse and redistribution without restriction. Simply put, Open Government Data can be defined as data and information produced or commissioned by government or government controlled entities which is complete, primary, timely, accessible, machine processable, non-discriminatory, nonproprietary, and license free and which can be freely used, reused and redistributed by anyone.

#### IV. RESULTS

After selecting the relevant literature papers for this study, papers were again categorized according to

country covered. Therefore, table 1 display different literature found on each SSA country under review highlighting challenges in relation to ICT infrastructure, social economic, policy and legal framework. **Table 1:** List of factors with corresponding challenges

Countries	Factors	Challenges
Zambia	ICT Infrastructure	Geographical location, inadequate broadband, poor power supply, uncoordinated ICT initiatives, inadequate ICT service delivery infrastructure [22], [23], [24].
	Social Economic	High rural poverty levels, high illiteracy levels, digital divide, low ICT capacity [25], [26] & [27].
	Policy and legal framework	Inadequate policies, strategies in relation to ICTs, weak cyber environment, weak regulatory mandate, secrecy laws [28], [29] & [30].
Tanzania	ICT Infrastructure	Poor broadband distribution, poor rural electrification, limited cost effective service delivery infrastructures [31], [32] & [33].
	Social Economic	Underdeveloped ICT expertise, digital divide [32], [34] & [35].

	Policy and legal framework	Inadequate policies and strategies for ICTS, too stringent cyber environment, and secrecy laws [31], [36] & [37].
Malawi	ICT Infrastructure	Geographical location, inadequate broadband, poor power supply, fragmentation in ICT initiatives [38], [39] & [40].
	Social Economic	High poverty levels, high illiteracy levels, digital divide, low ICT capacity [41], [42] & [43]
	Policy and legal framework	Inadequate policy framework and strategies for ICTs, secrecy laws, poor ICT governance [44], [45] & [46].

Table 2 provides a snapshot of the state of democracy in the countries under review – combining two Economist Intelligence Unit’s Index of Democracy (i.e. of 2010 and 2016) focusing on four categories: electoral process and pluralism; civil liberties; the functioning of government; political participation; and political culture – all of which vital in the promotion of democratic practices.

**Table 2:** Economist Intelligence Unit’s Index of Democracy 2010 and 2016

Country	Rank		Overall score		Electoral process and pluralism		Functioning of government		Political participation		Political culture		Civil liberties	
	2010	2016	2010	2016	2010	2016	2010	2016	2010	2016	2010	2016	2010	2016
Cape Verde	27	23	7.94	7.94	9.17	9.17	7.86	7.86	6.67	6.67	6.88	6.88	9.12	9.12
South Africa	30	39	7.79	7.41	8.75	7.92	8.21	7.86	7.22	8.33	6.25	5.00	8.53	7.94
Ghana	77	54	6.02	6.75	8.33	8.33	5.00	5.71	5.00	6.11	5.00	6.25	6.76	7.35
Zambia	91	77	5.68	5.99	6.17	7.08	5.36	5.36	3.89	3.89	5.63	6.88	7.35	6.76
Tanzania	92	83	5.64	5.76	7.42	7.00	4.29	5.00	5.56	5.56	5.63	6.25	5.29	5.00
Malawi	85	91	5.84	5.55	7.00	6.58	5.71	4.29	5.00	4.44	5.63	6.25	5.88	6.18

To capture the state of e-government readiness, the extent of e-participation, web measure index, the telecommunication infrastructure index and human capital index for countries under review, surveys conducted based on these indicators were used. Thus, table 3 show two United Nation e-Government Surveys (i.e. of 2014 and 2016).

United Nation eGovernment surveys also provides a valuable input for policy making and agenda setting for the future and serves as a benchmarking tool for monitoring progress of countries as they progress towards higher levels of digital public service delivery.

**Table 3:** E-Government Development Index (EGDI) 2014 and 2016

Country	E-government Development Index (EGDI)		Country Ranking		Change in	
	2014	2016	2014	2016	EGDI	Ranking
South Africa	0.4869	0.5546	93	76	0.0677	17
Cape Verde	0.3551	0.4742	127	103	0.1191	24
Kenya	0.3805	0.4186	119	119	0.0381	-
Ghana	0.3735	0.4182	123	120	0.0447	3
Tanzania	0.2764	0.3533	146	130	0.0769	16
Zambia	0.2389	0.3507	163	132	0.1118	31
Malawi	0.2321	0.2398	166	166	0.0001	-

## V. DISCUSSIONS

*In the case of Zambia:* The Zambian government has endeavored to explore ways and means to enable a favourable ICT environment. This can be seen by the government approval of an ICT Policy in 2001 and its subsequent launch in 2006 to act as a roadmap concerning the implementation of all ICT related programmes [47]. Thus, resulting into a number of ICT initiatives being undertaken within the public sector such as: Integrated Financial Management Information System (IFMIS) Project; Payroll Management and Establishment Control Project; Justice Case Management System and building of Local and Wide Area Networks linking public sector institutions.

Unfortunate for Zambia such ICT initiatives are being implemented with very little coordination and integration resulting into over-duplication of telecommunications infrastructure. Bwalya [23] affirms that lack of synergy in ICT projects is deeply affecting Zambia in its implementation of these initiatives. All of this attributed to failure to translate policy ideas into implementation strategy. As a result, no guidance or responsibility has been assigned to any government body, and follow-ups at a sectoral level have also been unsatisfactory. Table

3 depicts Zambia recording a low-EGDI of 0.2389 in 2014 however in 2016 the country had one of the highest changes in EGDI of about 0.1118 and an actual EGDI of about 0.3507 resulting in it jumping 31 places in terms of ranking. Regardless of this, the table also shows that the country is still lagging far behind countries such as South Africa, Cape Verde, Kenya and Ghana in the region context.

In this regard Zambia can learn from countries like Ghana with an EGDI of 0.4182 in 2016 (see also Table 3); attributed to its e-Government layout programme called eGhana which was initiated in 2006 by its Ministry of Communication [48]. The eGhana project consist of three components: Component 1 is about enabling the environment; Component 2 is about giving support to local ICT businesses and IT-Enabled Services and component 3 is about deployment of e-Government and communications applications [8]. The key deliverables under the component 3 were: Enterprise Architecture, Government Interoperability Framework, Government Wide Area Network, Government Portal/Gateway, National Data Center and ICT training and capacity building [48]. Boateng [8] affirms that the main objective the eGhana project is to assist the government of Ghana to develop an IT enabled services industry and contribute to improved efficiency and transparency of selected government functions through e-Government applications. Similarly, Kenya in 2004 formulated an e- Government strategy aimed at harmonizing and coordinating ICT related initiatives thus stopping each government department from pursuing its own ICT agenda which was resulting into wastage through duplication of resources [49].

In the 2013 Zambia National Budget Plan the transport and communication ministry was allocated

K4.39 trillion with the road sub sector getting K3.43 trillion, the railway infrastructure getting K642.6 billion while the communication sector got K122.7 billion [50]. A confirmation that proposals for spending on ICT projects in Zambia lacks a convincing business case for them to compete effectively with other critical demands on public resources (e.g. building roads or schools) and to overcome the way in which short-term costs are frequently perceived as being more politically relevant than long-term benefits. ICT enabled projects such as e-Government is mainly hampered by lack of funding [51] and Zambia is no exception. In Ghana for example, all the components in eGhana project were sufficiently funded (Component 1 – Enabling Environment (US\$9.6m), Component 2 – Support to Local ICT Businesses and ITES (US\$9.5m) and Component 3- e-Government Applications and Communications (US\$ 22.6m) [8]. In Kenya the energy infrastructure and ICT sector took up nearly 25% of the total MDAs budget in the BPS representing a 4% point, growing from 26.9% in the previous year to 30.4%, the largest increase for any sector [52]. However, it would be unfair to compare the economy of Zambia to these other countries. Zambia is heavily indebted, and is burdened with interest and loan repayments. The stock of government 's external debt as at end-September 2016 was US\$6.7 billion, representing 35 % of GDP [53]. The country 's economic circumstance plays a critical role in the development and deployment of the necessary ICT infrastructures. This assertion is supported by Nua [54]; countries with thriving economies' are by and large associated with increased access to ICTs compared to those whose economies are doing badly. Nonetheless, other than poor formulation of ICT implementation strategy, also notable in Zambia is mismanagement of the little resources available [see 24].

ICT Infrastructure aspect is another huge challenge not only for Zambia as it is viewed by previous research [26], [27] & [28] as a significant barrier to the provision of government services and transactions online. Unreliable IT infrastructure will further influence to degrade the e-Government performance of the respective governments [55]. However, the ICT infrastructure problem is particularly acute for Zambia because of its status as a landlocked country, which has had to rely on satellite links or interconnection agreements with neighbouring countries to gain access to international telecommunications networks. This means that internet use in particular has been expensive in comparison with other countries in the region.

Zambia's connectivity is also characterized by a few major internet providers [56]. Nigeria has 9 mobile and fixed operators, South Africa 6, Ghana 6 and Senegal 5 compared to Zambia's 4 [see 57]. Lack of a competitive telecommunication market has resulted into poor services, unreliable and low speed of internet connectivity (less than 28 kilobits per second) thus making connectivity rates relatively high compared to other countries. Moreover, the broadband infrastructure covers 10,000 Km countrywide connecting 46 districts out of 72 districts [58]. Mulenga [59] confirms that this is laid mainly along the line of rail in metropolitan areas resulting in less than 8% of the total population having access to internet and telecommunication facilities. In South Africa 86% of the population is within 10 Km from a fibre access point [59], this is attributed to its Broadband Policy 2013 adopted to bring about optimal connectivity which has resulted in prices of ICT services to drop drastically going by demand and resulting in better use of available capacity.

This low internet access penetration is also compounded with poor electricity distribution - mainly from hydro power - which is concentrated in urban and peri-urban areas which also experiences day to day road shedding. A PwC analysis report [60] asserts that power shortages is a huge challenge weighing on Zambia's economic prospects. In Ghana the energy sector received the largest contribution of the Economic Sector's budgetary allocation of about GH¢ 925 in 2016 showing an increase of 39% from 2015 (GH¢ 800) [61], compared to Zambia's ZMW 118.2 million in 2016 representing 0.22% of the total Budget but was allocated 114.52% in 2017 indicating a 15% drop [62]. Thus, taking into account citizen disparity in terms of access to ICTs, the impact of the digital divide in Zambia is also immense impeding e-Government implantation efforts [26]. This is prominent as the country is also fixed with low ICT literacy levels. To tackle ICT literacy Kenya has embarked on the countrywide laptop project targeting 22,000 primary schools, the project receiving 13.5 Billion Shillings in the 2016/17 Budget allocations which is what remained of the Ksh.17.58 billion in 2015/16 Budget, the funds were also used for deployment of ICT learning devices in schools, development of digital learning content, building the capacity of teachers and rolling out computer laboratories [52].

An estimate of 61% of Zambians lives below the income poverty line [63]. The concentration of poverty is especially high in rural areas where as many as 78% of the households can be characterized as living in poverty with limited or no access to educational opportunities, housing, health, clean water and sanitation. Thus, majority Zambians believe ICT based projects like e-Government are not the most important needs in their societies. South Africa has made considerable strides toward improving the

wellbeing of its citizens since its transition to democracy in the mid-1990s, based on a poverty line of \$1.90 per day at Purchasing Power Parity (PPP), poverty fell from 33.8% in 1996 to 16.9% by 2015, factors driving these included social safety nets as well as decelerating inflationary pressure on households, the expansion of credit, and growth in formal housing [64].

Like most countries in Sub Saharan region, Zambia is a multi-party democracy and has maintained peace and political stability as public institutions continue to mature, this is supported by the Economist Intelligent Unit democracy index for 2010 and 2016 as seen in table 2, showing an improvement in the electoral process and pluralism from 6.17 to 7.08, also an increase in political culture of 6.88 from 5.63, all these are good signs though more efforts are needed in areas like functioning of governance, political participation and civil liberties. Soko et al [65] adds that in the exercise of democracy, civil liberties and political participation have a strong bearing on the quality and depth of democratic participation in a country.

Democratic participation can also be cultivated by expanding conception of citizenship based upon maintaining coherence and credibility in policy-formulation processes and maintaining government commitment as key ingredients. A good example is that of Cape Verde, the country whose governments have fostered pluralism and a universal sense of citizenship, a participatory political process and trust between the government and citizenry through better functioning of government (see also Table 2), thus making it easy for the country to promote e-participation. As Baker [66] notes Cape Verde is one of the few African countries to recognize that good governance is a valuable commodity.

In the past and still today, e-Government

implementation techniques used in Zambia include limited consultation exercises. Approximately 85% of government websites in Zambia offer little opportunity for citizen interaction and no chance for two-way communication [67]. Mzyece [68] adds that e-government implementation in Zambia is still at emerging presence (i.e. just offering basic information online). Little emphasis is being placed on the development of online practices that enable civic contributions to impact decision-making, instead prioritizing information dissemination and service delivery features. The interactive qualities of social media are essential for networked collaboration and conducting consultations that can reach desired constituencies that may otherwise not be reachable. Social media is easily accessible these days and does not cost much more than paying for internet connectivity. With the total number of active mobile phone subscribers estimated at 12 million in 2016 out of 15,510,711 million people representing a 74.9% mobile penetration [69]. Mobile technologies can therefore be used to promote e-participation and bring about greater citizen involvement in decision making in Zambia. To benefit from the rise of mobile technologies and social media platforms and promote e-participation and e-decision making, governments in the region have established pages on social media to encourage interactive communication with the public through mobile technologies. Today, countries like South Africa offer social networking features, such as the —Like! button, on their national portals (i.e. there are links to, for example, Facebook, whatsapp and Twitter).

However, the effectiveness of such technologies strongly depends on whether people are willing to be more active and engaged by using these tools, and whether they have the necessary digital skills and know-how to use them effectively. These new forms of engagement between

government and people however leave behind those who do not have access to the internet bringing about digital divide. Moreover, success of utilizing social media tools to promote e-Democracy depends not only on how supportive the overall regulatory environment is, but also on whether governments enforce the actual use of mobile technology tools to promote e-participation by undertaking adequate measures to institutionalize civic engagement into organizational practices. Moreover, e-Democracy in Zambia lacks legal recognition and there is no mention of it in the national ICT policy.

In addition it takes an informed society if effective participation and meaningful contribution is to be achieved. However, one of the major hindrances of freedom of information in Zambia is the policy environment, which is laden with various laws, Acts and provisions that inevitably suppress these freedoms, for instance, under the Terms and Conditions of service for the public service, the regulation states that —officers shall undertake in writing on form to comply with all the provisions of the state Act (Cap 111 of the Laws of Zambia) and shall acknowledge that they are aware of the serious consequences which may follow any breach of those provisions,|| it is terms and conditions like this that promotes secrecy and advocates strict stringent rules that hampers freedom of information. Other Acts include the 1931 Penal Code Cap 87 of the laws of Zambia and the Printed Publications Act Cap 161 of the laws of Zambia all of which prohibit free access to information, freedom of expression and media freedoms. Ilunga [70] comments that though in 2008 a Code of Ethics was launched to set out principles, core values and behavioral standards in public institutions it however only reinforces the oath of secrecy neither does it override existing statutory or common laws impeding freedom of information.

There is also low level awareness within the general population about the importance of Freedom of Information. Hambuba [71] asserts that it should be a concern that stakeholders in Zambia do not see the need for the FOI bill as a priority and therefore give less support to this noble cause. Zambia has drafted FOI bill but has not taken the process any further, despite indicating a clear intention to do so. If you take Nigeria for instance, civil society contributed immensely to the efforts to ensure the implementation of FOIA. With interventions geared at sensitization, and capacity building of both the supply and demand ends of the FOI chain, engaging in advocacy with stakeholders, provided training and sensitization for public bodies, civil society, the media, and community based organizations and the general public.

Another challenge is that, record keeping in most Zambian government Ministries, Departments and Agencies (MDAs) is still manual-based [70]. Sebina [72] highlights that legal provision for access to information would be fruitless where good quality records are not created, where access to them is difficult, and where procedures are lacking on records disposal. A visit to some of the MDAs in Zambia reveals a picture of how difficult it would be to obtain basic information if FOI was to be enacted.

Promoting legislation for access to information and Open Government Data principles under a single banner could lead to unprecedented level of openness in Zambia's public institutions, and establish transparency, participation, and collaboration. However, as it stands Open Government Data in Zambia is a newbie; the country doesn't have its own open data initiative as well as open data policy or strategy only third party open data initiative exists [73]. The absence

of Open Data policy or FOI shouldn't however deter a country from making Data Open. Although Kenya for example had enshrined the right to Access information in its 2010 promulgated constitution, the country embarked on Open data programme called the Kenya Open Data Initiative (KODI) by just heavily investing in the initiative though in the absence of the then ATI Bill and without an Open Data policy to govern the initiative. Thus, while a national legal framework is critical, the absence of such is not a major hindrance in making data open to the public at the sub-national level. It should though be noted that national laws and regulations are critical, especially in cases where other frameworks like the FOI are absent. However, the absence of a provision in relation to Access to information in Zambia's new constitution of 2016 beats the all idea here.

Open government data depends significantly also on the capacity of users. Without the capacity of users to access and make use of data, even when data provided is of sufficient quality and quantity, there is no data impact. In a context like Zambia where internet penetration is low, citizens may prefer other modes of accessing government data other than portals. In Tanzania for example, majority prefer to access information through the radio and less from government portals. So it is naive to say that opening data and disclosing them in portals will lead to actual use. The primary question is whether users have capacity to access data. Capacity may refer to different things, in this case to technical skills (explicit knowledge and methodologies), organizational capacity to function (in the case of organizations), and enabling conditions as laws, systems, and strategies and Zambia seem to lack in all of these.

In as much as the Zambian government and its

legislators have played a significant role in improving the ICT legal framework by coming up with Acts such as, Information and Communication Technologies Act (2009), the Electronic Communications and Transaction Act (2009) and the Computer Crimes and Misuse Act (2004), there still exist major gaps in ensuring a secure cyber environment. For example there is need to adjust and update the Information and Communications Technology Act (2009) to strengthen the regulatory mandate assigned to the Zambia Information and Communications Technology Authority and provide the institution with clear enforcement capabilities for execution of statutory rules and procedures outlined in the Act. Kapumba [74] notes that the Computer Crimes and Misuse Act of 2004 does not fully and adequately deal with issues relating to cybercrimes, cyber security and data protection, hence the need to either revise the Act or come up with separate legislations that will adequately provide and promote legal certainty and confidence.

For instance, in South Africa, other than Electronic Communication and Transactions Act of 2002, the Cabinet approved the Cyber Security Policy Framework on 11 March 2012, which tasks the State Security Agency with the mandate responsibility for the coordination, development and implementation of cybersecurity measures. In the similar manner, Ghana's cyber space is protected by the Electronic Transaction Act, 2008 which seeks to protect consumers against cyber fraud and attacks. The Act seeks to provide for the regulation of electronic communications and related transactions and to provide for connected purposes. The country also has the Data Protection Act, 2012 (Act 843), which provides the legal framework for the protection of personal information. The law provides for the process by which one could obtain, hold, use or disclose personal data while the Data Protection

Commission has been established as an independent body to regulate and implement its provisions. Ghana has also signed a memorandum of understanding (MoU) with the Commonwealth Cybercrime Initiative (CCI) on the best approaches to deal with the threats associated with Internet use.

*In the case of Tanzania:* The government of Tanzania recognises that ICTs are key facilitators of the development strategies in the country. For example e-government is based on the National ICT Policy of 2003 (8th pillar of the 10 pillars) [75]. The policy also emphasizes on the application of ICT in various development sectors. This has resulted into the country undertaking a lot of ICT projects such:

Financial Management Systems; Management of land information and survey registration systems (MOLIS); Parliamentary online information (POLIS); human capital information system (HCIS); the integrated Tax administration system (ITAX); central admission system (CAS); Government Network Management Centre (NMC) and Government-wide network connected to 7 MDA's.

Despite all these undertakings by the government, Turuka [75] observes that weakness in planning, organisational momentum and implementation is characterizing most of these ICT projects. This weakness at a project level matches the failure, at national and sectoral level, attributed to the ICT policy not been followed up with an agreed national implementation strategy. Therefore, little attention has been paid to issues such as integration, standardization, and interoperability. The consequence is the emergence of substandard and fragmented initiatives with limited value and visibility, and uncertain continuity. As shown in table 3, in 2014 Tanzania had an EGDI of 0.2764

and was ranked at 146 out of 192 countries. In 2016 the country had an EGDI of 0.3533 was ranked at 130 better than Zambia and Malawi but still lagged behind contemporary countries in the region (i.e. South Africa, Cape Verde, Kenya and Ghana).

E-Government progress in Tanzania is also challenged by inadequate funding, as well as insufficient technical human capacity to support and deliver e-Government services. The country is characterized with the history of failing to dispense allocated funds, saved for strategic infrastructure and public works projects. This can be highlighted for example in the 2015/16 financial budget in which Tsh.15.80bn was allocated to the communication sector, but only 17.51% equivalent to Tsh.2.77bn was delivered by April 2016 to the Ministry of Communication [76]. This has resulted in ICT related programmes to be heavily dependent on donor support which has not been sufficient to support countrywide deployment [77]. This does not only hamper resource deployment, but also brings about insufficient services, such as inadequate human capacity to support and deliver e-Government.

There are two critical events that have had a large impact on the Tanzanian ICT sector, the linking to the SEACOM and Eastern Africa Submarine Cable System (EASSy) networks in 2009-10; and the launch of the National ICT Broadband Backbone (NICTBB), in two phases (2010 and 2012). However, even with the launch of the NICTBB, broadband wholesale prices remain high and internet use is far lower compared to countries in the region with leading ICT sectors like South Africa, Cape Verde, Kenya and Ghana. In 2013 the South African government drafted a broadband policy for the country with the aim of promoting robust competition in the broadband market; encouraging the deployment, adoption

and use of broadband in areas where the market alone was not providing these sufficiently, particularly in underserved areas where the cost of deployment is too high for operators 'to earn a return on private capital or where households cannot afford a connection [see 78].

On a positive note, the Tanzanian mobile market is considered to be among the most competitive in Africa. All areas of service provision, in both the mobile and fixed sub-sectors, are subject to competition, and the number of licences allocated is high with eight mobile operators competing nationally or regionally. As a result of this in 2013 it was estimated that they were over 27 million mobile SIM accounts registration, representing a mobile penetration rate of 61% of the entire population [79]. This presents the country with a great opportunity to breach the digital divide given limited installed fixed lines, low use of PCs below 2% the country is experiencing especially in rural areas where it's estimated more than 70% of the population is based [80].

However, Kaaya [81] acknowledge that e-government implementation in Tanzania is at least at transactional presence level (i.e. allowing a two-way interactive communication). This can be seen with Wananchi portal which allows Tanzanian citizens to interact with their government. Another is that of Tanzania Knowledge Network (TAKNET), a platform where both the general public and experts take part in discussions which result in consensus building on policy issues of concern to Tanzanian society, the summaries and recommendations of best practices, and are shared with policymakers. All of this encourages greater citizen participation in the country's decision making process. Table 2 also shows that the country's ranking in the Democracy Index has relatively improved to 83 in 2016 from 92 in 2010.

Political participation remained unchanged at 5.56 while political culture have improved over the past 6 years (albeit with a few notable exceptions) with functioning of government recording an increase, but this has been offset by deteriorating scores for civil liberties.

Therefore, there is more need for Tanzania to encourage this growth in democratic processes to take on a new trend of political participation through information technologies. Thus, development of e-government should be the stepping stone for a new concept of e-democracy and Tanzania is in the right direction. However, we should not forget that e-democracy has a precondition of information infrastructure development. Given the highlighted lack of fixed lines, the low use of PCs and the high cost of broadband connectivity e-democracy adoption and implementation face a daunting task in Tanzania. The South African parliament 's ICT strategy provides a better appreciation of the concept of e-democracy. The strategy is premised on the understanding that having built ICT capacity for administrative efficiency and effectiveness, with rudimentary elements of citizen participation and involvement over the years, the institution is now in a better position to facilitate external focus on increasing public participation and becoming more people-oriented and on supporting deepening democracy through ICTs [see 82].

Moreover, freedom of information in any democratic society is a core principle of good governance as it enables citizens to understand and participate in public affairs and also hold those in public office accountable for their decisions, actions or non- actions. The right to seek, obtain and disseminate information is provided for under Article 18 of the Constitution of the United Republic of Tanzania of 1977. The

enactment of Access to Information bill in 2015 has also being hailed as a great achievement. However, it has become apparent that the FOI regime is more than a legislative process and that a lot of institutional changes are required if proper implementation is to be achieved. For instance despite all these Acts promoting freedom of Information, the Tanzania government and all its agencies and departments are still in the habit of concealing public information. This is evidenced by the country's continued clinging to secrecy laws such as: National Security Act of 1970, Newspapers Act of 1976; The Public Service Act of 2002 and The Public Leadership Code of Ethics Act of 1995, which have guided the operations of public institutions for years [see 83]. Furthermore, bureaucratic tendencies coupled with the superior authority tendencies as to who can decide the release of information continue to curtail the full implementation of the ATI Act in Tanzania. In the national drive to raise awareness about ATI and catalyze the implementation of the ATI, it is observed that the citizens, especially those in the rural areas, are ignorant about their rights implying that the government has not carried out its mandate and neither has CSO been able to play an effective role of educating the citizenry due to limited resources.

The Tanzania ATI Act of 2015 also calls for the payment of a fee in Clause 21, to secure the release of information. In contrast, the AU Model Law specifically forbids fees for certain types of costs, including processing time. This is premised on the fact that the right to access information unlocks the demand for the realization of other tangible socio-economic rights. This is complimented by Nyokabi [19] who stresses that access to information is not a luxury right because it forms an important component of the protection for other human rights. Therefore, where fees are imposed to access

information from government which is essentially a custodian of information that belongs to the people, the objectives of the ATI is being compromised and promotes marginalization.

In 2011, Tanzania was among six African countries eligible to join the Open Government Partnership (OGP), a multilateral initiative that aims to secure concrete commitments from governments to promote transparency, empower citizens, fight corruption, and harness new technologies to strengthen governance. Tanzania's eligibility to join the OGP depended on its demonstration of commitment to open government in the key areas of budget transparency, access to information, asset disclosure by politicians and officials, and citizen engagement. However, the fact that the country has no specific official open data strategy, or guidelines, but only a circular which provides guidance on what data to be opened, this hampers the all of the open data initiative [84]. Tanzania can learn from South Africa which doesn't have any specific Open Data policy but has added a section in its National Integrated ICT Policy dedicated to Open Data: (1) "4.4.2 Promoting access to information and open government data". Therefore, there is a need not just for Tanzania but by most countries in the region to revise their National ICT policies some which are more than a decade old.

Further, many open data initiatives in Tanzania are presently resting on shallow foundations, at risk of stalling or falling backwards if political leadership or community pressure subsides. This is not just happening in Tanzania but across the region as most governments traditionally focus on the publication of open data, whereas the actual use of the data impact measurement, policies and strategies is often neglected. 'digital divide' between rich and poor, affecting both the supply and use of data, organizational culture in

government ministries that inhibits data sharing, a mismatch between the demand for Open Data and the supply of appropriate datasets, Data released in a form that is too high-level not granular enough to be fully useful, funding and technical capacity are some challenges to be overcome in a low income country like Tanzania.

It is explicit that the government and legislators in Tanzania have played a significant role in changing the ICT legal framework. Examples include telecommunication liberalization under Communication Act 1993, TCRA Act 2003, Prevention of Terrorism Act and the Cybercrime Act of 2015. All of these deployed as a technical measure to guarantee information security (confidentiality, integrity and authenticity) though Cybercrime Act of 2015 has faced criticism for seeming to be accommodating other non-permissible restrictions such as data espionage because the said data, which have been restricted to be accessed under section 8 of the same Act, may be a piece of information which is critical for investigative journalism, research or other legitimate use thus restricting freedom of expression somehow.

*In the case of Malawi:* The implementation of e-government in Malawi started in government ministries, departments and government owned companies in the late 1990s [85]. However, the momentum for ICTs to enhance e-Government at nationwide level started in 2004 [86]. This has led to the undertaking of many projects such as: rolling out Government Wide Area Network (GWAN); Integrated Finance Management System (IFMIS), The Payroll and Human Resource Management System and Traffic Management Information System (TMIS).

Despite all of these ICT undertakings Malawi is a country experiencing misplaced priorities in terms of e-Government implementation. The UN e-government development index in table 3 shows the country stagnating at 166 in terms of ranking from 2014 to 2016 with a slight change in EGDI of 0.0001 lagging far behind even countries like Zambia and Tanzania. Bichle [38] notes that other than misplaced priorities, connectivity and interconnectivity are the main impediments to the diffusion of ICTs in Malawi at national level. Despite having a number of initiatives to enhance connectivity, Malawi is still least served by telecommunications and information technology services compounded by its landlocked status. It has also been argued that this low development in ICT infrastructure in the country is due to high costs, a shortage of investment capital, and low capacity of regulatory authority; poor institutional linkages and lack of government commitment [see 40 & 45]. This can be seen in the country's 2015/16 budget which was described by many economic experts as a —struggling and —not so inspiring fiscal plan. The key features of Malawi's 2015/16 budget were characterized with lack of budgetary support and lower revenues and grants due to a decrease in donor support citing rampage corruption for their withdraw. As a result of this the Ministry of Education, Science and Technology received an allocation of k109.8 billion compared to K127.9 billion allocated to it in the 2015/16 budget indicating the biggest decrease of about K18.1 billion with respect to other ministries [87].

All these factors are also exacerbated by restrictive institutional structures which are ill adapted to facilitate these developments to meet the huge demand for ICT services, weak and non-existent regional links to help create an economy of scale and drive cost of capital equipment

down and the lack of human resource capacity in key areas to support the roll out, design and exploitation of ICTs. The country also experiences lack of other related infrastructures such as electricity which is very unreliable and mostly concentrated in urban areas. For example to support the rapid growth of the ICT industry, the Kenyan government has started to explore other alternative sources of energy such as oil and coal other than hydroelectric. Deloitte Africa [88] state that Kenya electrification targets includes adding 23000 MW of generation capacity by 2030. This has also promoted the establishment of the Kenya Nuclear Electricity Board (KNEB) in 2010 to begin the development of a nuclear energy programme.

More importantly public participation is one of the key principles of democracy and is undoubtedly one of the crucial determinants of the nature of democracy. However, Malawi seems to be lacking in this area as it can be seen in table 2, showing the country's average score in all categories drastically dropping with the exception of political culture which has seen an increase from 5.63 in 2010 to 6.25 in 2016. Political participation has dropped from 5.00 to 4.44, functioning of government also dropped from 5.71 to 4.29 so is electoral process and pluralism, making the country to drop places in the ranking from 81 to 91. This anomaly in democratic processes toppled with e-government implementations seemingly struggling even at emerging presence level thus presenting a huge challenge for the adoption and implementation of e- democracy in Malawi.

Simon [3] notes that dissatisfaction with democracy and increased participation can also be attributed to the high levels of poverty in most African countries. It is estimated that 70% people are living below

poverty line in Malawi compared to Ghana's 28.7%, South Africa 31.3% and Tanzania 36% [89]. This has also made most Malawian people to focus on their economic problems rather than governance systems and democratic processes. Bichler [38] notes that the issue of digital divide is another issue the country is facing as not only could this prevent many citizens from fully benefitting from the expansion of democracy via the internet, but also exacerbate extant inequalities in society; as those on the disadvantaged side of the digital divide are often already disenfranchised in the offline world. Netchaeva [90] laments that e-democracy would be a perpetuation, or perhaps intensification, of the status quo, where the interests of the underprivileged are trampled by well-resourced special interests and wealthy or highly-educated citizens. Similarly, critics have also claimed that e-democracy will favour heavy internet users and with MACRA estimating the country's internet users' percentage at 17% out of 13.5 million people in 2016 it would be difficult to implement e-democracy in Malawi.

One notable trend with most governments in Sub Saharan Africa is the adoption of technological solutions for reasons of efficiency and cost savings, rather than to enhance democratic processes. It is therefore important that, rather than using concepts interchangeably, discussions of government use of ICTs draw a distinction between notions of e-government and e-democracy.

Freedom of information also forms a vital component of e-democracy as already noted and on this front Malawi as a country should be hailed. For example the Malawian Constitution of 1994 include separate guarantees for freedom of opinion, freedom of expression, freedom of the press and the right to access information in Articles 34 to 37 respectively. In 2016 the country

also managed to pass the Access to information Act, however, due to the Act's failure to take precedence over certain legislations affects possess a challenge. As the African Union Model Law requires that —save for the constitution, the Access to information Act shall be above any other legislation that restricts the disclosure of information [91]. This echoes principle 3 of the APAI Declaration, which states that ATI should be established by law, binding, enforceable and take precedence over other laws [92]. However, Malawi has violated these principles as it still maintains a wide range of statutory laws that act as barriers to access to information. In his study, Kanyongolo [93] cites twenty-two Acts of Parliament containing provisions that act as barriers to access to information in Malawi and some include: Official Secrets Act (1913); Corrupt Practices Act (1995); Defense Force Act (2004); Criminal Procedure and Evidence Code (1967); Preservation of Public Security Act (1960) and the Presidential and Parliamentary Elections Act (1993).

Malawi's ATI Act under Section 30 also mention a fee payable upon the lodgment of a request for information which is huge ramifications for poor people who are struggling to make ends meet. Memeza [94] charges that the charging of fees by most governments in Sub Saharan Africa tends to deepen the suspicion that the state is not prepared to make information available instead they seek to prevent such provision even after having enacted access to information legislation.

Neuman [95] notes that many countries that recently enacted RTI laws have very poor record keeping and archiving systems, which makes the implementation of the law a more difficult and costly task and Malawi is no exception. To start addressing the problem, RTI advocates suggest that

governments instead should focus on creating a system to archive and manage current and future generated information. There is lack of understanding and knowledge regarding the costs of effectively establishing access to information systems in Malawi. The government does not have specific budget resources and rely on donor funding to take on this additional task. A few countries have established separate budget lines for access to information efforts, but the amounts vary quite significantly. For instance, in South Africa, the government spends approximately 0.033 percent of GDP to finance its access to information system. In Kenya, this amount is much lower: 0.0007 percent of GDP.

It is critical that public officials are involved early in the process of enactment and/ or implementation of RTI laws to facilitate the paradigm shift from secrecy to openness. Awareness raising, training and capacity building is thus instrumental so that officials understand the law, and can have their information management and dissemination skills improved. Also been relatively new, citizens are yet to widely understand and use the Freedom of Information Act. Therefore, the open data ecosystem ought to be configured around the emerging political culture of data communities. Secondly, and more critical are the platforms and formats of access. As we face the realities in not just Malawi but in the all-region, majority of citizens do not only lack necessary competences to apply open data to their existential realities, but also stable, affordable and accessible open data infrastructure. Therefore, the Malawi government should legislate to have Open Public Broadcasting Service, where demand driven open data can be made available to the grassroots. The current model of open data being promoted in Malawi is not responsive to the needs of the people [96]. The much hyped data by developers are far removed

from the people residing in remote locale where majority of people still use traditional information/data platforms such as radios and notice boards.

With ATI in place Malawi is recommended to join the Open Government Partnership, however, the process of setting up a national coordination mechanism and drafting a country action plan has been delayed. This has resulted in lack of an open data initiative which implies that there is no impact on increasing government efficiency and effectiveness. The government is still publishing data on the National Statistical Office website and it is this data that the locals are able to use to gauge the demand for their products across the region. Davies [97] argues that for open data to lead to outputs, outcomes, and impact, there are many factors to consider – how open data is used, how people are able to access technology, how committed leaders are, how much resources are put into open data initiatives, how active is civil society and other intermediaries in governance, among others.

## VI. CONCLUSION AND RECOMMENDATIONS

ICT has developed into a key factor affecting each aspect of development in Sub Saharan Africa this has resulted in the region experiencing unprecedented upsurge in ICT usage. However, despite this growing phenomenal of ICTs usage in the region, the implementation of e-Government, e-Democracy, FOI and Open Government Data remains a huge challenge for

Importantly though Malawi as a country should be recommended for its commitments in trying to provide a conducive ICT legal environment which is very vital for the implementations of e-government, e-democracy, freedom of information and open government data. A good example is that of the enactment of —Electronic Transactions and Cyber Security Act of 2015‖ providing a recognition of digital data in rules of evidence, e-signatures, cryptography for authentication and establishment of the Computer Emergency Response Team. For instance Part 6 of the same Act, subsection 6 says —any person who utilizes any device or computer program‖, —in order to unlawfully overcome security measures designed to protect such data or access thereto, commits an offence and shall upon conviction be liable to a fine of K2 million and to imprisonment for five years.‖ The Act also contains a provision on international coordination in fighting cybercrime and appointment of cyber inspectors whose duty is to monitor and investigate cybercrimes, subject to warrant as well as criminalization of cyber-crimes.

most countries. It is therefore imperative that governments in the region start putting in extensive efforts in formulation of both policies and strategies aimed at the deployment and utilization of advanced ICT initiatives. Moreover, there is need of coordination of policies, legal and institutional framework in relation to ICT. This also calls for the development of critical mass of ICT expertise within government institutions.

Governments should play a greater role in

navigating effective policies to reduce access costs for mobile broadband by coming up with mobile broadband strategies, support private collaboration, encourage innovative business models and support ICT entrepreneurship. Issues of connectivity and digital divide in rural areas should also be given more attention, given the fact that these areas make up 65 to 70% of the region population. As noted in this research many people in the region are acquiring mobile technology devices because of their lower cost compared to procuring computers. Mobile technologies can therefore minimize the gap of societal information access (i.e. digital divide) that which fixed phone lines have failed to bridge, it is therefore advisable for policymakers to explore e- Government, e-Democracy, FOI and Open GovernmentData implementations on a more fundamental level through adjusting legislation and policies to encompass new technologies.

implementation, particularly with those countries with no direct sea access (i.e., landlocked countries).

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It is also imperative that the new concept of e-government be focused on promoting efficiency in terms of information dissemination as well as e- democracy through improved democratic practices. It is also necessary for most countries in the region to take a holistic approach by formulating initiatives that would reduce both poverty and ICT illiteracy levels. Priorities reflecting needs that have been articulated by the people themselves should be prioritized if effective implementation of these programmes in the region is to be achieved. It should also be noted that these programmes usually depend on leadership support thus there is need for sufficient funding in ICT sector and the energy sector across the region. Regional cooperation mechanisms should be strengthened to facilitate overall regional development in relation to ICT

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