

RESEARCH ARTICLE

Digitization of local revenue collection in Ghana: An evaluation of Accra Metropolitan Assembly (AMA)

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Abstract

Government institutions in Ghana have initiated the use of information technologies to accomplish their objectives. Among these institutions is the Accra Metropolitan Assembly (AMA), the local government institution that introduced the use of point of sale devices in the collection of rates in 2012. The purpose of the study was to evaluate this digital mode of rate collection at the AMA through the lenses of the concept of e-government failure (Heeks, 2003) and the rational choice theory. Guided by the pragmatic paradigm of social research, a mixed method approach was adopted. Data consisted of recorded interviews with officials of AMA, as well as Annual Reports and Annual Composite Budgets from 2011 to 2017. It was found that the intervention was a partial failure because of its inability to block avenues for bribery and its inability to induce a significant rise in rate figures. However, the intervention had improved transparency and accountability in rate collection activities at AMA. The study also offers some recommendations for improving the effectiveness of similar interventions.

KEYWORDS

digitization, E-government, Ghana, local government, revenue

1 | INTRODUCTION

Information Communication Technology (ICT) is affirmed as a potent tool for injecting some effectiveness and efficiency into government business (Mergel & Bretschneider, 2013). There is a general consensus that greater involvement of ICTs in the administration of states is essential in propelling countries to the realization of development (Asamoah, 2019; Heeks, 2001). This has led to the coining of terms like “e-government” and “e-governance,” which are essentially explained as the involvement of ICTs in the administration of states (Rossel & Finger, 2007). In the long run, it is accepted that e-government ensures that efficiency is maintained in public institutions (UN, 2016).

An area, which ICTs has touched, is public revenue mobilization (Cho & Choi, 2004). Revenue generation is at the heart of state administration: The modern state is mandated to raise revenue to facilitate the developmental agenda and to provide public services for its citizens (Aye, 1996). States depend on taxes, rates, fines, and other financial obligations to raise revenue. On the national front, since the 1980s, Ghana has adopted several reforms to improve its revenue generation capacity to fund its developmental activities. Chronologically, tax reforms have been categorized into three phases, namely, restoring the tax base, strengthening production incentives, and the final stage, which has focused on enhancing tax efficiency and equity (Bekoe, Danquah, & Senahey, 2016). From these classifications, it is clear that the recurring goal of recent tax reforms has been to improve revenue generation through the maximization of efficiency as well as equity in tax collection.

In some cases, the decentralization of state authority to lower level governmental bodies is accompanied by the power to raise revenue at the local level. In Ghana, Metropolitan, Municipal and District Assemblies (MMDAs) are expected to generate revenue for the overall development of their administrative areas (Ahwoi, 2010). MMDAs in Ghana raise monies through financial obligations levied on residents. These include property

rates, music rates, business-operating permits, market tolls, and lorry tolls among others. Scholars tend to agree that the unwillingness of citizens in developing countries to settle these financial obligations suffocates the attempts for local authorities to generate funding for socioeconomic development (Bekoe et al., 2016; Kumar & Misra, 2007). The Ghanaian situation is no different: Most district assemblies are cash-strapped, and as a result, they depend on statutory payments in the form of the District Assembly Common Fund (DACF) from the central government coffers (Ohemeng & Ayee, 2016). Districts with low economic activity depend largely on the DACF as the only source of revenue for local economic development and infrastructural provision (Ahwoi, 2010). The situation is better in MMDAs with high economic activity. Some of them are able to raise enough revenue locally to fund some of their development activities. Apart from the reluctance of residents to settle their financial obligations, attempts to wean such district assemblies from perpetual dependency on the central government funds have been marred by issues like embezzlement and other vices committed by government officials placed in charge of revenue collecting activities (AMA, 2016). This situation has led to some reforms with the local bodies to improve revenue mobilization in their jurisdictions. One such intervention has been the use of technology in facilitating revenue collection activities. Some MMDAs have acquired various forms of hardware and software for facilitating revenue collection. A new National Public Sector Reform Strategy (NPSRS) has been launched. This seeks to digitalize the activities of Ministries, Departments and Agencies (MDAs) as well as MMDAs in Ghana by 2023 (Government of Ghana, 2017).

Effah and Nuhu (2017) adopted an institutional approach in evaluating barriers to e-government usage across a wider range of public institutions including MMDAs. They recognized that outdated laws and the culture of paper document flows were institutional barriers to the budgeting of digitalization through the Ghana Integrated Financial Management Information System (GIFMIS). Nonetheless, there is a limited body of literature that evaluates the role of ICT and e-government in revenue mobilization at the national and local levels. Also, some of the studies that have focused on the use of ICTs in public institutions have neglected local authorities like MMDAs (Ohemeng & Ofosu-Darkwah, 2014; Osei-Kojo, 2016), in spite of the inclusion of Accra Metropolitan Assembly (AMA) in the most recent World Bank-funded e-Ghana Project in 2008. There is the need for researchers to fill this void, by undertaking studies, which seek to evaluate the implementation of e-government strategies by local institutions in Ghana. Existing literature has mostly investigated the extent of e-government use at national levels and the potential of e-government to increase efficiency in the provision of public services. For instance, Ohemeng and Ayee (2016) made revelations about the potency of e-government to limit corruption in the Ghanaian public sector but failed to substantiate such projections. Osei-Kojo (2016) also confirmed the potential of e-government in increasing efficiency in public sector institutions. However, his study did not consider local authorities like MMDAs. In contrast, Awortwi and Owusu (2007) support the assertion that the initiation of e-government strategies is associated with huge financial commitments, which may be difficult for public institutions in developing countries like Ghana to bear. Therefore, the findings of scholars like Osei-Kojo (2016) were not consistent with those of Awortwi and Owusu (2007). In view of the urgent calls for the reduction of public spending and an increment in revenue generation capacity of MMDAs (Ohemeng & Ofosu-Darkwah, 2014), the notion that e-government enhances revenue capacity of state institutions is contentious and needs further investigation.

One of the MMDAs involved in the use of recent ICTs to assist revenue mobilization is the AMA. AMA is one of the most resourced MMDAs in Ghana. This is due to its status as the capital district of Ghana, which makes it a good spot for economic activity. The greatest source of revenue for the AMA has been Internally Generated Funds (IGFs), specifically the collection of rates (AMA, 2016). However, there has always been a room for improvement with regard to income generation and local revenue mobilization. Evidence from the literature proves that even the well-resourced MMDAs like AMA have pitfalls with regard to revenue mobilization. Issues like corruption and the general unwillingness of residents to pay their financial obligations to governmental organizations, as well as institutional weaknesses like poor records keeping and weak capacity of staff, among others, account for the difficulty in revenue generation (Adu-Gyamfi, 2014; Akudugu & Oppong-Peprah, 2013; Ayee, 1996).

In 2012, AMA pioneered the use of point of sale (POS) devices in local revenue collection in Ghana (AMA, 2013). The move to involve the use of POS devices in the collection of rates was targeted at reducing the human element in revenue collection. The three main aims of this project were to increase transparency and enforce accountability in revenue collection, block avenues for bribery and misappropriation of revenue by the collectors, and enhance the amounts realized by the AMA through the collection of rates.

Heeks (2003) identifies a strategy for establishing the success or otherwise of e-government projects. This strategy entails comparing the current circumstances of the institution to the objectives of the e-government projects. The objectives of the project serve as the benchmark for the evaluation. The current study established its research questions based on this assumption.

1.1 | Research questions

The study had the aim of evaluating the introduction of this technology in the collection of rates. It focuses on answering the general question, has the use of POS in collection rates been a failure or success? Specifically, the study seeks to answer the following questions.

- To what extent has rate collection been digitalized at the AMA?
- How has the use of POS devices in rate collection improved transparency and accountability in rate collection at the AMA?
- Are there still avenues for bribery and misappropriation of revenue by the rate collectors?

- Have rate collection figures improved with the use of POS devices?

In line with the objective and research questions of the study, we discuss literature on the role of e-government in revenue mobilization in the next section.

2 | LITERATURE REVIEW

2.1 | The role of e-government in public revenue mobilization

E-government has the potential to enhance both the effectiveness and the efficiency of government in its provision of public services (Denhardt & Denhardt, 2015; Agyemang, 2015). It is generally agreed by scholars that the introduction of digital technologies as part of the e-government architecture has the potential to enhance revenue mobilization for public institutions through increasing the efficiency in the delivery of public services.

To most scholars, e-government promises increased productivity in government institutions and corporations. Increased productivity in the delivery of public services means that organizations are able to meet the needs and service demands of citizens better so as to generate higher revenues. Studies also demonstrate the use of e-government by the extensions of government at the grassroots' level in different parts of the world (de Jager & Van Reijswoud, 2008; Kumar & Misra, 2007; Kumar, Misra, & Mishra, 2013; Ochara, 2012; Prasad, 2012). In most developing countries, the government is the largest employer. African governments are mostly burdened with huge wage bills that hinder their capacity to embark on developmental projects (Miscuraca, 2007; Amagoh, 2015). It is projected that e-government helps to reduce the cost of running the local service institutions by reducing the size of the staff (Singh & Sahu, 2008). Mpinganjira (2013) also argued that e-government enhances internal efficiencies in the delivery of local services while reducing the clerical costs associated with public services especially with the cost of paper and other stationery, as e-government ensures the minimal use of paper.

E-government use by local authorities has been vindicated as an effective tool for enhancing local service delivery (Kumar et al., 2013; Ochara, 2012). Scholars project that e-government sufficiently deals with the issue of the red tape and substantially aids in the maintenance of a seamless public service delivery mechanism (Mpinganjira, 2013; Njuru, 2011; Prasad, 2012; Rose, 2002). There is an acknowledgement of the notion that e-government reduces redundant processes and documentation encountered in the manual setting. In Fiji, Naz (2009) confirms that e-government has been the "secret" of improved public service delivery in the country. Prasad (2012) also refers to e-government as an important tool without which India would not derive high efficiency in service delivery and the by-product of development. Mpinganjira (2013) concluded that e-government has led to a significant improvement in the delivery of government services: She established that e-government reduces incidents of clerical errors at the workplace, in an assessment of the South African Revenue Services (e-filing program). Njuru (2011) also accepts the notion that the implementation of e-government strategies has made public service delivery more fluid and efficient than manual alternatives.

Participation is key in local governance; an ultimate goal of decentralization is grassroots' participation (Ahwoi, 2010). Participation of citizens in decision making at the local level ensures that governments address the truest concerns of citizens. This reduces the tendency of governments to waste resources on needless policies and projects. The use of ICT has enhanced the opportunity for citizens at the grassroots to contribute to governance (Kumar et al., 2013). For instance, in India, "e-participation" has been used as a method of informing, keeping happy, and convincing the public regarding government policies and policy implementation (Prasad, 2012). Studies in India demonstrate that the use of ICT at the grassroots level for the delivery of public services has facilitated greater public input into decision making and policy advice (Kumar et al., 2013; Prasad, 2012). These studies established that e-government in India has provided a channel for feedback on the services of local government authorities. Another benefit of e-government has been its potential to increase transparency and accountability in the public space. Bertot, Jaeger, and Grimes (2010) posit that the general public can better assess the actions and inactions of their leaders and bring them to book if need be, if budgets and other records of local government units are made available for the locals to assess the spending of the local authorities. This practice will motivate citizens in developing contribute their financial obligations in the form of taxes and other rates, as they will have an understanding of the usage of generated funds.

As an anti-corruption measure, e-government is found to improve public revenue mobilization. The endemic nature of corruption in developing countries is mostly associated with the bad performance of the public service in developing nations (Ohemeng & Ayee, 2016). E-government has been acclaimed as a potent measure in tackling corruption (Cho & Choi, 2004). This is because the transparency and accountability e-government promises are essential combatants of public sector corruption. Studies in several parts of the world confirm e-government as a valuable tool for combating corruption (Bertot et al., 2010; Cho & Choi, 2004; Pathak, Naz, Rahman, Smith, & Agarwai, 2009; Singh, Pathak, Naz, & Belwal, 2010). Specifically, Cho and Choi (2004) embarked on an empirical study to assess an e-government project titled "Online Procedures Enhancement for Civil Application" in the Seoul Metropolis in Korea. The study established a positive correlation between e-government and reduction of corruption, in a much-detailed empirical analysis of e-government and corruption. Similarly, our study had the aim of evaluating the digitization of revenue collection at AMA. It was necessary to consult the literature on the topic of e-government evaluation. The subsequent section discusses

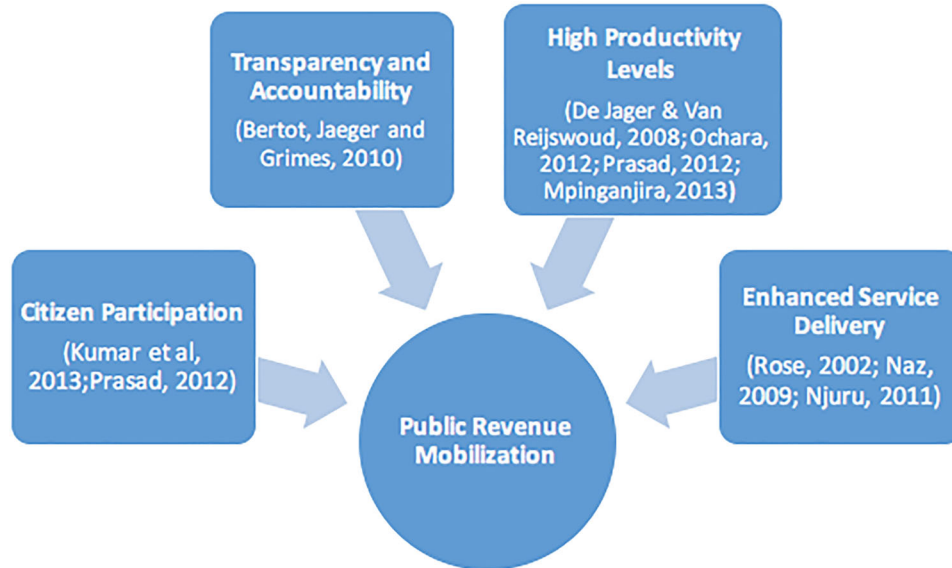


FIGURE 1 E-government and improved public revenue mobilization

literature on e-government evaluation, as well as explains the method evaluation adopted in our study. Figure 1 summarizes the role of e-government in the enhancement of revenue mobilization with insight from the consulted literature.

2.2 | E-government evaluation

There have been academic postulations about the difficulty in evaluating e-government projects and initiatives (Gupta & Jana, 2003). As a result, various frameworks are formulated to measure the success and failure of e-government initiatives. Most of these frameworks evaluate e-government from the evolutionary perspective (Gartner, 2001; Panopoulou, Tambouris, & Tarabanis, 2008; Mergel & Bretschneider, 2013); others involve quantitative methods like cost benefits analysis (Shinjo & Zhang, 2003). There has also been the formulation of some soft measures of e-government evaluation. These frameworks measure the intangible benefits of e-government projects such as improved decision making, transparency, accountability, customer or citizen satisfaction, and employee productivity among others (Gupta & Jana, 2003).

Heeks (2003) proposes a soft measure of e-government evaluation. This framework provides a simple means of projecting the success or failure of e-government initiatives. He posits that a juxtaposition of e-government project design against the realities after usage is a benchmark for measuring the success or otherwise of e-government projects. Therefore, e-government success and failure can be ascertained through the answering of the questions, “Where does the e-government project want to get us?” and “Where we are now?” (p. 3). The framework provides a good benchmark for comparing the current realities of the e-government project with its project design with the aim of reducing the risk of failure. E-government success and failure, therefore, depend on the level of disparity between the “current realities” and “design of the e-government project.”

Heeks (2003) also maintains that the results of e-government initiatives can be grouped into three. The first kind is the total failure. This is where the initiative was never implemented or was implemented but immediately abandoned. The second is a partial failure. This is where the major goals for the initiative were not attained, and/or there were significant undesirable outcomes. The third is success, which characterizes e-government projects, where most stakeholder groups attained their major goals and did not experience significant undesirable outcomes. Originally, Heeks' (2003) framework was used in projecting the challenges and opportunities of e-government projects to reduce associated risks. However, we adopted the framework for evaluating the use of the POS in revenue collection as a measure to digitalize revenue collection at AMA. This is because the project was also targeted at achieving some benefits linked to a perceived increase in revenue generation capacity. This project was designed to improve transparency and accountability with the aim of averting financial corruption in the collection of rates. The extent of e-government failure (Heeks, 2003) provides relevant benchmarks and judgment criteria for judging the success or otherwise of the digitization of revenue collection at AMA. In addition to the concept of e-government failure, the next section discusses the rational choice theory as a theoretical underpinning of the study.

2.3 | Rational choice theory

The rational choice theory is very popular in the frontiers of knowledge, especially in investigating social and economic behavior. The theory was popularized by Gary Becker, who developed a “neoclassical economic theory of crime which applied the traditional expected utility model of

choice to offending, suggesting crime is an outcome of an agent's rational consideration of the risks and pains of punishments as well as the gains of crime" (Paternoster et al., 2017, p. 1).

The main argument of the theory is in the fact that social behavior is an aggregate of individual behavior of the various actors in society (Manzo, 2013). The theory focuses on demystifying the drivers of individual behavior in order to understand social (collective) behavior. The theory assumes that individuals have a preference among presented alternatives, which influences the options they prefer. These preferences are assumed to be "complete." Completeness here means that individuals can choose which of the two alternatives they prefer. For instance, when individuals are given two options A and B, they can choose whether they prefer A or B. Again, it is also expected that a rational decision is also transitive, which means if A is preferred to B, then automatically, A will be preferred over C. It is therefore projected that in the selection of a choice of action, a decision taker surveys all of the alternative actions and probability of events considering their social and economic implications (McBride, 2016). Simply put, the theory asserts that when individuals are confronted with alternative decisions, they choose the best option that gives them maximum satisfaction based on the information available to them.

The rational choice theory has been adopted by various scholars in diverse fields to investigate human behavior. Manzo (2013) authoritatively affirms that rational choice theory has not outlived its relevance; he asserts that the theory is an "astonishingly malleable and powerful analytical device" p. 1). Even in recent times, scholars have adopted the theory investigating human and organizational behavior. For instance, Paternoster et al (2017) adopted the rational choice theory in testing other-regarding preferences (for instance concerns for other people) and intentions to drink and drive. McBride (2016) also adopted the rational choice theory investigating the role rituals play in instituting religious authority. The rational choice theory is found to be very relevant to this study, especially with regard to the behavior of staff of AMA in relation to the corruption and its effect on the revenue mobilization efforts of the Assembly. This is because in as much as the aim of the Assembly is to decrease the perpetuation of corruption at AMA, this may contradict the expectation and satisfaction of corrupt employees. It is therefore expected that these employees undermine the e-government project or find alternative means of perpetuating corruption even in the midst of the usage of digital modes of revenue collection.

3 | METHODOLOGY

The study is an evaluative study focused on appraising the use of POS devices as a measure to digitize rates collection at the AMA. AMA was the first MMDA to adopt POS devices in revenue collection and in so doing had used it for a period of 5 years at the time of the study. Evaluative research is undertaken to assess the worth or success of something: a program, a policy, or a project (Payne & Payne, 2004). The pragmatic research paradigm was the guiding philosophy of the research. Pragmatists argue that researchers adopt methods that are suitable based on the research questions (Tashakkori & Teddlie 2003; Farjoun, Ansell, & Boin, 2015). In this light, the first three research questions were analyzed qualitatively based on interviews with officials of AMA. However, the final question was analyzed quantitatively based on data from the Annual Reports and Annual Composite Budgets from 2011 to 2017.

Primary data, in the form of interviews, were obtained from respondents, who were staff of the AMA in March 2017. A mixture of purposive and convenient sampling was used in the selection of participants. The study purposefully sampled staff who worked at the specific departments, which were directly involved in revenue mobilization activities at the AMA for a period of over 5 years. This was necessary since the digitalization of revenue was initiated 5 years before the time of the study. The departments covered included the Revenue, Budget, Finance, and Management Information Systems (MISs) Departments. The selection of specific participants, however, depended on the availability and the willingness of participants to engage in the study; this was necessary because of the busy schedules of the participants on a normal working day.

In all, the study conducted in-depth interviews with 17 staff of the AMA, who were granted anonymity as condition for their participation in the study. These interviews, which lasted 45 minutes to an hour were recorded. Afterwards, the researcher transcribed the recordings. Thematic coding was done based on the objectives of the research. This enabled the researcher to organize information gathered into themes that were characteristic of similar responses gained from different individuals.

Secondary data were sourced from available official documents of the AMA, which included the Annual Reports and Annual Composite Budgets from 2011 to 2017. Data on revenues collected by the AMA in the period under consideration was collated and analyzed to ascertain the performance of AMA with regard to rate collection. The figures were aggregated and analyzed with Microsoft Excel. Research findings are presented based on the objectives of the research in the next section.

4 | FINDINGS AND ANALYSIS

It was found that AMA has four main channels of income. These are the DACF, funds from the Bank of Ghana, Donor Grants, and IGFs. Of all these sources of revenue, MMDAs like AMA only have control over IGF, since all other sources emanate from other organizations aside AMA. This makes the IGF a very important source for the AMA.

Information from the Figure 2, which is a compilation of data on IGF from seven annual reports of the AMA (2011-2017 AMA Annual Reports), confirms that IGF at the AMA is generated from seven main sources: rates, fees and fines, licenses, land, rent, investment, and other miscellaneous sources of revenue. Of all these channels of IGF, trends from 2010 to 2016 showed that rates contribute the most funds of all the IGF revenue sources available to the Metropolitan Assembly.

Rates are funds paid to local authorities by residents based on some property owned or business activity undertaken. Sample rates at the AMA include property rates, music rates, business operating permits, market tolls, and lorry tolls among others. The collections of rates are the heart of revenue generation at the AMA, and this cannot be overemphasized. All annual reports of the AMA show that there have been consistent and renewed efforts to maximize the revenues generated from this channel. The continuous search for ways to minimize leakages in revenue collection led to the initiation of the usage of the POS devices in revenue collection at the AMA in January 2012. The POS terminal is a computerized replacement for a cash register. Much more complex than cash registers, the POS system can include the ability to record and track customer orders, process credit and debit cards, connect to other systems in a network, and manage inventory.

4.1 | Extent of digitization of revenue collection at the AMA

The information gathered from interviews and secondary data in the forms of annual reports revealed that rates collection activities are embarked on all year round at the AMA by the staff of the revenue department of the AMA. Starting the collection cycle is the setting of budget targets, which informs the bills that ratepayers will pay in the financial year. Collectors then distribute bills; this marks the commencement of the POS devices enabled rate-collection period. The POS devices are employed in the printing of bills to ratepayers at the AMA. Ratepayers are given a period of 8 months to settle their bills through revenue collectors of the AMA during their routine visits to their work premises throughout the business year. POS devices are used at this point to record cash payments made to collectors and to print receipts accordingly. Getting to the end of the year, the AMA revenue task force is deployed to confront defaulters and arraign them for prosecution; here again, POS devices are employed to check the account of ratepayers to identify defaulters. As defaulters are pursued by the authorities, the task force also scans for new business simultaneously; this is followed up with a registration of new businesses discovered. The POS devices are also employed here to give identification numbers to new ratepayers identified through the search.

In summarizing the yearly rate collection activities at the AMA, timelines could not be included because a review of annual reports from 2012 to 2016 confirmed that the time schedule of activities varied based on the reviewed year. Figure 3 represents this information and illustrates the process of revenue collection activities at the AMA.

The introduction of POS devices for rate collection was part of the AMA's revenue mobilization action plans put in place to ensure that the target of 26 million Ghana Cedis (about 4 792 626.54 US Dollars with current conversion rate) for the year 2012 was achieved (AMA Annual Report, 2012). POS devices were meant to reduce reliance on the human interface in revenue mobilization. The deployment of POS devices

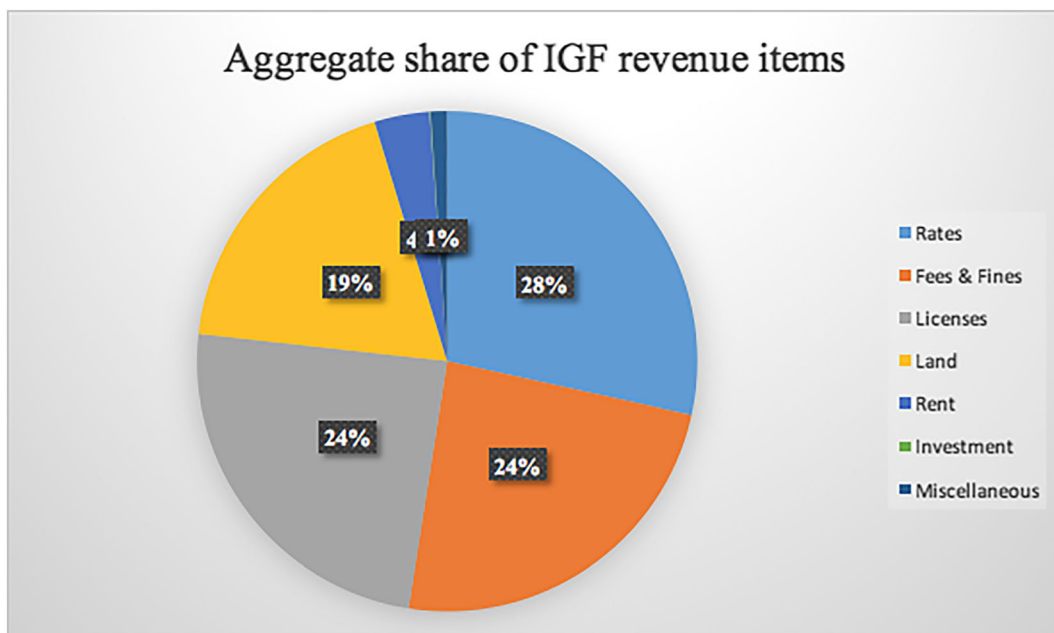


FIGURE 2 Aggregate share of revenue items at the Accra Metropolitan Assembly (AMA) (2010-2016)

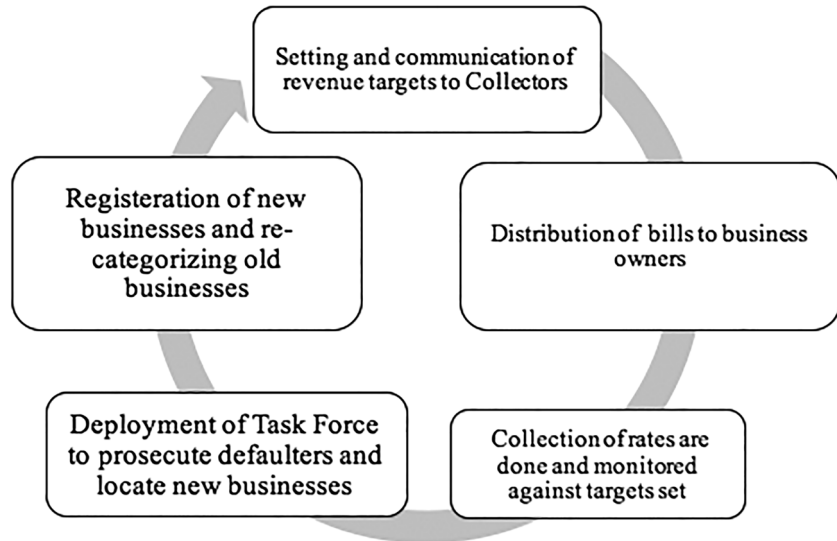


FIGURE 3 Rate collection activities at the Accra Metropolitan Assembly (AMA)

was, therefore, an e-administration strategy according to Heeks (2001) because this strategy was believed to enhance transparency and coordination with the organization, with the general aim enhancing the inner workings of the public organization.

In January 2012, the AMA, in collaboration with SW Global Company, instituted this method of real-time update revenue collection, with POS devices. According to the 2012 Annual Report of the AMA, the usage of the device was on a pilot basis: Revenue collection was limited to the Market and Parks Section of the Assembly's revenue points. The Assembly also provided internet facilities to contact the POS device monitoring team at the MIS Unit of the AMA. A Higher Revenue Inspector in an interview confirmed this fact, talking about the history of the use of the POS devices, he said:

As of 2012, it was piloted in the various markets. You know AMA has a lot of revenue generation areas; we have markets, sanitation management and a whole lot, so it was started from the market and gradually it has been rolled out to cover all revenue areas with effect from 2015.

Officials of the MIS Department trained collectors on the use of the POS device. This was a good practice, since ICT training is deemed to influence the acceptance of innovations (Mahmoodi & Nojedeh, 2016). On 4 January 2012, each revenue staff was given a unique identification code and a POS machine at the Market Revenue Unit. This marked the end of the manual ticketing era at that unit, as POS devices had the capability of printing tickets, and notifying management in real-time when a payment is made. In view of this, there was an arrangement for audits to be made daily on the amount of money recovered from collectors, and the value of tickets given out, by Internal Auditors at the Sub-Metro level (AMA Annual Report, 2012). An Internal Auditor, when quizzed about his responsibilities in the revenue collection with the POS device, responded that

At the internal audit, we have collectors who go to the field and send bills to our clients, they pay them, they bring their tickets and we audit them.

In June 2013, the use of the POS was extended to cover revenue collection in all revenue sections of the AMA. This was necessitated by the massive improvements made in the application of the strategy at the Market and Parks Unit. The target of GH¢ 26 million for the year 2012 was not achieved; however, a total of GH¢ 22 990 853.81 was realized in IGF revenue representing an increase of inflows from 2011 to 2012 by 10.3% at the end of December 2012. The increase in revenue was credited to positive steps put in place to raise revenue; the most prominent of these strategies was the use of POS devices (AMA Annual Report, 2013).

The POS devices at the AMA were linked to the GIFMIS system in 2015. GIFMIS was introduced by the Government of Ghana through the Controller and Accountant General's Department, to further ensure accountability in financial management in public sector institutions. Before then, the POS devices worked on different software called Bosphorus. Currently, information on revenue is not only shared with the AMA alone but with other government institutions like the Ministry of Finance and Economic Planning. Now, the POS device is not only used in the collection of rates; other departments have also adopted the use of POS devices in revenue collection. In 2015, the Metro Health Department, Town and Country Planning, Works Department and the Waste Management Departments all initiated the use of POS devices in the collection of funds from clients. However, these other Departments are not connected to the internet or to GIFMIS System. Confirming this in an interview, the head of Revenue Department at AMA said

Currently, when it comes to the departmental, with Revenue Department inclusive, we have five departments under the Assembly, who are using the POS. But their (referring to the other departments) do not really do the real-time thing like the tolls and the property rate and the Business Operating Permit, they are also not connected to the GIFMIS System too.

With the use of POS on the GIFMIS platform, there exists an interagency alliance between the AMA and state institutions like the Controller and Accountant General's Department. In spite of this feat, the study had the aim of investigating the performance of the intervention in relation to its purported aims, which included enhancing transparency and accountability, tackling bribery and corruption, and enhancing rate figures. The performance of the intervention with regard to these objectives is discussed subsequently in this section.

4.2 | Has the use of POS devices increased transparency and accountability?

The manual setting of work demands the mechanical process of writing, the use of paper, and hard copy documents. With the usage of POS devices at AMA, it was demonstrated that the usage of the POS device is perceived to ensure quick records checking, which, in turn, harnessed auditing of revenue collected. All 15 respondents agreed that the usage of POS devices at the AMA had shortened the administrative processes at the AMA.

Interviews with Higher Revenue Officers and the Head of Revenue at the AMA also revealed that the use of the POS devices ensures effective monitoring of revenue activities of revenue collectors. Revenue collectors indicated that the use of the POS helps their superiors to easily monitor the pattern of rate collection by managers. A Higher Revenue Officer in an interview on the usefulness of POS devices said "It helps them monitor whatever revenue is coming in, in real-time." Effective monitoring of revenue activities is also perceived to aid the timely detection anomalies or challenges, giving managers an opportunity to find remedies to such challenges. Another member of the Revenue Department at the AMA on this accord said that

You can be here by just clicking, if you are not seeing someone comfortably, you can go back to the previous months, look at how the person is doing, what is the problem then you can call the person and make enquiries then you can handle any challenge. Sometimes the reports speak to us we do not even need the collectors to speak to us; the reports do the speaking.

The use of digital technology in the collection of revenue ensures that information on revenue collection is easily available and accessible to its stakeholders. This transparency had enabled public servants to be more accountable to stakeholders. At the AMA, the usage of the POS devices in revenue collection was associated with the harnessing of transparency in the activities of public servants; this was believed to limit corrupt practices.

4.3 | Are there still avenues for bribery and misappropriation?

One of the central reasons for the use of POS devices in revenue collection was to limit corruption at the AMA (AMA Annual Report, 2012). The usage of the POS devices in revenue collection demands that collectors audit their accounts at the end of each day. This arrangement ensures that collectors do not keep huge sums of money on themselves, which was creating a conducive atmosphere for embezzlement. Eight out of the 17 respondents agreed that the use of the e-government strategy minimizes the perpetuation corrupt practices, especially embezzlement. Some respondents recalled instances during the use of the manual records keeping, where rate collectors took their rates and gave them fake receipts without crediting their rate accounts. Some of these collectors are reported to have bolted with the funds collected. Confirming such accusations, the Head of Revenue at the AMA said

Also, the embezzlement has reduced because previously you need to tell me how much you have got or with the ticket, you can easily do whatever you want. But with this system, I know how much you collected and before the day ends, that x amount is expected from you.

However, apart from the evidence that cases of embezzlement had reduced because of transparency associated with the use of POS devices, there was no proof that POS prevented revenue officers from engaging in other forms of corruption like bribery. Revenue collectors could still decide not to disclose some business activities they have identified and take bribes either in cash or in kind. This example is just to illustrate that the institution of the strategy was not in itself the solution to corruption at the AMA.

4.4 | Has rates figures improved at AMA?

Figure 4 presents information on the performance of the AMA with regard to the mobilization of IGF according to the various revenue channels. Indeed, an analysis of the trend in revenue mobilization proved that rates have overtaken fees and fines as the highest contributor of IGF from 2012 to 2015. Respondents interviewed as part of the study linked this phenomenon to the introduction of POS devices in revenue collection,

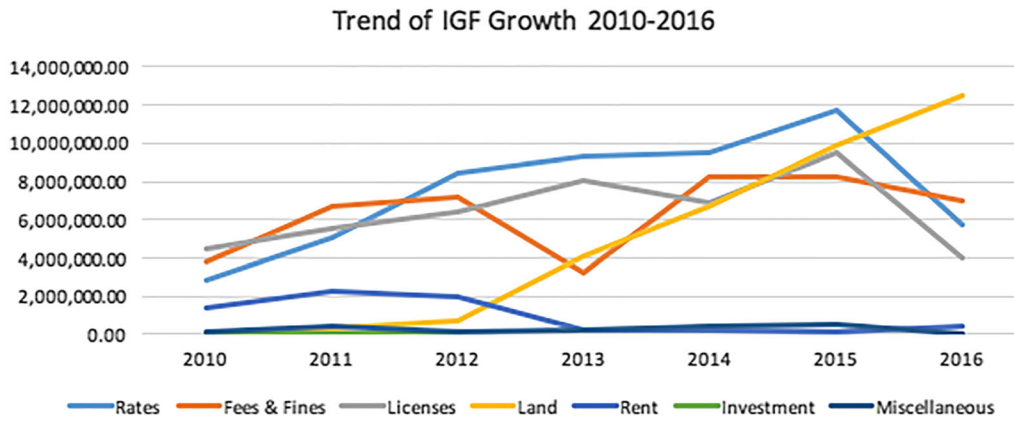


FIGURE 4 Trend of Internally Generated Fund (IGF) growth

in 2012. The use of POS devices was said to have made rate collection more transparent and effective as compared with the mobilization of the other classes of funds.

However, it is noteworthy that the introduction of the POS devices in rate collection has not achieved perfect results at the AMA. In spite of the 5-year success that rate has achieved as the highest IGF generator at the AMA from 2012 to 2015, data analyzed in Figure 4 demonstrates that the highest year-on-year percentage increment in rates at the AMA for the 7-year period was achieved in 2011, when revenue increased by about 77%. This figure has been unmatched since the introduction of POS devices. Indeed, there has been a decline in the percentage of increment in revenue subsequently to about 23% in 2015; 2016 was the worst year in the 7 years for the AMA with respect to rate collection performance; revenue declined by 50% in comparison with the previous year; this resulted in rates losing its spot as the ultimate revenue earner at the AMA (Figure 5).

5 | DISCUSSION OF FINDINGS

There is enough academic evidence that administrative practice coevolves with the advancements in ICTs; however, the deliberate application of such innovations in the public sector is what is termed as e-government (Misuraca, 2006). The application of modern ICTs in revenue collection at the AMA is a vivid example of e-government in local administration. Our findings demonstrate that POS devices have been employed to take over manual or bookkeeping revenue collection at collection points of the AMA; however, the practice was limited to the collection of rates and has only recently been extended to cover other channels of revenues. However, the full potential of this strategy is yet to be exploited, POS devices are capable of more than recording, storing, and checking revenue. POS devices are also designed to process cashless transactions through the use

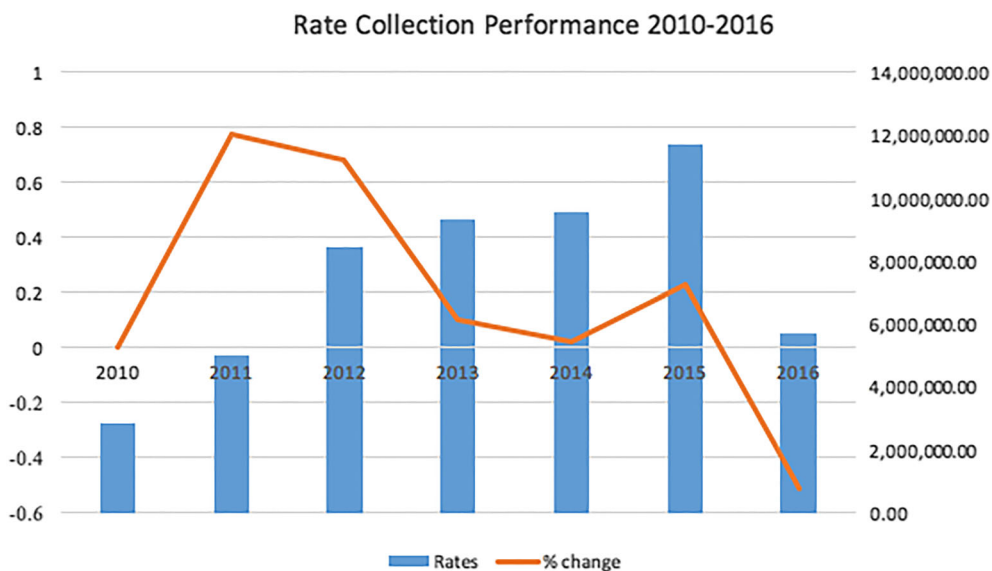


FIGURE 5 Rate collection performance

of credit and debit cards. The processing of cashless transactions may afford customers greater convenience especially when they are supposed to pay a greater amount of cash. This move would also further reduce avenues of embezzlement by revenue collectors since cashless transactions would ensure that funds are paid directly into the accounts of the AMA and not to revenue collectors in person. There is a need for authorities of the AMA to work on introducing cashless payment of rates and other payment to increase the convenience of ratepayers in the fulfilment of their obligations to the assembly, as well as reduce the reliance on human intervention in the processing of payments.

It has been affirmed that e-government deals with the issue of the red tape and substantially aids in the maintenance of a seamless public service delivery mechanism (Rose, 2002; Njuru, 2011; Prasad, 2012; Mpinganjira, 2013; Mensah, 2016). E-government reduces redundant processes and documentation encountered in the manual setting. The deployment of digital technologies at the AMA was found to expedite administrative functions like monitoring and control, which results in increased transparency and accountability. One of the prime goals of e-government is to make the frontiers of decision-making in the governance process more visible to citizens and to make bureaucrats accountable to the people. Previous studies on e-government have established that e-government successfully ensures that the actions and inactions of public servants and information of public institutions are readily accessible (Bagga, Kenneth, & Rohit, 2005; Bertot et al., 2010). Transparency is accepted as a key measure in limiting corrupt practices. Transparency ensures that wrongdoers in the public service are easily identified to make an account for their actions. Also, the establishment of transparency in public institutions is believed to reduce the motivation of public servants to engage in corruption (Bagga et al., 2005).

However, the digitization of rate collection at AMA did not block avenues for corruption. Corruption features among the key challenges in the Ghanaian public sector (Ohemeng & Ayee, 2016). The elimination of corruption was also a reason for the usage of digital technologies in revenue collection at the AMA. It was projected that the use of POS in revenue collection was a potent measure in tackling the menace of corruption. However, analysis of the data showed otherwise. It was found that the use of POS in revenue collection only had the tendency to reduce embezzlement but failed to prevent acts of bribery. It is realized that because of the incentives gained by officials through corruption, they are more likely to find new ways of engaging in it (Manzo, 2013). The failure of the POS technology with regard to dealing severely with corruption is partly responsible for the nonimprovement in recorded rate figures. Even worse, the data show a gradual decline in amounts of rates collected at the AMA, which suggests that investment in ICT alone is not a one-stop solution to improved revenue mobilization.

From the viewpoint of Heeks (2003), the introduction of POS in revenue collection at AMA can be termed as a partial failure. This is because, in spite of its longevity of usage and its acceptance by target users, it has failed to achieve some key objectives. The findings demonstrate that the intervention was only successful with regard to one objective, which was to increase transparency and accountability in revenue collection activities. Nevertheless, it failed to block avenues for bribery and misappropriation of revenue by the collectors, which, in turn, marred attempts to enhance the amounts realized by the AMA through rates collection.

6 | CONCLUSION

Information retrieved from analysis of interviews with respondents and annual reports of the AMA demonstrated that the actions and inactions of staff of the AMA may be the ultimate precursor in the raising of revenue. This is true because the usage of POS technology in the collection of revenue failed to improved revenue figures recorded by the AMA. Investments in technology must be accompanied with appropriate measures to ensure that projected aims are attained. In the case of the AMA, proper and frequent monitoring and evaluation of revenue collectors is necessary. Also, the failure of POS devices to drastically deal with corruption demonstrates the need for authorities to incentivize revenue collectors with performance-based bonuses to reduce their tendency to engage in corrupt acts.

Apart from the aforementioned measures, insights from Annual Reports and Interviews with respondents suggest that there must be further measures to enhance revenue collected through rates are enhanced; these measures include

- Revenue collectors must distribute bills on time and visit ratepayers regularly to ensure that they settle their obligations.
- Stricter punitive measures must be given officials who are found to engage in corrupt activities to serve as a deterrent for others.
- Public education must be conducted to educate residents on the importance of settling financial obligations to the government, including rates.

The study was focused solely on AMA, which is one out of over 200 MMDAs in Ghana. Clearly, findings cannot be directly generalized to all MMDAs in Ghana. However, the study gives insight into the usage of ICTs by arguably the most developed Metropolitan Assembly in Ghana. The outcome of this study is to offer a better understanding of how AMA has performed with regard to the use of this e-government strategy. The results of the study promote greater awareness of the benefits of using ICTs in reforming revenue collection activities at the local government level in Ghana. The uses of internet-related technology abound at MMDAs in Ghana even amidst technological and human resource deficits characteristic of the developing countries (Asamoah 2019). For instance, there is the use of Human Resource Management Information Systems, Web 2.0, and the adoption of electronic services. Future research may consider investigating other uses of recent ICTs in other MMDAs in Ghana.

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How to cite this article: Adu EP, Buabeng T, Asamoah K, Damoah CM. Digitization of local revenue collection in Ghana: An evaluation of Accra Metropolitan Assembly (AMA). *E J Info Sys Dev Countries*. 2019;e12112. <https://doi.org/10.1002/isd2.12112>