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AssessThe Implementation of e-Government in Local Authorities in Zambia

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Abstract
Governments both central and local authorities have embraced the concept of e-Governance. This study sought to determine the extent of e-Government implementation by local authorities in Zambia by assessing the availability of websites/web portals, online services, and other e-Government systems in local authorities. The study also sought to establish the possible e-Government implementation challenges in local authorities. A quantitative research design approach and a survey strategy were adopted. In this regard, 35 local authorities out of 116 local authorities were purposively selected to take part in the study. Data was collected using a questionnaire and observation checklist. The findings show that only 5 (14.29 %) of local authorities have websites/web portals that provided mainly basic information except for the website for the Lusaka city council which provided online services including online payment. Further, it was established that all the councils have Facebook pages where they provide information and engage the general public. Furthermore, all the surveyed councils practice e-procurement using the Zambia e-Government Procurement platform for Zambia Public Procurement Authority. The majority (70%) of local authorities reported having several challenges which include inadequate funding, limited ICT infrastructure, lack of skilled IT, intermittent power supply, and unstable internet connectivity.

Keywords: E-governance; City Council; Municipal Council; Local authorities; Zambia

1. Introduction

Electronic Government (e-Government) is the use of Information Communication Technologies (ICTs) and applications to integrate government systems to provide public services and information to individuals and institutions using the Internet [1]. It is the use of ICTs to enhance work efficiency and improve service delivery to meet the needs of the public responsively and transparent [2]. The United Nations [3] refers to e-Government (digitalization) as a means for enhancing the efficiency and effectiveness of public service delivery to achieve opportunities for supporting the 2030 Agenda and the Sustainable Development Goals (SDGs). E-governance involves the application of ICTs such as Wide Area Networks, the Internet, and mobile computing at all levels of the government to provide services to enhance service delivery and governance [4].

The e-Government services can take four forms namely; Government-to-Citizen (G2C), Government-to-Business (G2B), Government-to-Employee (G2E), and Government-to-Government (G2G) [5]. In all these interactions and provision of services, ICTs take centre stage.

Local authorities being governments at local levels and service providers to citizens have embraced the concept of e-Government. It has been observed that digitalised cities have a high level of satisfaction among residents as many services are provided online, which include applications for permits, submission of tenders, and making payments for services received [6]. In developed countries such as the United Kingdom (UK), local authorities began implementing e-Government in the mid-1990s, such that by 1998 more than 300 local government authorities had their websites launched [7]**.** In Denmark, the Danish local authorities place a strong emphasis on internal organisational efficiency by ensuring that services are integrated and automated to enhance the efficiency and effectiveness of public service delivery [8].

As a result of e-Government systems deployment in local authorities, individual citizens and businesses benefit from improved service delivery. Further, e-Governance has deepened participatory democracy and social inclusion, improved transparency in individual interaction with the government, and

participation of the different businesses and ordinary citizens in the governance business processes [9]. However, Pangaribuan [10] argues by stating that e-Government implementation in developing countries faces a lot of challenges which include a lack of ICT infrastructure, security and privacy of information, inadequate public awareness, cultural resistance, institutional and political barriers and lack of financial resources. Local authorities face these challenges and are said to lack the incentives needed to pursue e-Governance implementation [11].

In Zambia, e-Government is traced back to 1993 during the Public Service Reforms Programme (PSRP) which sought to reform public services to ensure accountability, transparency, and efficiency through the use of technology [12]. The utilisation of ICTs in delivering service and development was even captured in the Fifth National Development Plan (FNDP) that was implemented from 2006-2010. There was a proposal by the Government of Zambia to install provincial and district fibre optical cables and establishment of rural community multi-purpose telecentres [13]. Public Service in Zambia began the adoption of ICTs to improve service delivery. The 2006 Zambia National ICT Policy also stressed the need to use ICT in many sectors of the economy and ensure a competitive and well-regulated ICT industry in Zambia [13]. In addition, in 2021, the Government of Zambia enacted the Electronic Government Act of 2021 which provided for the establishment of the Electronic Government Division in the Office of the President. The main function of this unit is to promote the provision of services by the government using ICTs [2].

With the enactment of the e-Government Act, all government departments including local authorities are to fully embrace ICTs in service delivery. It is cardinal not to mention that even before the enactment of the e-Government Act, local authorities, with support from the central government and cooperating partners have been using ICTs to provide some services to people and the business community. Before, 2010, the United Nations Educational, Scientific and Cultural Organization (UNESCO) provide ICT infrastructure to Lusaka City Council to facilitate e-Governance [14]. In 2015, Lusaka City Council deployed an automated ticketing system at the inter-bus terminus in Lusaka to curb fraud [15]. It is against this background that a study was conducted to determine the extent to which e-Government has been implemented by local authorities in Zambia.

1.1 Statement of the Problem

As indicated in the background, Zambia's ICT policy, various national plans, and now the e-Government Act seeks to foster the provision of electronic services to people and business by all government departments [2] [13]. This entails that local authorities in Zambia ought to deploy e-government systems to enhance service delivery. As highlighted above, local authorities in UK and Denmark provide various e-services to people and businesses [7]. In Zambia, several studies on e-Government have been conducted but all have not looked at e-governance systems deployment in local authorities [9] [12]. As a result, the extent to which local authorities in Zambia have adopted e-Governance is not known. It was therefore imperative that a survey of local authorities be conducted in Zambia to accurately determine the extent of e-Government implementation and assess and establish the possible challenges.

1.2 Objectives

The main aim of the study is to investigate the implementation of e-Government systems by local authorities in Zambia. In doing so, the study sought to:

(i) establish if local authorities have running websites and web portals for service provision,
(ii) determine the type of services that are provided online by local authorities in Zambia,
(iii) establish other e-Governance systems deployed in Zambia's local authorities,
(iv) identify the possible challenges to implementing e-Government in Local Authorities in Zambia.

2. Literature Review

2.1 The Global Perspective of e-Governance Implementation

Globally, Zambia is ranked 131 in terms of e-Government development with an index of 0.5022) and ranked 103 in terms of e-participation with an index of 0.3750 out of 193 countries surveyed by the United Nations (UN) [16]. Denmark is ranked number one globally on the e-government development index (0.9717) while Japan is ranked top on the e-participation index (1.0000). In the region, South Africa is leading on the e-government development index (0.7375) while Rwanda leads other countries in the region in terms of e-participation with an index of 0.6364 [16]. This entails that Zambia is trailing behind many countries, especially in the area of e-participation. Not many Zambians, businesses, and organisations are engaging electronically with the government.

The main variables for computing the e-government development index are online service, human capital index, and telecommunication infrastructure. Zambia has scored the lowest in terms of online services and infrastructure at 0.4414 and 0.3909 respectively [16]. The human capital index stands at 0.6744. This implies that many services are not online and that the ICT infrastructure in Zambia is not adequate to support e-government.

2.2 Adoption of e-Governance among Cities

The UN projects that by 2030, 60% of the population will be in urban areas (towns and cities) and Africa will lead in the rural-urban migration [17]. This will put pressure on services provided by local authorities globally. To prepare for this projected sharp increase in urban populations, local authorities or cities and towns have to accelerate the implementation of e-Government systems such as portals in their localities. A well-functioning portal can make a city more liveable and local government more responsive, which can in turn make residents happier [17].

According to the UN, African cities are lagging in terms of the local online services index (LOSI). Berlin in Germany and Madrid in Spain are ranked top in terms of the provision of online services [17]. None of the most populated cities in African countries are ranked among the top 20. The LOSI is based on five variables which are institutional framework, content provision, services provision, participation and engagement, and technology. Many local authorities (cities) in Africa have a weak institutional framework and technological infrastructure to support e-government implementation [18]. Only the city of Johannesburg has a high index of institutional framework and technology.

Municipalities or cities ought to provide online services through the use of institutional portals. This is the initial step in e-governance implementation. A web portal is a specially designed website that gathers and presents information in a diverse or personalized way [19]. Online services that municipalities should provide include fee payment, marriage certificates, permits, business licenses, e-procurement, and online recruitment [17].

Zambia has 116 local authorities from 10 provinces. These local authorities are categorised as city, municipal, and district councils [20]. Four are city councils, 15 are municipal councils and 97 are district councils. As indicated in the statement of the problem, there is very little known about the extent to which local authorities or cities in Zambia have implemented e-government. Literature available shows that Lusaka city pioneered the implementation of e-governance with support from UNESCO. The support from UNESCO focused on technological infrastructure [14]. In this regard, servers (both hardware and software) and personal computers were bought to help build the capacity of the local authority in implementing e-government. In 2013, the local authority (Lusaka City) launched an electronic ticketing system in one of its biggest bus terminus called the Inter-city bus terminus [15]. Further, in 2019, Lusaka City launched a web portal that provides among other services, e-payments, and e-services. Residents of Lusaka can pay online for services such as rates, ground rent, business, and personal levy, and billboard management [21].

2.3 E-Governance Projects in Zambia

At a national level, the central government of Zambia in 2016 launched an e-procurement system [22]. This entails that all procurements of goods and services in public services are being done online. In 2019, the Zambian government also launched a portal called ZamPortal where people and businesses can access and pay for various government services [23]. The portal seeks to provide one access point to various government services, thereby improving service delivery. With the enactment of the e-Governance Act of 2021, more initiatives such as digitalization of public service records through the use of an integrated electronic records management system will be implemented [24].

2.4 Challenges for e-Governance Implementation

The Central and local governments (local authorities) especially in developing countries struggle to implement e-governance projects. They face several challenges which include inadequate ICT infrastructure, lack of transformational leadership at the central and local levels, and lack of a strategic roadmap for implementation [25]. Further, some local authorities lack the incentives needed to pursue e-Governance vigorously because they are risk-averse and cannot handle messy problems [11]. Mohamed and Xavier [26]describe local authority e-Government challenges as inadequate funding and unskilled human capital. In Nigeria, Abdulkareem [25] observed that the implementation of e-Government was being impeded also by power failure, the digital divide, low ICT literacy levels, theft and vandalisation of ICT equipment, privacy, and security. The United cites inadequate infrastructure and high technology costs; threats to privacy and security; the lack of skilled workers and managing bureaucratic processes and the

digital divide as some of the challenges to the implementation of e-Governance [3].

2.5 Research Framework

Several models seek to explain the implementation and maturity of e-Governance in different countries. These include Andersen & Henriksen's four stages, Alhomond's four stages, Hiller and Belanger's five stages, Gartner's four phases, Layne & Lee, UN's five stages, World Bank's three phases, and IBM's four waves of e-Governance maturity models [27]. In all these models, there are three main stages in the implementation of e-Governance which are the initial stages which are associated with the provision of basic information to the citizens by the government through the use of basic websites), the transactions stage where the government agencies provide online services using web portals and interact with citizens online and integration stage in which several government systems seamless are integrated to exchange information and there is greater e-political participation by the citizens [28].

For this study, the Hiller and Belanger five stages growth model was used to measure the level of e-Governance adoption in local authorities in Zambia as regards e-Governance. According to this model, there are five stages in e-Governance adoption. These are information, two-way communication, transaction, integration, and political participation stages [29].

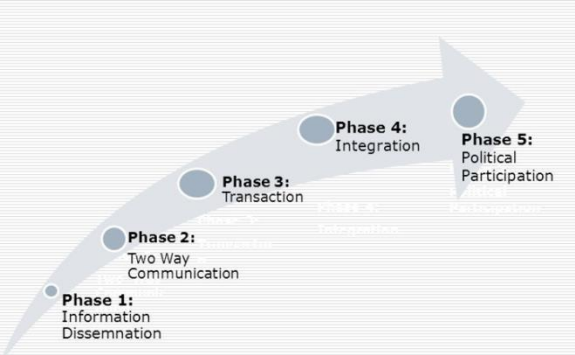

Fig1: Five Stages e-Governance Maturity Model (Source: *[30]*)

Phase one involves simple information dissemination from the government to citizens, businesses, employees, and other governments through the use of basic websites. This is usually a one-way communication and is the most basic form, as it is used for merely disseminating information [30]. In the second stage of e-governance implementation, there is two-way communication between the government and the four stakeholders. E-mail systems and more dynamic websites are used. The third stage involves the provision of web-based self-service. In this regard, services can be provided and paid for online [27,28].In the fourth stage, government integrates various e-governance systems so that they begin to talk to each other. Political participation is the stage in this model. At this stage, the government begins to provide online voting, online public forums, and opinion surveys for more direct and wider interaction with the citizens [28].

According to this model, if local authorities in Zambia have just basic websites, it implies there are at stage one of e-governance implementation. If they provide web-based self-service, it will entail that they are at stage three. Further, the research establishes that systems in the councils are integrated, it will mean that the local authorities are at stage four and the provision of online participation by local authorities in Zambia will entail that they have matured in their e-governance.

3. Research Design and Methodology

The study adopted a quantitative research approach and a survey strategy was employed. A population comprised of 72 old councils. This excluded 44 newly established councils that may operate with basic or no ICT unit and infrastructure. A total of 40 local authorities based on Slovin's formula: n =N/ (1+Ne2) with a margin of error of 5% (0.05) was used to o calculate the sample size. The 40 local authorities were purposively selected local authorities to take part in the study. This was done to ensure that all the big city councils are captured in the study.

A self-administered questionnaire was used to collect data from IT personnel or any person responsible for the IT department/unit in local authorities in Zambia. Further, data was collected using observation/visitations of websites/ web portals and other e-Governance systems of local authorities.

Data were analyzed using a Software Package for Social Science (SPSS). To ensure the validity and reliability of the collected data, responses obtained were triangulated with data obtained through an e-Governance systems check. Further, a questionnaire was peer-reviewed to ensure that questions solicit the needed information.

4. Research Findings

4.1 Characteristics of Respondents

As explained in Section 3, 40 local authorities were sampled. However, 35 local authorities comprising 5 city councils, 12 municipalities, and 18 district councils filled in a questionnaire. The other five councils declined to take part in the study. In terms of

the gender of the respondents, the majority (85.7%) were male, and 32 (91.4%) had a bachelor's degree in ICT and related fields. A slightly higher number (45.7%) of respondents were between the ages of 35 and 44 as shown in Table 1 below.

Table 1: Characteristics of Respondents

SN	Variable	Value	Frequency	(%)
1	*Gender*	Male	30	85.7
		Female	5	14.3
2	*Age*	15-24	14	40
		25-34	2	5.7
		35-44	16	45.7
		45-54	3	8.6
		55+	0	0

4.2 Presence of Websites/ Web Portals

On the question of whether or not local governments had websites or web portals, 5 (14.29%) of local governments said they did, while the majority (85.7%) said they did not. Out of the local authorities with website/web portal, one was a district council as shown in Figure 2 below.

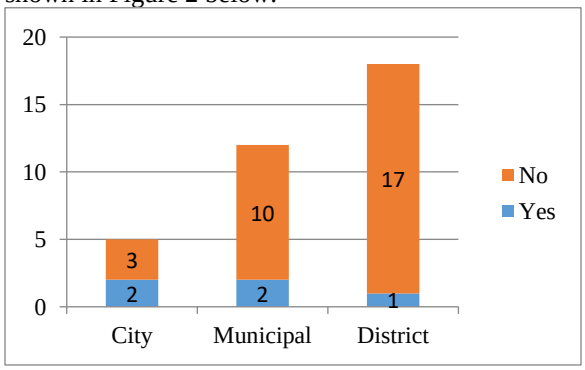

Fig 2: Types of Local Authority with Website

These are Kasama, Kafue, Kitwe, Lusaka, and Solwezi local authorities.

SN	Name of Council	The Universal Resource Locator
1	Kasama	https://kmcouncil.weebly.com
2	Kafue	https://www.kafuecouncil.gov.zm
3	Kitwe	http://www.kcc.gov.zm
4	Lusaka	https://www.lcc.gov.zm
5	Solwezi	https://www.solwezicouncil.gov.zm

An online check on the said websites/web portals revealed that three websites from Lusaka, Kasama, and Kafue were accessible while the sites from Kitwe and Solwezi were inaccessible. Further, the visitation to the websites revealed that only the Lusaka city council website qualified to be a web portal as it provided not only basic information about the council but also an online payment facility for services such as land rates, billboards, business levy, rates, and personal levy. The other two websites provided basic information about the departments of the councils and contact details.

However, all the local authorities were found to have social media accounts on Facebook. Using Facebook, all local authorities provide information to the public on various issues. They also use social media to interact with the citizens. Some councils such as Chinsali municipality, provide important forms for application for services and make announcements through their Facebook page.

4.3 Other e-Government Systems Available

A small percentage (20%) of the local authorities indicated procuring goods and services online using the Zambia e-Government Procurement system under the Zambia Public Procurement Authority (ZPPA). A search from the ZPPA e-procurement system revealed that all local authorities are providing e-procurement using the ZPPA e-procurement system.

Further, the majority (80%) of local authorities indicated having several management information systems which include financial management systems, and land management systems.

4.4 Challenges in e-Government Adoption

Figure 3 below shows the majority (70%) of respondents experience challenges related to e-Government implementation.

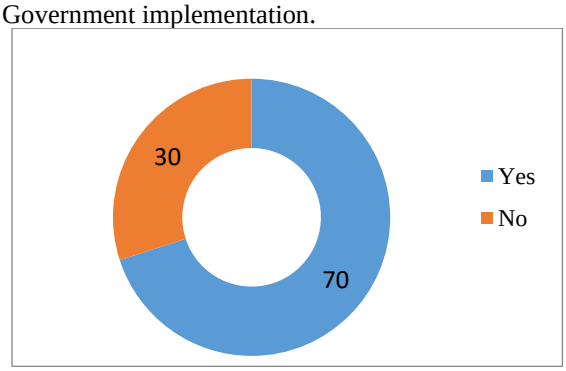

Fig 3: E-government Challenges

These challenges include a lack of stable funding, high-cost hardware, and software, a lack of skilled manpower, and unstable internet connectivity.

5. Discussion of the Findings

The research findings above show that many local authorities have not done well in the implementation of e-Governance as evidenced by only 5 (14.29%) local authorities with websites. It can therefore be argued that local authorities in Zambia have not advanced in their implementation of e-Governance. They are still at the information stage. According to Hiller and Belanger's five stages of e-Governance and other e-Governance maturity models, the development of websites is the early stage in the implementation of e-Governance [1] [30].

It has emerged that the local authorities with websites provide basic information to citizens except for the Lusaka city council. They do not provide online services such as online payment systems, online applications, and access to services. According to the UN, websites provide a wide variety of online services such as information, application for official certificates and permits, tendering for contracts, and electronic payments [6].

The findings have also revealed that all local authorities have Facebook pages. Social media pages are cardinal but should not replace websites and web portals. They should just supplement websites because they cannot be used to provide online payment systems and other online web-based services. The findings are contrary to what [7] found in UK and Denmark, where all local authorities had websites supplemented by social media pages [7].

There is strong evidence to show that Facebook pages are used by councils to allow citizens to interact with elected officials. This is good for e-Governance. However, electronic voting, the last stage in governance maturity is non-existence at both national and local levels (the councils). According to [7], political participation and electronic voting show that e-Governance is matured.

Following the passing of the public procurement Act of 2020 and the implementation of an e-procurement system by Smart Zambia Institute, all local authorities in Zambia being public institutions are compelled to procure goods and services using the central government online procurement systems called the Zambia e-Government Procurement System [22]. This is commendable and helps to realise the concept of e-Governance in Zambia.

Several challenges are impeding the implementation of e-Governance in local authorities in Zambia which include inadequate funding, inadequate ICT infrastructure, and lack of skills. These are in line with what [10] [25] [26] stated many countries especially developing countries do not have ICT infrastructure due to inadequate funding. Local authorities in Zambia have been struggling financially. They struggle to provide services and pay employees' salaries [31]. Therefore, they have little or no financial resources to spare on e-governance projects. Many projects on e-governance may require donor support. A case in point is the Lusaka city council's project where UNESCO provided the ICT infrastructure, and built capacity in the workers of the Council [14].

Generally, Zambia and other countries still do not have highly qualified cadres of citizens to handle highly technical ICT systems which may include e-Governance systems [32]. Other challenges to e-Governance implementation include low ICT literacy levels; slow internet connectivity and the intermittent power supply still pose a challenge in e-governance implementation in Zambia. This is similar to what was found in Nigeria where power outages and poor internet connectivity affected negatively the implementation of e-governance [25].

6. Conclusion and Recommendations

It can be concluded that e-Governance implementation in Zambia's local authorities is in its infancy stage. This is evidenced by a very low number of websites and web portals and the limited provision of online services by many local authorities. However, e-procurement is being practiced by all the local authorities through the national e-procurement systems for public institutions. Implementation of e-Governance in local authorities faces many challenges which include inadequate funding, lack of skilled manpower, low ICT literacy, and unstable internet connectivity. Arising from the above findings, the following recommendations are:

(i) There is a need to increase funding to e-Government projects in local; authorities, to enable them to acquire the necessary hardware and software for e-Governance;
(ii) Build capacity in local authorities' ICT workers;
(iii) Improve electricity supply and internet connectivity in the country.

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