

Tahiru, Fati; Agbesi, Samuel

Conference Paper

Driver and Barriers of ICT Adoption in Revenue Collection in Ghana: A Case of Accra Metropolitan Assembly

30th European Conference of the International Telecommunications Society (ITS): "Towards a Connected and Automated Society", Helsinki, Finland, 16th-19th June, 2019

Provided in Cooperation with:

International Telecommunications Society (ITS)

Suggested Citation: Tahiru, Fati; Agbesi, Samuel (2019) : Driver and Barriers of ICT Adoption in Revenue Collection in Ghana: A Case of Accra Metropolitan Assembly, 30th European Conference of the International Telecommunications Society (ITS): "Towards a Connected and Automated Society", Helsinki, Finland, 16th-19th June, 2019, International Telecommunications Society (ITS), Calgary

This Version is available at:

<https://hdl.handle.net/10419/205216>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

DRIVER AND BARRIERS OF ICT ADOPTION IN REVENUE COLLECTION IN GHANA: A CASE OF ACCRA METROPOLITAN ASSEMBLY.

Fati Tahiru

Ho Technical University, Accra Ghana

Samuel Agbesi

Center for Communication, Media & Information Technology (CMI)
Aalborg University Copenhagen, Denmark

Abstract

Act 462 of 1993 and Act 936 of 2016 of the Local Government of Ghana delegates power to the District and Municipal Assemblies to formulate and execute plans, programs, and strategies to effectively mobilize resources necessary for the overall development of the district and to levy and collect taxes, rates, duties, and fees. Over the years, the Accra Metropolitan Assembly (AMA) has been trying to implement what the act states. However, the Assembly faces challenges of revenue collection, storage, and dissemination of information.

The main purpose of this study was to examine the drivers and barriers to ICT adoption in the operations of AMA from macro level using institutional theory and organizational factors. The study adopted inductive qualitative thematic analysis using semi-structured interviews, and document analysis. The themes that emerged from the qualitative data analysis that influence AMA ICT adoption includes top management interest and attitude, infrastructure and resources, policy directive, and organizational success. The findings also identify themes such as government directives, and contractors commission as the main barriers to ICT adoption in AMA. The study concluded by making several recommendations that includes a centralized database that will serve as a repository for property informations as well as owners details.

Keywords: AMA, MIS, ICT, Revenue, Tax, Ghana

1. Introduction

1.1 Background

Act 462 of 1993 and Act 936 of 2016 of the Local Government of Ghana delegates power to the District and Municipal Assemblies to formulate and execute plans, programs, and strategies to effectively mobilize resources necessary for the overall development of the district and to levy and collect taxes, rates, duties, and fees. Over the years, the Accra Metropolitan Assembly (AMA) has been trying to implement what the Act states. However, the Assembly faces challenges of revenue collection, storage and dissemination of information since everything is done manually (Tahiru, Agbesi, & Osei-Owusu, 2014). Added to the above-mentioned challenges, the authorities are not able to identify every individual or companies that are supposed to be billed due to lack of proper information on properties and their owners, and this has accounted for the huge loss of revenue to the Assembly.

But it is worth the while to note that the management of revenue collection and its concomitant challenges by Information and Communication Technology is far advanced. Studies have shown that introducing ICT in revenue collection has the potential to increase revenue mobilization and to block revenue leakages. (Okiro, 2015; Tahiru et al, 2014). Therefore, the adoption of ICT by AMA in its operations can mitigate revenue leakages. ICT is any form of technology that facilitates “information collection, processing, usage, transfer, storage, retrieval, sharing, interpretation, and adoption” (Adedokun-Shittu, & Shittu, 2015). Several countries have taken advantage of the adoption of ICT to enhance their revenue mobilization, and several studies have attempted to understand user behavioral intention to the use of ICT in different sectors of the economy. (Feger, 2014; Lymer, Hansford, & Pilkington, 2012; Mohammad Kamel Alomari, Kuldeep Sandhu, & Peter Woods, 2014).

1.2 Problem Statement

Revenue leakage has been a major problem for agencies and the local authorities who are in charge of rate collection. The operations of most of the assemblies are performed manually with limited control, lack of transparency and accountability (Tahiru, Agbesi, & Osei-Owusu, 2014). The AMA has the problem of unpaid bills and the exploitation of consumers by some officials. Also, some officials engage in corrupt practices such as conniving with consumers to rip the Assembly off the most needed revenue. (Field Survey, July 2013). But studies has shown that attempts to apply ICT in revenue mobilization in different jurisdiction has had some barriers such as funding, internet connectivity coverage and high cost of bandwidth (Waiswa, Robert and Okello-Obura, Constant, 2014). Hence, even though the above problems lucidly indicate the urgent need for ICT adoption in AMA’s operations it is important to examine the barriers or challenges that are likely to affect the adoption of ICT in Ghanaian jurisdiction. Futhermore, Previous studies such as Černáková, (2014), Waiswa, and Okello-Obura, C. (2014), have concentrated on ICT adoption from an individual perspective, but not from the organizational perspective, which create a gap in the body of knowledge. In this study we will concentrate on organizational analysis of the adoption of ICT in revenue mobilization in AMA.

1.3 Objectives

The main objective analysis the application of ICT in revenue mobilization to curb revenue leakages.

Specific Objectives

1. To identify the main revenue sources of the Accra Metropolitan Assembly and the challenges associated with revenue collection.
2. To examine the drivers and barriers of ICT adoption in revenue collection.

1.4 Significance of the study

In spite of efforts made by the Finance and Administration of the assembly and management, its revenue projections are not being met. The significance of this study is to contribute to a deeper understanding of the challenges associated with revenue mobilization and how ICT can be introduced to enhance the revenue mobilisation within this institution. Furthermore, we are of the view that such a study will guide AMA to create a policy framework and formulate strategies and operational guidelines towards the adoption of ICT in its operations.

1.5 Structure of the study

This study had been organized in six chapters, chapter one deals with the introduction and research problem, the aims and objectives of the research and the research questions. Chapter two reviewed relevant literature related to the research topic. The research methodology employed for the research will be discussed in chapter three. The findings for the study will be highlighted in chapter four. The research data will be analyzed and discussed in chapter five and finally, the recommendation, and study limitations will be highlighted in chapter six.

2. State-of-the-art

2.1 Introduction

The literature review looks at the concept of decentralization which accounts for the mutual relationship between the central government and the local government structures. It also considers the main source of revenue for local governments; problems associated with revenue collection, and finally the drivers and barriers to ICT adoption in developing countries.

2.2 Decentralization and Local Governance

The concept of decentralization, as described in a study by Tahiru, Agbesi, and Osei-Owusu, (2014) is the transfer of power of authority and resources from the central government to the sub-states with the aim of promoting local governance and development. It is the transfer of functions, powers, and competence from the central Government to the grassroots. The administration of the decentralized program is mostly handled by the Metropolitan, such as AMA, Municipal and the district assemblies (MMDA) in Ghana. (Opare, et al., 2012). Thus, decentralization can be explained simply as bringing governance to the doorstep of the people by empowering the metropolitan, municipal and the district assemblies to precipitate development processes locally. Decentralization, therefore, implies the involvement of local government structures in governance, it underscores the empowerment in the form of delegated power from the central government to the local government.

2.2.1 The main source of revenue for local governments

A country's ambition of becoming economically sound and/or independent mostly depends on an effective and robust tax system (Salami, 2011). Studies on the main sources of revenue for local governments in Africa abound. They have been categorized into "own revenue" (includes taxes, user fees, and various licenses) and "transfers from the central or regional levels" (in the form of grants and revenue sharing) (Fjeldstad & Heggstad, 2012). In Ghana, the Local Government Act 462 of 1993 and Act 936 of 2016 entrusted the district and municipal assemblies with the responsibility to formulate and execute strategies for the local assemblies and also stated the major sources of revenue for the assemblies. The revenue of a District Assembly comprises of decentralized transfers, internally generated funds, and donations and grants. Decentralized transfers include funds from the following revenue sources: The District Assemblies Common Fund, grants-in-aid from the central government and any other revenue transferred from the central Government to the District Assembly. Internally generated funds are funds from the following sources: licenses, taxes, investment income, rates, fees, and miscellaneous charges. Grants, according to the act, are donations or funds paid directly to a District Assembly by a development partner. When we look at Nigeria for instance their source of revenue are Property tax and ratings, Licenses, and fees, Motor park dues, Market and trading license and fees and Motor vehicle (Salami, 2011). Similarly, other Anglophone African has business licenses, market fees and other user charges on services provided by or on behalf of the Local Government Authority. In Anglophone Africa, business licensing generates between 5 and 30 percent of local government own revenue (Fjeldstad & Heggstad, 2012).

2.2.1 Problems with revenue collection

Infrastructural development for citizens in many countries has been the responsibility of the Government. For the provision and improvement of socio-economic life of its citizens, Governments need revenue. However, funds generated internally by district assemblies are not enough to support local development projects. (Tahiru et al, 2014). As Fjeldstad and Heggstad (2012) observed, there have been challenges in revenue mobilization in a number of African countries, and mostly the poorer segment of the urban citizens does not comply with the payment of taxes. Similarly, in Delhi, there exists a big gap between revenue and expenditure because the municipal corporation of Delhi (MCD) is not able to mobilize enough own revenue to support their growing expenditure requirements. As a result, the MCD's have been dependent on the central Government for funds (Bandyopadhyay, 2015). Due to the difficulty involved in collecting taxes, fees, and licenses, the Local Government Authority (LGA) has various ways of collecting these taxes. It ranges from the LGA collecting taxes themselves, outsourcing tax-collection to the central Government or private agent/companies or semi-private partners on their behalf. Notwithstanding the effort by the LGA to improve revenue collection through the engagement of agents and contractors, it is still staled with various challenges. Studies has shown that, the low revenue is attributed to nonpayment of taxes and property rates due to the high mobility of people, frequent property sales/exchanges and inadequate registration of titles. (Fjeldstad & Heggstad, 2012).

2.3 Drivers of ICT adoption in revenue collection

This section considers the factors that promote the adoption of ICT in revenue collection. The application of ICT to affect the structures and processes of governmental organizations and facilitating information and knowledge sharing or exchange amongst citizens, businesses and government to ensure improved efficiency, convenience and better accessibility of public services is referred to as e-government (Angelopoulos, Kitsios, Kofakis, Papadopoulos, 2010). Findings on e-governance success factors indicated that ICT has proven to be an effective tool for the digital divide. also, e-governance strategies and policies cover a wide area such as human challenges, infrastructure, process reengineering, technology, change management, security challenges, legal privacy, information, and capacity building (Nirmaljeet & and Kiran, 2013). A study on the effect of e-payment system on revenue collection by the Nairobi City County Government revealed that the revenue collection performance in Nairobi City County increased considerably after the introduction of e-payment system in revenue collection. (Okoro, 2015).

Factors that motivate institutions to adopt the Information System in their business and public organizations are the organizational commitment, group culture and superior coercive pressure (Daging, 2010). However, Sherer et al. (2016) remarked that mimetic forces were more critical predictors when there was greater uncertainty, while coercive forces were significant predictors after the U.S. government established incentives, and normative forces have continually influenced adoption. (Sherer et al,2016). According to Al-Mamari et al. (2013), the Government of Oman implemented e-government projects due to international coercive, mimetic, and normative dynamics of conformance to international standards. This indicated that Oman was motivated by driving forces like those motivating other developing countries. To explore the effects of technological, institutional and fiscal readiness on the extent of online government services available across countries Kottemann (2009) resolved that there exist significant effects on a path

model with direct effects of t-readiness and i-readiness on e-government, and indirect effects of t-readiness on e-government mediated through t-readiness.

2.4 Barriers to ICT adoption in developing countries.

The fourth section of the literature review looks at factors that are inimical to the adoption of ICT in developing countries. According to Waiswa (2014) challenges to the e-Governance objective include donor-funded ICT initiatives, (projects come to halt as soon as donor support ends), internet connectivity coverage and high cost of bandwidth as challenges to the adoption of ICT for e-governance. An empirical study by Lam (2005) identified 17 barriers to e-government integration which were organized into four categories: strategy, technology, policy, and organization. Under the category of Strategy, barriers include common e-government goals and objectives, delivery timeframes, ownership, and governance. Technology barriers include architecture interoperability, data standards, and legacy systems. The Policy category of barriers is citizen privacy, data ownership, and policy implications. Organization barriers include the pace of government reform, legacy government processes, management, and technical skills.

In Zambia, lack of adequate ICT infrastructure and political will were reported as barriers to e-government adoption among others. The study further highlighted on some peculiar barriers such as the provision of content in English other than local languages, lack of proper change management procedures, non-contextualization of e-government practices, as a contributing factor to the delay in appropriate e-government adoption. (Bwalya, 2009). A pilot study conducted amongst online (e-ready) citizens to identify the challenges and barriers that affect the adoption of e-government services in Saudi society, observed that any Government contemplating e-government adoption must carefully consider the following challenges: technological, cultural, organizational, and social issues. (Alshehri & Drew, 2010).

In the context of Bangladesh, barriers to the adoption of ICT have been classified into three major clusters. In an order of importance, they are: first, lack of knowledge. The second cluster consists of attitude and mindset of decision makers, lack of political will and leadership, lack of planning, strategy, and infrastructure. The third cluster was formed by other barriers such as bureaucratic business process, lack of expertise and professionals and socio-economic condition, lack of laws and rules, lack of citizen demand and lack of a championship (Ahmed, 2006).

2.5 Summary

A greater proportion of the literature such as Meena (2013), Fjeldstad and Heggstad (2012) and (Eja et al, 2018), concentrates on the tax payer's compliance to reforms, whereas assessment of institutional challenges to the adoption of the appropriate reforms in revenue collection receives infinitesimal attention. Consequently, the research seeks to address the drivers and barriers to ICT adoption in revenue collection.

3. Theoretical Background

3.1 Introduction

This research integrated institutional theory and organizational factors as a theoretical lens to guide this study. Studies (Luna-Reyes, & Gil-Garcia, 2011; Teo, & Benbasat, 2003) have shown the complex interplay between ICT and the influence of social context in the adoption of technology in an organization. Technology adoption cannot be driven by rationalistic and deterministic approach only, but also by the institutional environment in which the technology will be used (Teo, et al 2003). According to Luna-Reyes et al (2011), one of the main reason most e-government projects fail is as the result of lack of understanding about the complex relationships among technologies, organizational factors and the socio-economic context in the adoption of ICT. Hence in this study, we used an integrated theory to explain how ICT can be adopted in revenue mobilization.

3.2 Institutional Theory

Institutional theorist argues that the institutional environment in which technology will be used can influence it adoption (Sherer, Meyerhoefer, & Peng, 2016), and this environment includes the cultural beliefs, normative system and the regulative system (Sherer, et al 2016). The institutional theory examines how organizations cope with pressure from the external environment. According to Powell & DiMaggio (1991), one of the key concepts of new institutional theory is Isomorphism. Every organization want security and legitimacy, and the only way they can be perceived as legitimate is if they adopt best practices that have been adopted by similar organization within their fields, hence organization are thus subject to pressure to be isomorphic with the environment (Powell et al, 1991; Teo, et al 2003). Powel et al (1991) address three types of isomorphic pressure, namely coercive, mimetic and normative isomorphism. In the context of this study, we look at the influence of coercive and mimetic pressure on the adoption decision of AMA.

3.2.1 Coercive Pressure

Coercive pressure according to Powel et al (1991), is the formal and informal pressures exerted on an organization by a superior dependent organization. Teo et al (2003) this source of power normally stem from a resource-dominant organization, regulatory bodies, and parent companies. AMA is a highly institutionalized organization, that interact and depends on other superior institutions for resources. For example, AMA is dependent on the Local Government Ministry for resources and funding, hence this superior institution mostly influences AMA to adopt structures and policies that are in their interest. AMA is also influenced by Government policies and regulation. Hence, we argue that the adoption of ICT in revenue mobilization will be the influence of coercive pressure emanating from these superior authorities.

3.2.2 Mimetic Pressure

Mimetic pressure is the process of copying the actions or activities undertaken by other organization within the same field. It is argued that organization may model themselves after others in the same field that they consider more successful because of legitimacy. Powel et al (1991), argues that institution will normally adopt the practices of successful institutions within the same environment. When there is uncertainty in technological innovation organizations are most likely

to mimic (Powel et al, 1991). In the context of this study, we argue that the adoption decision of ICT in revenue collection will also be influenced by mimetic pressure. That is if the adoption of technology by other organization is seen to be beneficial, it will influence AMA's adoption decision.

3.3 Organizational Factors

Organizational factors such as top management support (TMS) and organizational readiness has also been argued to have impact ICT adoption decisions (Hameed, Counsell, & Swift, 2012; Iacovou, Benbasat, & Dexter 1995; Teo et al, 2003). According to Hameed et al, 2012, in their meta-analysis, TMS has a significant influence on the success of technology adoption in an institution. That is, for the adoption of a technology to be successful in an organization, the support of top management is important to its success. For example, without the approval and support of the management of AMA and the top-level directors, it will be difficult for the implementation of the computerization current manual system. Organizational readiness refers to the financial and technological readiness of an institution in support of the adoption of the new technology (Iacovou, et al 1995), and in this context the ICT system for revenue mobilization. AMA financial resources availability has a significant impact on the adoption of ICT system for revenue mobilization as well as the existing technological systems, such as network infrastructure computers systems, etc.

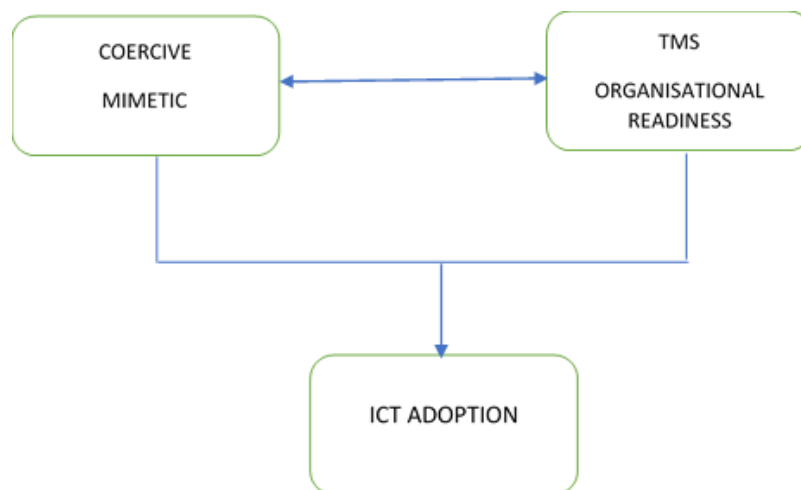


Figure 1 – Institutional and Organizational influence on ICT adoption

As shown in figure 1, the driver and barriers to the adoption of ICT in an Institution, such as AMA can best be explained through the institutional perspective as well as organizational factors perceptible. Adoption of ICT can be influence by rationalistic and deterministic orientation as well as irrational goals (Teo et al, 2003). In figure 3.1, ICT adoption is influenced by both institutional factors, such as coercive and mimetic as well as organizational factors (TMS and Organizational readiness). There also exist and the relationship between institutional factors and organizational factors. For example, external pressure in the form of government directives without the willingness of top management support will cause a technology implementation to fail, likewise, if there is top management support but there is no government support or eternal donor support financially, it will be difficult to execute the project.

4. Methodology

4.1 Research design

The study adopted inductive qualitative thematic analysis using semi-structured interviews, and document analysis. Purposeful sampling was employed. The target population was from the Management Information Systems (MIS) department, finance and budget office of the Accra Metropolitan Assembly. The Director of ICT and two (2) other senior staff from the MIS department, as well as the Metro Director of the budget from finance and budget office, were interviewed. Annual revenue statistics report between 2013 and 2017 were obtained and analyzed. Interview data were analyzed using Computer software (Nvivo 12)

4.2 Data Analysis

The data used in the analysis includes semi-structured interviews and archival documents. The interview was personally transcribed by the researchers. The transcript was sent to the respondents to verify if we have captured their thoughts and if there are any omissions to correct. The final updated data was loaded into Nvivo 12 software. After the data has been loaded into the Nvivo it was thematically coded. The coding involves reading through the entire transcript and assigning meaningful labels, known as codes, to words, sentences or paragraph that are emerging as themes. The initial codes were grouped into sub-themes and themes. To enhance reliability and credibility in the codes, each researcher coded separately, and the transcript was given to an outsider to also code. The three different codes were compared, and final consolidated codes were extracted upon thorough deliberation and discussion.

5. Results of findings

5.1 Introduction

This chapter presents the findings based on the secondary data and the responses from the interviews conducted with some selected staff of the Accra Metropolitan Assembly (AMA).

5.2 Objective 1: To identify the main revenue sources of the Accra Metropolitan Assembly and the challenges associated with revenue collection.

The AMA currently collects revenue from three (3) sub-metros namely Ablekuma south, Okaikwe south and Ashiedu Keteke all within the Accra Metropolis. The downsizing of the sub-metros from Nineteen (19) to six (6) in 2018 and currently to three (3) is as a result of Government directives to reduce the catchment area for the Metropolis. This is to ensure the creation of other municipalities, provision of efficient revenue management by the assembly and fair distribution of resources to the citizens.

The Internally Generated Fund (IGF) of the Assembly has been categorized into rates, land, fees and fine, rent and licenses.

Rates- This constitutes revenue charged on properties such as manufacturing, commercial, industrial and residential facilities in the metropolis.

Land – this comprises revenue generated from the sale of stool lands, issuance of building permits, land transfer, sand winning operations, and quarrying activities

Fees and fine – Fees and fine consist of revenue generated from the rate charged in the markets, stalls and stores rentals, Lorry Park and entry fees, court fines/spot fines, slaughterhouse fee, on-street parking, slot latrine fees, cemetery burial permit, sanitation and environmental fees, outdoor advertising, penalties and waste disposal fees.

Rent- The revenue generated from staff quarters, government quarters, hiring of Council Chamber and Guest Houses constitute the revenue from rent.

Licenses – This is the revenue generated on operating businesses and industries in the metropolis. Some examples of licenses charged by the assembly are artisan license, store license, chop bar and restaurants licenses, registration of contractors and printing press, metro weekly lotto, legal practitioners, registration of business premises, private and commercial vehicle registration.

Other revenue sources are miscellaneous, government grant and investment. These are classified as non-tax revenue.

The following table and charts focused on the sources of revenue and how they contributed to the internally generated fund (IGF). Unless otherwise stated, all figures representing money are in Ghana cedis.

Table 1: Categories of Internally Generated Funds

REVENUE	2014	2015	2016	2017
RATES	10,583,498.79	11,743,951.14	11,719,873.82	7,344,120.26
LANDS & CONCESSIONS	6,818,214.24	9,900,817.76	12,512,624.92	3,102,446.81
FEES & FINES	5,344,974.34	8,294,028.19	7,024,346.00	7,508,823.83
LICENCES	9,363,539.58	9,489,646.34	4,173,362.00	6,811,445.24
RENT	206,871.65	134,422.15	422,084.91	318,903.64
MISCELLANEOUS	523,237.01	494,040.96	223,927.53	705,637.91
GOV. GRANT	-	49,674,162.69	53,087,296.18	36,280,372.11
INVESTMENT INCOME	-	15,303.00	-	12,457.70
Total	32,840,335.61	89,746,372.23	89,163,515.36	62,084,207.50

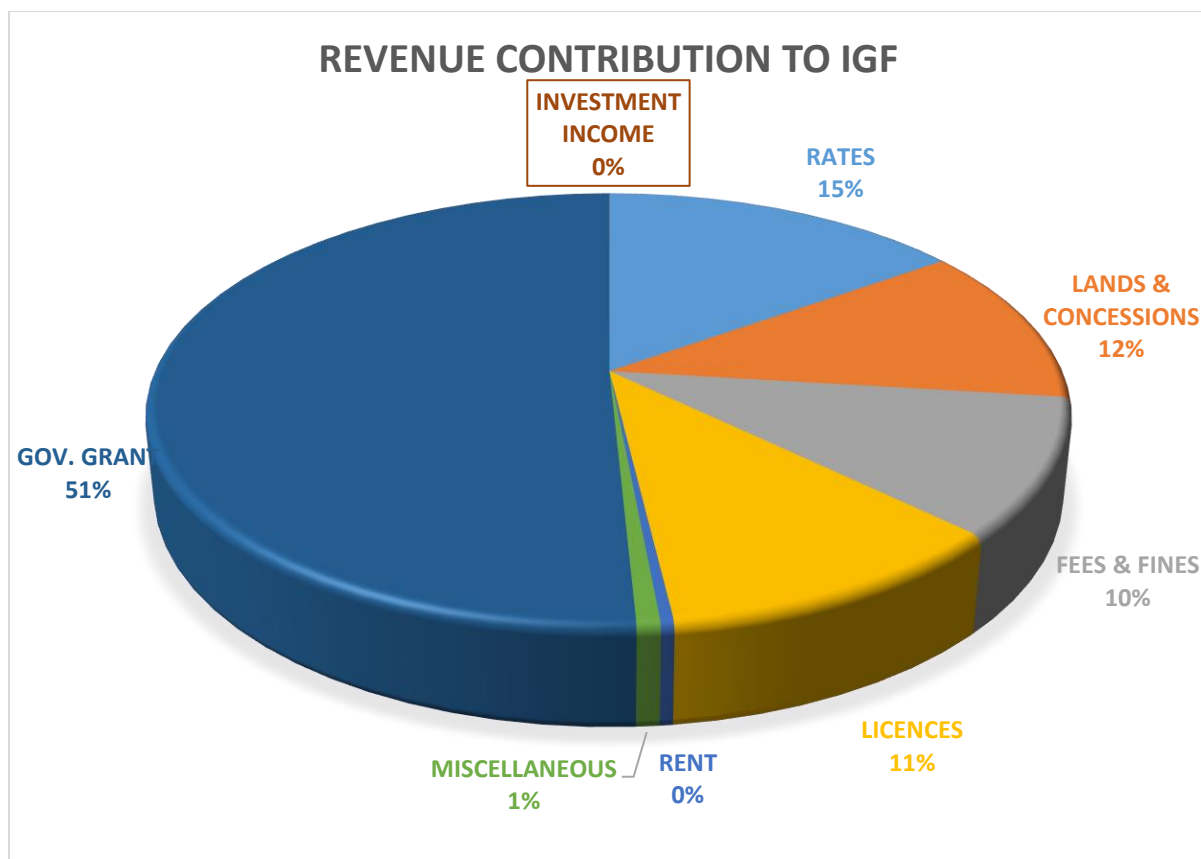


Figure 2: Components of the Internally Generated Funds

Table 1 and Figure 2 above show a sample of actual revenue generated by the various revenue sources for a period of four (4) years. Government grants constituted more than half of the revenue

of the AMA. It accounted for 51% of the Assembly's total income. That underscores the extent to which the AMA depends on the Central Government for its revenue. Rates contributed 15% of the total amount collected. Lands and concessions followed with 12% of the revenue generated from 2014 to 2017. Licenses, and fees and fines accounted for 11% and 10% respectively of the IGF of the assembly. Miscellaneous revenue accounted for a negligible proportion of 1% of the IGF. For the year 2014, rent and investment attracted no revenue. To find out whether the revenue appreciated or plummeted year after year, a picturesque presentation of the annual revenue figures was made: Figure 3 shows actual revenue figures for the year 2015.

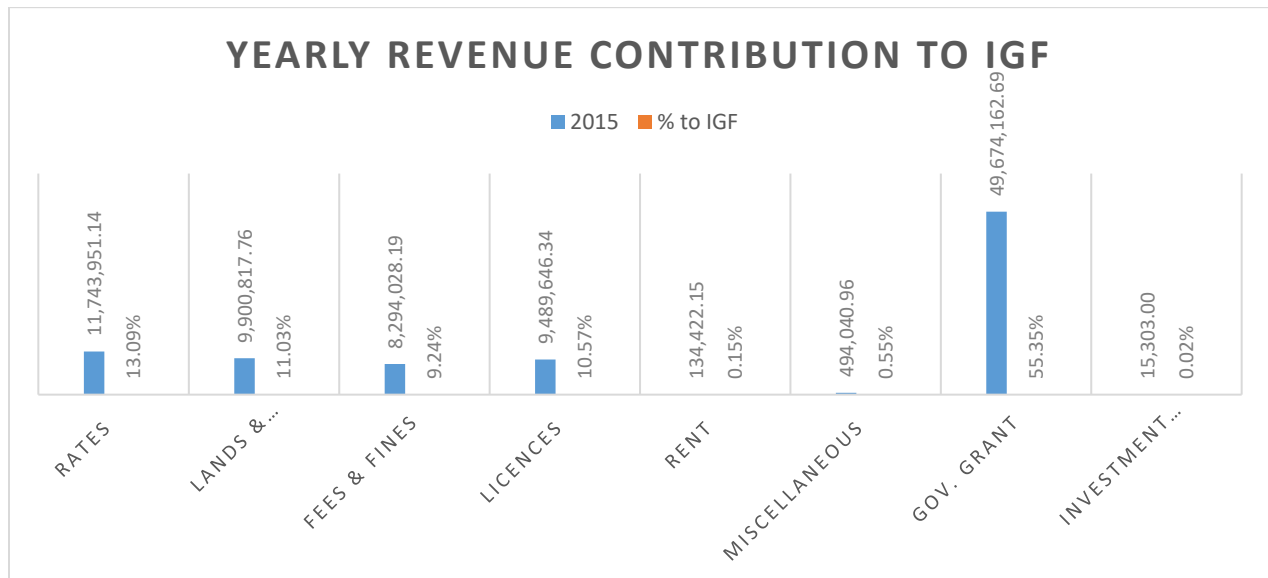


Figure 3: Details of Revenue Contribution to the IGF in 2015

Figure 3 depicts the 2015 actual figures and how they contributed to the IGF in percentage terms. In 2015, Government grant was the highest with an amount of 49,674,162.69 being 55.35% of the IGF. Collections from rates came second by way of significance; it attracted 13% of IGF. Lands and concession, and licenses contributed to 11.03% and 10.5% respectively. Fees and fines contributed 9.24% to the IGF with an amount of 8,294,028.19. Investment rent and miscellaneous revenue sources accounted for insignificant percentages as shown in figure 3. Revenue figures for the year 2016 were considered as shown in Figure 4.

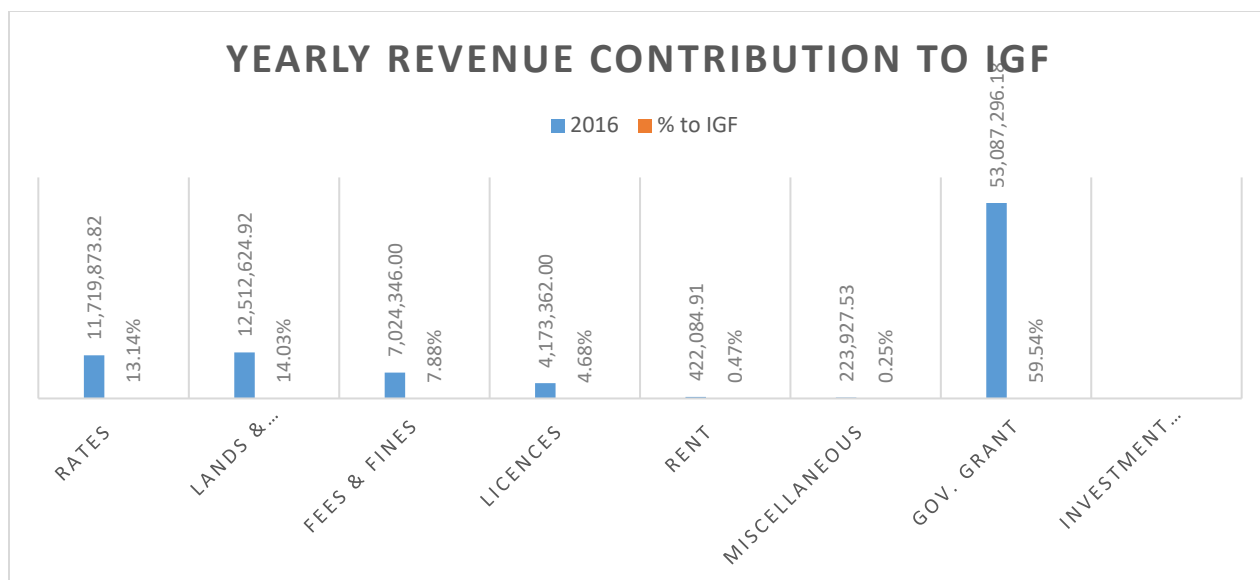


Figure 4: Components of the IGF in 2016

In 2016, an increase in government grant from 55.35 % in 2015 to 59.5% was observed. Similarly, Lands and concession recorded an increase from 11% in 2015 to 14.03% in 2016. On the contrary, Fees and fines reduced from 9.24% in 2015 to 4.68% in 2016 while revenue from Licenses plummeted from 10.57% in 2015 to 4.6% in 2016. Revenue from Rates was the same in both 2015 and 2016. Whereas Rent appreciated slightly, miscellaneous decreased as shown in Figures 3 and 4. Attention was focused on 2017 revenue figures as shown in Figure 5.

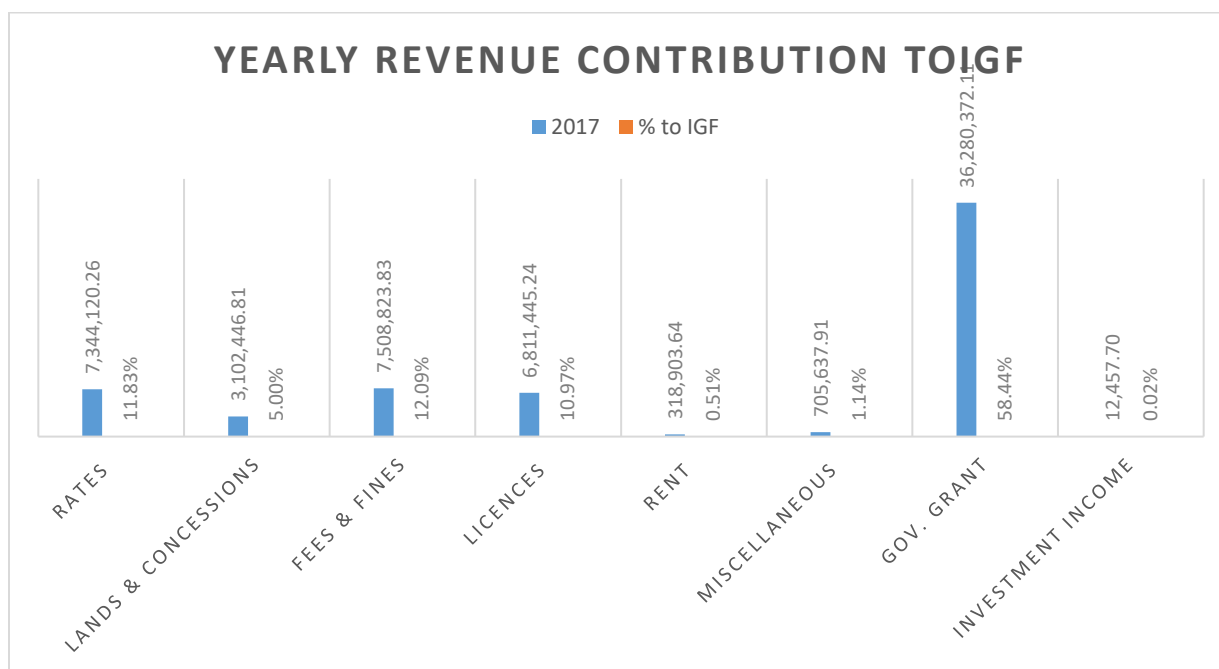


Figure 5: Details of Contributions to the IGF in 2017

In 2017, there was a drop in Government grant from 59.5% in 2016 to 58.44% in 2017. That was an insignificant difference of 1.06 %. However, government grant accounts for more than half the Assembly's total revenue. The trend from 2015 shows a decline of 1.31% in the revenue collected from rates. Comparing the contribution from lands and concessions for 2015 with those of 2017, there emerges a significant decline: 11.03% in 2015 and 5% in 2017. Revenue from Fees and fines, and licenses appreciated; 9.24% and 10.47% respectively in 2015 and 12.09% and 10.97 respectively in 2017. There has not been a significant contribution from rent to the IGF, it was observed that improper update of records was the major factor. AMA had difficulty in identifying the owners of the shop or occupants of public properties due to existing truncated records and /or no records. The category of investment and miscellaneous revenue appreciated in 2017, largely due to the sale of bids to contractors.

The differences in certain categories of revenue (rates, fees, and license) between 2015, 2016 and 2017 as shown in Figures 3, 4 and 5 are attributable to AMA's decision to discontinue the use of a computerized system in 2017 to collect taxes. The management of AMA halted the system they had been using to collect Business operating permits and property rates due to the high commission charged by contractors. Also, the Assembly had no control over the management of the data used for the collection; a scenario which led to the loss of revenue as well as lack of transparency and proper accountability for the revenue collected by the agents.

5.3 Objective 2: To examine the drivers and barriers of ICT adoption in revenue collection.

The six themes derived from the analysis are 1. AMA Top management interest and Attitude 2. Existing and available infrastructure and resources 3. Policy directive from local Government 4. Similar Organizational success, and 5. Benefit of adoption 6. Challenges to ICT adoption

AMA Top management interest and Attitude

The support from top management is usually viewed in two dimensions: top management interest and top management attitude. Most participants were of the view that Top management enormously supports the adoption of ICT in revenue mobilization. According to the participants, this has become evident as Top Management reviews a number of proposals from different consultants with the view to identifying the best approach to solving the problem of revenue collection. We, the researchers, also realized that top management interest and attitude for the adoption of envisages revenue maximization and blocking leakages in the system.

They (AMA top managers) are having a series of meeting with consultants to consider different approaches to solve the problems. Example: A team from Stanbic bank wants to come in with their equipment and platform for revenue collection using AMA's staff.

Existing and available infrastructure and resources

We sought to identify the available infrastructure and resources for the full implementation of an ICT system. Some participants emphasized that there is available infrastructure in the form of servers, internet and networking devices for the implementation of an ICT system.

Yes, the assembly is ready, we have Competent Network staff, Competent Database staff, and other supporting staff. Servers with high Storage capacity in the waiting, robust Network and internet services are available.

Not only is the Accra Metropolitan Assembly ready infrastructural wise, but also it is financially endowed with Central Government funds, internally generated funds (IGF), donor funding and the GETfund. We observed that the AMA can benefit from any of these funds to implement their projects.

The Government has initiated a common platform to manage the assembly's revenue and that is being financed by the government. AMA has the fund to finance their projects if they need a service that will help their operations. We also have access to the following funds: Donor funding, Internally Generated Funds (IGF) –All revenues that the assembly collects and (Getfund for projects).

This indicates that the Government and Assembly are considering the adoption and implementation of a one-stop-shop solution for the management of the Assembly's services and revenue.

Policy directive from the Ministry of Local Government

The Ministry of Local Government has issued a Legislative Instrument which binds all the Assemblies to use a Government-financed ICT platform for their revenue mobilization in order to monitor and control processes, manage and control data and also do away with agent's commission which is sometimes outrageous.

The directive from local Government on the Assembly's use of ICT has impacted their decision on the adoption of ICT solution for their operations.

Pressure from the Government for all assemblies to have a database system for their services for easy monitoring of its activities.

Similar Organizational success

The adoption of ICT by the Assembly is partly influenced by some mimetic pressure such as imitating some ICT solutions implemented by other sectors. The AMA has some of its services computerized (marriage registration, building permit) and others partially computerized (Business operating permit, property rate, and road tolls), it still wishes to imitate the ICT strategies that other organizations are implementing in order to be efficient in its operations.

AMA has realized Ghana Water Company has digitized their services, in terms of sending bills to the client via text message on their consumption for the month and customers can pay at any of their collection points.

Benefits of adoption

The participants emphasized that ICT adoption would benefit the Assembly by increasing revenue mobilization. Thus, the Assembly wishes to invest in an ICT system which is not capital intensive but will assist them in keeping records; bring about efficiency in their work; assist in owning and managing their own data, making projections based on the information stored, monitoring and controlling processes for revenue mobilization and finally to increase revenue through effective and efficient processes.

AMA considers adopting ICT because they want to maximize revenue and block leakages/loss of money in the system. AMA wishes to get

- *A platform that will not cost them so much in terms of Infrastructure*
- *Taking custody of their data*

The staff stated that if AMA adopts technology into their processes they are assured of accuracy in their records and also stand to have a competitive advantage over the other Assemblies.

Challenges to the adoption of ICT

Some directives from the local government can also be a disadvantage to the assembly's initiative and proactive attitude in providing or implementing solutions for their processes.

The challenge is that the ministry of finance has come out with directives on how the assemblies should manage their revenue and finances. They don't want private company's coming with their platform to manage the assemblies' revenue. This has halted the start of the program even though AMA had agreed to their proposal.

There is no doubt that the top management of AMA has demonstrated a keen interest in the adoption of ICT as a solution to maximize profit and block leakages in their revenue mobilization processes. Nevertheless, the directive from local Government instructed the Assemblies to get on a common Government platform rather than contract any private consultancy to design solutions for them. On the other hand, some participants provided reasons to support the necessity of such policies from the Ministry of Local Government.

We once had a system (BOP and Property) working but there were issues with the commission the contractor charged, and AMA did not have control over the data and therefore AMA could just see the final reports from the services but did not have access to the back office.

The system was not up to the Assemblies standard in relation to the assembly's operations. It could not manage data (customer list). The system was mainly used for revenue collection. You could view payment but you can't use the records for further analysis. The system was not flexible and not complete and therefore could not solve AMA'S problem.

This will enable the assemblies to own and have access and control over their data for further analysis. Thus, notwithstanding the fact that the researchers saw the initiatives of the local

government as a barrier to the adaption of ICT by the AMA, some AMA staff view the directive in a positive light. The AMA had challenges with contractors' commissions charged on the revenue they collect from the customers. This also affects the management of data since the data is not owned by AMA and thereby cannot manipulate it. This indicates that AMA preferred to own its data and collect revenue from the client if it had its own investment.

6. Conclusion

6.1 Introduction

In the conclusion section, we summarise the results of the findings and try to link the findings to previous studies in the same domain. Furthermore, we present our recommendation for policymakers and finally present the limitation of this study state some limitation for this study

6.2 Summary of findings

The main objectives set up at the beginning of the study was first to identify the main revenue sources of the AMA and the challenges associated with its collection and secondly to examine the drivers and barriers of ICT adoption in revenue collection. In the preceding sections, we will summarise the results of the findings base on the objectives.

Objective 1. identify the main revenue sources of the Accra Metropolitan Assembly and the challenges associated with revenue collection.

The first objective was to identify the revenue sources and the challenges to revenue mobilization in AMA. In the findings, it was identified that revenue generated by the assembly was categorized into tax based (rates, license, fees & fines, rent, market tolls, etc.) and non-tax based (miscellaneous, government grant and investment). The revenue categories are similar to what existed in other developing countries. In agreement is the study by Fjeldstad & Heggstad (2012) which identified the anglophone Africa revenue as "own revenue" (includes taxes, user fees, and various licenses) and "transfers from the central or regional levels" (in the form of grants and revenue sharing). Also, in Nigeria, the sources of public revenue are property tax and ratings, Licenses, and fees, Motor park dues, Market and trading license and fees and Motor vehicle (Salami, 2011).

Bandyopadhyaya (2015) had observed that the municipal corporation of Delhi (MCD) depended on the central Government for funds. The current study findings established that Bandyopadhyaya's observation holds good for AMA. With regards to revenue sources, it became crystal clear that that Government grants constituted more than half of the revenue of the Accra Metropolitan Assembly. Government grants alone amounted to 51% of the Assembly's total income.

It was also discovered that the challenges in the revenue collection led to a decline in some revenue components over the years. The differences in certain categories of revenue (rates, fees and license) between 2015, 2016 and 2017 became manifestly clearly as shown in Table 1. The decline was as a result of AMA's decision to discontinue the use of a computerized system to collect taxes because contractors' commission were high. Added to that was the fact that the AMA had no control over

the management of the data used for the collection; a scenario which led to loss of revenue as well as lack of transparency and proper accountability for the revenue collected by the agents. It is interesting to state that available literature reviewed disputes this finding about the AMA. Fjeldstad and Heggstad (2012), hold a different view altogether. They found no conclusive evidence to indicate whether revenue collection by government officials or outsourcing it to agents can alter the revenue. It cannot be confirmed that government officials realize more revenue than agents. The AMA poses a scenario which differs from what is generally attested to. Underestimation of revenue collected, because revenue assessment is performed on an adhoc basis; often based on the previous years reported collection, and also the risk of agent /contractors keeping a substantial portion of the actual revenue yielded than what is reflected in the contract are some of the challenges associated with privatized revenue collections in Fjeldstad et al (2012) submission.

Objective 2: To examine the barriers and drivers to ICT adoption by the assembly

Examining the barriers and drivers to ICT adoption by the assembly, the following themes emerged: AMA Top management interest and attitude, Existing and available infrastructure and resources, Policy directive from local Government, Similar Organizational success and benefit and finally Challenges to ICT adoption.

A number of Governments have seen the importance of developing and implementing the e-governance system (Kottemann, 2009) and Ghana is not an exception. The top management of AMA have demonstrated a positive attitude and interest toward the adoption of ICT in the Assembly's operations. According to Kapurubandara and Lawson (2006) owner/manager characteristics is an important factor that influence the decision to adopt ICT and e-commerce in SME (Sri-Lanka). Thus, with the positive attitude of Top managers, AMA can increase revenue with an effective ICT system in place.

Infrastructure and resource availability was another theme considered as having the capability to influence revenue collection. The AMA as a public sector institute has computers and servers with internet service provided by NITA (National Information Technology Agency). There are experts working in the ICT department. Field officers and revenue collectors have been trained in the use of ICT in gathering and entering data in the computer. AMA can boast of IGF, Government grant and other donor funds in support of projects as indicated by Kottemann,(2009) building e-government infrastructure requires some financial commitment or investment.

On the Policy directive from local Government, it can be envisage that both the Government and assembly are considering the adoption and implementation of a one-stop-shop solution for the management of the Assembly's services and revenue mobilisation.

The other theme is similar organizational success and benefit. The AMA wants an improved service, thus in using ICT, their processes and records are assured of accuracy which would in turn give them a competitive advantage over other assemblies. Lastly, on the theme: Challenges to ICT adoption, the study found that AMA has had to wait for a Government sponsored common platform for all the assemblies on revenue collection but that has not materialized yet. This AMA prefers to own its data and collect revenue from client if it had its own investment and approval from Government.

The findings of the study revealed the organisational, environmental and technological readiness of AMA to adopt ICT in its revenue collection processes. Even though some categories such as building permit and marriage registration is computerized meaning forms can be downloaded and printed from the website and payment done through banks and mobile money platform. Others like BOP and property rate and road tolls are partially computerized, which means AMA officials have to print out generated bills, distribute and collect revenue from customers manually. Though AMA refer to both processes as computerized, they still require some manual processes. With the appropriate strategies and policies in place the assembly's plans of ICT adoption and in revenue collection would materialize and its reflection would be seen in increase revenue mobilization, efficiency services, reduction in error, accurate financial projections, real time update of records, accounting and monitoring of all processes.

6.3 Recommendations

We conclude this study by making these recommendations.

First and foremost, the engagement of private contractors in revenue collection should not be completely ruled out by the assembly. Such an arrangement must rather be done with a written contractual agreement that specifies each party's interest clearly. This way both parties will clearly know and understand what their responsibilities are. Secondly, to ensure data ownership, regular update and up to date information, it is recommended that AMA obtain its own centralized database that will serve as a repository of property information as well as property owners data. This will mitigate the challenge of lack of transparency and accountability in the assembly's revenue collection process as well as being able to identify property owners for billing purpose. Furthermore, the need for qualified ICT staff is of relevance to ICT adoption. We recommend that the assembly employ the requisite IT personnel, network administrators, their supporting staff and train the existing staff in the use of advanced technological tools in anticipation of the ICT adoption. The assembly must also invest in a reliable internet service with high capacity, resilient and robust network to support the huge packets that are going to be transmitted from one point to the other. The availability of servers with high storage capacity must be obtained to cater for the large data that will be stored. Lastly, The local government and rural development must develop strategies to ensure the enforcement of the act and the legislative instruments (L.I.) that governs the assembly. If defaulters are made to face the law, it will serve as deterrents for other culprits.

6.4 Limitations

One of the main limitation to this study was the difficulty in obtaining the necessary financial data for analysis because of the sensitive nature of it. We needed actual financial data from the finance department but we could not obtain it. Secondly, some of the interviewees were hesitant to talk to us for the fear of providing information that may put their jobs into at risk.

This study limited itself to the application of ICT in revenue collection by Accra Metropolitan Assembly without looking at similar situations in other MMDA's. Further studies may identify and compare the e-governance strategies adopted by the various MMDA's in revenue mobilization. Future research may focus on the success of e-government strategies in Ghana.

References

- Adedokun-Shittu, N. A., & Shittu, A. J. (2015). ICT Impact Assessment in Education. In M. Bandyopadhyay, Simanti. (2015). Local government finance: Challenges in revenue-raising at the municipal corporation of Delhi. *Commonwealth Journal of Local Governance*, (16/17), 59-82.
- Basil Richard Eja, Sunday Egbe Idaka And Ogar-Abang John (Received 23 January 2018; Revision Accepted 7 June 2018): Inhibiting Factors To Tax Revenue Generation In Cross River State, Nigeria.
- Bwalya K. J. (2009). "Factors Affecting Adoption of E-Government In Zambia".
- Černáková, V. (2014). ICT and Innovation in the Provision of Public Services: The Case of Slovakia. *Information Technology for Development*, 21(3), 1-16.
- Decman, M., & Klun, M. (2015). The impact of information systems on taxation: A case of users' experience with an e-recovery information system. *Electronic Journal of E-Government*, 13(2), 110-121.
- Ferhat Baskan OZGEN and Aykut Hamit TURAN (2007). Usage and Adoption of online tax filing and payment system in tax management: An empirical assessment with technology Acceptance (TAM) Model in Turkey.
- Fjeldstad, O. H., & Heggstad, K. (2012). Local government revenue mobilization in Anglophone Africa.
- Gideon, Z., & Alouis, M. (2013). Systems, processes and challenges of public revenue collection in Zimbabwe. *American International Journal of Contemporary Research*, 2, 49-60.
- Hameed, Counsell, & Swift. (2012). A meta-analysis of relationships between organizational characteristics and IT innovation adoption in organizations. *Information & Management*, 49(5), 218-232.
- Iacovou, C., Benbasat, I., & Dexter, A. (1995). Electronic Data Interchange and Small Organizations: Adoption and Impact of Technology. *MIS Quarterly*, 19(4), 465-485.
- Imran, Ahmed, "Significant barriers to ICT adoption in the public sector in the Least Developed Countries (LDCs): A case study of Bangladesh" (2006). *ACIS 2006 Proceedings*. 105. <http://aisel.aisnet.org/acis2006/105>.
- James A. Opare, Godwin R. K. Egbenya, Margaret Kaba & Joshua Baku (2012) :Effectiveness of Decentralization in Ghana .
- Kampamba, J., Mosha, A., Adeyemi, A., & Mooketsi, T. (2018). An Assessment of the Current Local Property Tax System in Botswana. *Journal of Property Tax Assessment & Administration*, 15(1), 27-44.

- Khosrow-Pour, D.B.A. (Ed.), *Encyclopedia of Information Science and Technology*, Third Edition (pp. 2506-2515). Hershey, PA: IGI Global. doi:10.4018/978-1-4666-5888-2.ch244
- Luna-Reyes, & Gil-Garcia. (2011). Using institutional theory and dynamic simulation to understand complex e-Government phenomena. *Government Information Quarterly*, 28(3), 329-345.
- Lymer, A., Hansford, A., & Pilkington, K. (2012). Developments in tax e-filing: Practical views from the coalface. *Journal of Applied Accounting Research*, 13(3), 212-225.
- Meena P.(2013) Assessment Of The Challenges Facing Revenue Collection In Tanzania: Evidence From Tanzania Revenue Authority (Tra); Morogoro.
- Ministry of local Government rural development and Environment (2009).Strategy for Efficient Revenue Mobilization. Vol. 1 Issue 1/08.
- Mohammad Kamel Alomari, Kuldeep Sandhu, & Peter Woods. (2014). Exploring citizen perceptions of barriers to e-government adoption in a developing country. *Transforming Government: People, Process and Policy*, 8(1), 131-150.
- Mohammed Alshehri and Steve Drew, (2010). Challenges of e-Government Services Adoption in Saudi Arabia from an e-Ready Citizen Perspective.
- Nirmaljeet, S. K., & Ravi, K. (2013). E-governance success factors. *The International Journal of Public Sector Management*, 26(4), 320-336.
- Obeng-Odoom, F. Department of Political Economy The University of Sydney: Commonwealth Journal of Local Governance Issue 6: July 2010
<http://epress.lib.uts.edu.au/ojs/index.php/cjlg>
- Okiro, A. (2015). The Effect of E-Payment System on Revenue Collection by the Nairobi City County Government.
- Powell, W., & DiMaggio, Paul J. (1991). *The new institutionalism in organizational analysis*. Chicago: University of Chicago Press.
- Salami, A. (2011). Taxation, revenue allocation and fiscal federalism in Nigeria: Issues, challenges and policy options. *Economic annals*, 56(189), 27-50.
- Sherer, Meyerhoefer, & Peng. (2016). Applying institutional theory to the adoption of electronic health records in the U.S. *Information & Management*, 53(5), 570-580.
- Spyros Angelopoulos, Fotis Kitsios, Petros Kofakis, Thanos Papadopoulos. Emerging Barriers in E-Government Implementation. 9th IFIP WG 8.5 International Conference on Electronic Government (EGOV), Aug 2010, Lausanne, Switzerland. pp.216-225, 10.1007/978-3-642-14799-9_19. hal-01056585.

Tahiru, F., Agbesi, S., & Osei-Owusu, A. (2014). Investigating the Challenges in Revenue Collection Process: The case study of Ghana AMA property rate collection. *International Journal of Innovation and Scientific Research*, 11(2), 566-576.

Teo, H.H., Wei, K.K., & Benbasat, I. (2003). Predicting intention to adopt interorganizational linkages: An institutional perspective (1). (Research Article). *MIS Quarterly*, 27(1), 19-49.

Waiswa, R., & Okello-Obura, C. (2014). To what extent have ICTs contributed to e- governance in Uganda? *Library Philosophy and Practice*, 0_1, 1-19.

[Wing Lam](#), (2005) "Barriers to e-government integration", *Journal of Enterprise Information Management*, Vol. 18 Issue: 5, pp.511-530, <https://doi.org/10.1108/17410390510623981>