Automated Revenue Collection System: A Case Study of Edo State Jobs Initiative

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ABSTRACT

Public revenue collection is an integral component of fiscal policy and administration in any economy because of its influence on national government operations and the grassroots. Research establishes that it is inconsistent for local governments to exclusively look to the federal government for revenue to establish or maintain programs whose benefits have a local reach. This study sought to establish the efficiency of a Revenue Collection Automation App that was designed on the development Oredo and Egor local councils.

Trend analysis was used to bring out the comparison between the period before and after automation of revenue collection in Oredo and Egor Local Government Areas (LGAs). Content analysis was used to analyze the primary data from the interviews. Chi-square was used to test whether the change in the level of revenue collection automation has a relationship to the increase in revenue collection in both Oredo and Egor LGAs, respectively. The study established that implementation of automated revenue collection system influenced revenue collection positively and the study recommends that the all local government councils in the state be included immediately and that the technology be improved to make it mobile and e-payment so as to reduce down time in revenue collection.

(Keywords: revenue, Oredo, Egor, automated, e-payments, non-tax)

INTRODUCTION

In today's competitive, fast-paced business landscape, getting the most out of available resources is not an option but rather a necessity. Organizations are taking a highly proactive approach to systems modernization and operations in an effort to increase efficiency and effectiveness. System automation allows firms to automate new platforms of their revenue collection systems in order to reap maximum benefits (Bahwan, 2012). System modernization provides measurable improvements in the efficiency and effectiveness of development and maintenance activities with on-time delivery and predictable quality (UNCTAD, 2008).

Public revenue collection is an integral component of fiscal policy and administration in any economy because of its influence on the federal, states and local (grassroots) government operations. It is the fuel of every government as it is the main instrument through which government funding is ensured. There are two main types of revenue by the county government which are: Tax revenue and non-tax revenue. Tax revenue is compulsory payments to government without expecting direct benefit or return by the tax payer. The tax is used by the government to provide common benefits to its citizens mostly inform of public welfare services. Taxes do not guarantee any direct benefit for the person who pays the tax. The government collects tax revenue by way of direct and indirect taxes, where direct taxes includes; corporate tax, personal income tax, capital gain tax and wealth tax. Indirect taxes on the other hand include custom duty, central excise duty, VAT and service tax.

Non-tax revenue is obtained by the government from sources other than tax. The sources of non-tax revenue such as fees are other important source of revenue for the government. A fee is charged by public authorities for rendering a service to the citizens. Unlike tax, there is no compulsion involved in case of fees. The government provides certain services and charges certain fees for them. For example, fees are charged for issuing of passports and driving

licenses. Fines or penalties are imposed as a form of punishment for breach of law or non-fulfillment of certain conditions or for failure to observe some regulations. Like taxes, fines are compulsory payments without *quid pro quo*. But while taxes are generally imposed to collect revenue, fines are imposed as a form of punishment or to prevent people from breaking the law. They are not expected to be a major source of revenue to the government (Eden, 2009).

Revenue collection should comply with best practices of equity, ability to pay, economic efficiency, convenience and certainty. For a state or local government to match its performance (developmental strides) with the needs and expectations of its citizens or constituents, it should increase its fiscal depth without incurring costly recurring overheads (Gidisu, 2012).

Nigeria has undergone significant political change in the last decade, the most significant being the recent review of and implementation of 1999 constitution as amended. The current agitation for local government autonomy amongst others is aimed at the government's operations being devolved from a federal or state management level to largely independent running local Governments, 774 in total. Each local council area is to have some degree of autonomy with some support from the federal and state governments, respectively.

The Edo state government is blazing the trail by enabling the local government council areas to be financially independent to fast track developments in their council areas. Out of the 19 local government council areas in Edo state, two namely, Oredo and Egor are already implementing an automated system that allow for the maximum and effective collection of revenues across their council areas respectively. This study sought to address the automated revenue collection objective of Oredo and Egor local Government council areas of Edo state.

According to Kunle (2005), it is inconsistent for local governments to exclusively look to the state or federal government for revenue to establish or maintain programs whose benefits have a local reach. Programs like feeder roads, garbage collection, establishment and maintenance of sewerage systems, keeping the street clean, rural access roads, development of markets and urban centers should be financed by local government internally generated revenues. Local governments need to collect much revenue by way of taxes to face the increasing financial expenditures budgeted by the council and to ensure a balance between council budgetary allocations and council revenue collection through tax instruments. In developed- and developing-countries there are wide range of taxes and levies that affect individuals and companies, citizens and foreigners, manufacturers and marketers, workers and pensioners. In Nigeria taxes range from petroleum profits taxation to tenement rate imposition and taxes are imposed at different levels to enable the government provides certain essential services and facilities to the population.

A local government council is expected to collect its own revenue to mitigate between allocation of revenue from federal government and their own budget. This has called for collaboration between the Edo state and the local governments to establish an automated revenue collection system across the 18 local government council areas with the central database of all tax payers (i.e., a person or group of persons operating any business that is yet to be registered with Corporate Affairs Commission (CAC), these includes squatters, shop owners, etc.) in the state. This is to enhance collection from multiple revenue streams including single business permits, market stalls, parking fees, real estates, land rates, and to achieve real time transaction reports on a secure central server that must be accessible on web and mobile platforms. One major administrative problems today for many local council area governments is their inability to cost effectively collect fully the revenues due to them. Here emphasis will be on the cost-effectiveness of revenue collection in local governments (UNCTAD, 2008).

Previously in Edo state, there was no actual data of revenue collection from bus drivers, tricycle operators, traders, shop/store owners amongst others. Collection of revenue was left in the hands of 'Agberos' (local touts). This was done using manual receipts. Explicit corrupt practices were rampant due to inherent cartels between collectors/back office and senior officials, which saw adverse misappropriation of collected revenues in the state. Among the many problems confronting revenue collection in Edo State as spelt out in a recent law passed by its house of assembly is how to ensure that revenue collected on behalf of the Edo State Government gets into its coffers rather than private pockets. The law

recalled the inglorious era of Agberos' characterized with fraudulent practices, assault on revenue payee amongst other vices. Also pointed out was the lack of a comprehensive database of all tax payers and finally, tax being a commodity nobody wants to buy mostly occasioned by poor performance of most governments in terms of provision of amenities for the tax paying public, there is strong dislike for the taxman as they are perceived as being government toll collector leading to difficulties in voluntary compliance.

The problem of the taxman is further worsened by lack of confidence and mutual distrust in government represented here by the taxman. In view of the aforementioned and high-level incidence of corruption in the administration of revenue collection giving rise to increase tax/revenue payment evasion, ineffective and inefficient tax/revenue collection administration in Edo state, there is need to implement a revenue collection system that minimizes revenue leakages, ensures adequate information to the County customers and also maximize on revenue collection to support the County Government's development agenda and services delivery to her citizens.

Globally, several scholars and researchers have reviewed revenue system modernization and revenue collection. Wasilewski (2000) studied the economic development and taxation system by comparing the case of Brazil and Japan. Japan's experience demonstrated that a country does not need to postpone a real change in the tax structure until it achieves a high stage of development. Rather, a modern system can stimulate economic growth and enhance the domestic market. Muriithi and Moyi (2003) conducted a survey study tax reforms and revenue mobilization in Kenya. The researchers used primary data which was collected using a questionnaire to achieve the objective of this study. One of the key objectives of tax reforms in Kenya was to ensure that the tax system could be harnessed to mitigate the perpetual fiscal imbalances.

Mitullah (2005) did a survey of 175 local authorities in Kenya on the effectiveness of information systems. Most of these Local authorities faced a number of challenges in realizing their mandate for instance delivery of infrastructure and services due to poor management systems. The study concluded that information system was instrumental in enhancing and proper management of resources at the local authorities.

A study carried out by Amin (2013) shows that the use of geographical information systems would enable the local government to collect more revenues through improved financial management systems.

Gidisu (2012) did a study on the automation system procedure of the Ghana Revenue Authority on the effectiveness of revenue collection using a case study of customs division. It was established there was a positive impact of automation system usage and the cost of tax administration, automation and effectiveness of revenue collection.

In a study conducted by Chioma (2017) in Oredo, Egor and Ikpoba Okha Local governments areas in Edo state to determine the effects of automated revenue system in preventing fraud amongst tax payers and government officials, discovered a significant relationship p between the implemented automated revenue collection system and blockage of fraud as reported by 75% of the respondents, and that revenue payers' compliance was enhanced.

Elijah (2017) conducted another study in Ovia North-East, Uhunwode and Oredo Local government areas also in Edo state to determine the compliance level of revenue payers with regards to the automated revenue collected system and found out a positive relationship between revenue payers compliance level and newly implemented automated revenue collection system as reported by 70% of the respondents.

Previous studies focused on the back-end part and referred to it as revenue collection and yet revenue collectors used manual receipt books. A fully automated system needs to capture the entire business process from revenue collection to office application integration and reporting channels to the local government council for proper accountability. This study focused on front-end and back-end systems, seeking to address the problem of slow development in infrastructure in the various council areas because of limited available funds orchestrated by non-automated revenue collection.

The aim of this study therefore is to prove that information technology aids effective development in any government *vis-à-vis*

automated revenue collection system on the platform of a taxpayers' database. Specifically, the study addresses the following objectives:

i. To determine if having a taxpayers' database help the government identify its tax paying citizens.

ii. To analyze how the app designed for automated revenue collection system help increase taxpayers' compliance level and revenue collection results/ the reactions from respondents while reducing fraud in the system.

iii. Implement an automated revenue collection system through database application that works both on/off line on laptop.

Research Questions

i. Does taxpayers' database help the government (local) identify tax (levies, rates, fees and charges) payers in the state?

ii. Does automated revenue collection system app help increase revenue collection turn over in Edo state?

iii. Does automated revenue collection system app help reduce fraud in the system?

iv. Does automated revenue collection system app help increase taxpayers' compliance level?

v. Will this info-tech innovation aid the government to provide basic social amenities and create jobs for its citizens?

Hypotheses

The following hypotheses were raised to guide the study.

H_1: There is a significant relationship between increase in government revenue collection turn over and automated revenue system app with a tax/revenue payers' database

H_2: There is no significant difference between rapid development in the state and the automated revenue collection system app

MATERIALS AND METHODS

The study involved a longitudinal study to test the hypothesis so as to better understand the cause and effect (Huang and Palvia, 2001) supplemented by in depth qualitative interviews. A qualitative method investigates the why and how of decision making, hence smaller but focused samples are more often used than large samples. The two methods are to capture both what causes increase in revenue and how the local government councils managed the complexity to achieve more developmental projects for their respective constituencies.

Research Model

An application (App) for the automated revenue collection system was designed. The App have five login forms working dependently in no particular order, they are: Login page, Business reg. page, Revenue collection Page, Vehicle reg. page and Payer reg. page.

Login page- The Login form is accessible by the revenue collector agent only. It requires the user name and the password which must not be more than 10 (six) digits. When a new revenue collector agent is employed, his/her name and password must first be created by the Database administrator in the LGA. This gives the agent access to the App to register/collect revenue on behalf of the LGA.

Business reg. page- The business register menu page details includes: registration ID, Payer ID, Merchant Name, Business Name, Business Adress, Phone no., Annual turnover, Year of commencement and the Local Government Area (LGA) of business.

Vehicle reg. page- The features here are ID, payer ID which begins with VID, Vehicle no., LGA of vehicle and contact No. The right-hand sight of the page has a navigation bar just like payer and business registrations.

Payer reg. page- It is where new records of payers are brought into the system. Clicking

the save button on the payer form, enters the payer data and updates the data entered and also data could be edited from the backend of the app.

Figure 1 shows the items under the register payer menu display. The navigation menu allows the revenue agent to navigate the register payer menu. 'New' allows a new payer registration (i.e. a payer is a business not registered with the Corporate Affairs Commission), business (registered with the CAC) or a vehicle (buses, taxi/cab, lorries, tankers etc.)), 'Save' retains the record entered, 'First' takes you to the very first payer, 'Last' takes you to the current payer, 'Next' shows the next record, 'Previous' shows the earlier record and the 'Search' button help to find a particular payer in the database.

Revenue collection Page- This is where the revenue collection agent can login to register a payer, business, vehicle or collect revenue on behalf of the government. Login requirement from the agent includes: user information, username and password. The user must first be created by the administrator of the database to make it valid. Once the revenue collector logs in, he/she is taken to the menu display form where the various functions of the app are seen at a glance. Figure 2 shows the revenue collection view features. Figure 3 shows the receipt to the revenue payer by the automated revenue collection system agent

Figure 1: Revenue Collection Register Payer Page.

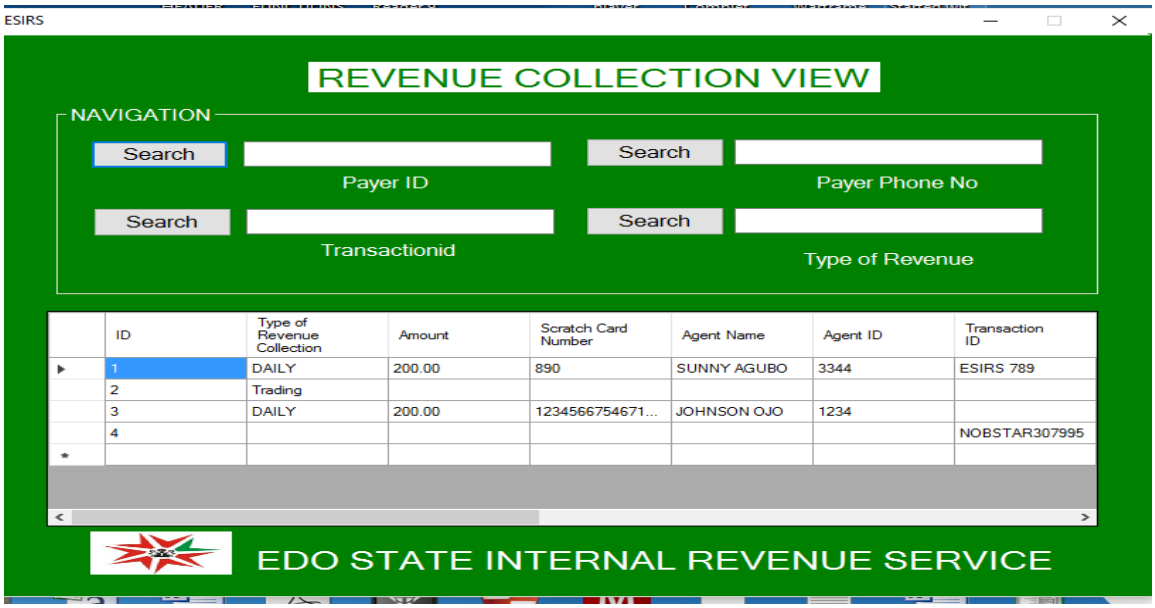

Figure 2: Revenue Collection View Page.

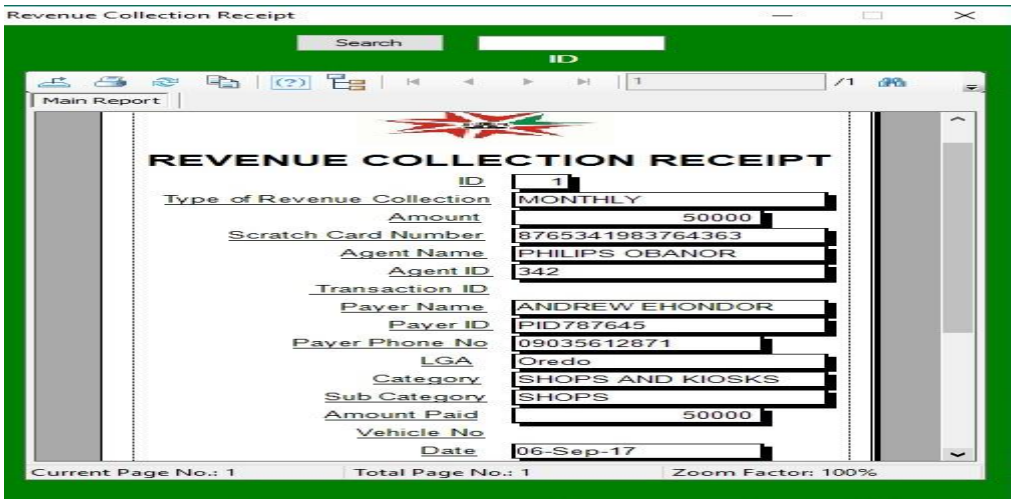

Figure 3: Revenue Collection Receipt Print View.

Population of the Study

The population of study was Oredo and Egor LGAs'. Judgmental sampling was used in selecting two local government council areas from the eighteen local government council areas in Edo state based on their size (population) and level of business activities. The study used both primary and secondary data sources.

Sampling

Judgmental sampling was used in two (2) out of the eighteen (18) local government council areas in Edo state based on their size and level of activities. A census of all the beats in the two chosen councils was done to select Oba and Uselu market beats respectively due to the fact that both had the required type of revenue payers (squatters, stalls, vehicles etc.) needed by the researcher for this research work. The researcher interviewed 200 respondents from both LGAs. The interview was done based on the stated two hypotheses raised; 100 respondents for each hypothesis.

Data Collection

The study used both primary and secondary data sources. The primary data was collected using a questionnaire with eight (8) questions while secondary data was obtained from past records and reports of the manual systems from the LGAs' Finance department, from 2014 to 2016. Secondary data was obtained from the LGAs' finance office from past records and reports of the manual systems from the LGA's finance department, from 2014 to 2016. The data obtained was used to compare with the records from March 2017 to May 2017 after the automation of the revenue collection in Oredo and Egor LGA. All available data for the last three years were cumulated, compared and quarterly summaries on each revenue stream were derived. Since automation was introduced in March 2017, the study focused on data prior (4th quarter) to automation and after (2nd quarter as there was no revenue collection in the 1st quarter of 2017 from the categories this research is based on) automation only. The primary data was collected using an interview guide.

Data Analysis

The data collected was sorted, coded then entered into MS-Excel sheet for analysis. A comparison was done before and after automation of revenue collection systems and its effect on revenue collection at Oredo and Egor. The findings were presented in line graphs and tables. Tables have been used in presentation of data. The study has also used line graphs to show trends in revenue collection before and after implementation of automated revenue collection system.

Trend analysis was used to bring out the comparison between the period before and after automation of revenue collection in Oredo and

Egor. Chi-square was used to test whether the change in the mode of revenue collection has a relationship to the increase in revenue collection in Oredo and Egor as well as the rapid development going on in the state.

Content analysis was used to analyze the primary data to determine the impact on revenue generation by the government as well as revenue payers level of compliance, since the implementation of the automated revenue collection system. According to Kahneman and Amos (1979), content analysis involves analyzing the contents of materials such as books, magazines and the content of all other verbal materials which can either be spoken or printed. Secondary data on revenue collection before and after implementation of automated revenue collection system was collected from both LGAs. The findings were presented in line graphs and tables while explanation to the tables and figures was given in prose.

RESULTS AND DISCUSSION

The data presented in Table 1 is from Oredo and Egor LGAs'. Data presented are on daily revenue payment category only. This includes buses, tricycles, squatters, Lorries, trailers and taxies.

Table 1 showed clearly increase in all category of revenue collected after the implementation of the automated revenue collection system in Oredo LGA. The 4th quarter of 2016 for example showed that revenue that accrued to Oredo LGA under the category of buses was N165,000.00. However, in the 2nd quarter of 2017 after the implementation of the automated revenue collection system app, buses generated N1,500,000.00. Squatters in the 4th quarter of 2016 before the implementation of the automated revenue collection system app generated N180,000.00, while in the 2nd quarter of 2017 after the implementation of the automated revenue collection system app generated N300,000.00. Tankers in the 4th quarter of 2016 produced N130,000.00 while in the 2nd quarter of 2017 after the implementation of the automated revenue collection system app generated N800,000.00. These same results can be said for taxi/cab, lorries/trailers etc. as shown in Table 1.

The line chart of Figure 4 in Oredo LGA showed a consistent rise in trend of all category of revenue after the implementation of the automated revenue collection system. Tankers revenue collection is represented by orange color, buses biro blue, squatters light blue, trucks/trailers, brown, pickup green, taxi cab navy blue and bike/tricycle is dark brown. Every line in the chart is at its highest at the 2nd quarter of 2017 after the implementation of the automated revenue collection system app.

Table 1: Revenue collection (Daily) in Oredo LGA.

Category	2013/2014				2014/2015				2015/2016				2016/2017
	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q	2nd Q
Squatters	100000	150000	120000	180000	80000	120000	140000	165000	155000	125000	164500	180000	300000
Trucks/ Trailers	350000	245000	200000	230000	230000	280000	210000	365000	250000	185550	245000	230000	1000000
Lorries/ Tippers	340000	265000	240000	250000	230000	280000	220000	345000	220000	285550	275000	290000	1565000
Tankers	120000	115000	100500	130000	240000	220500	110000	165000	150000	125050	145000	130000	800000
Buses	120000	180000	80000	150000	80000	130000	140000	125000	140000	100000	140000	165000	1500000
Pick Up	80000	65000	45000	75000	50000	45000	50000	75000	85000	65000	54000	65000	115000
Taxi Cab	40000	35000	48000	45000	25500	38000	43000	54000	20000	28000	35000	30500	85500
Bike/ Tricycle	15500	25000	18500	30500	24000	22500	15850	30100	20300	40100	38400	45500	85540
TOTAL												**1136000**	**5451040**

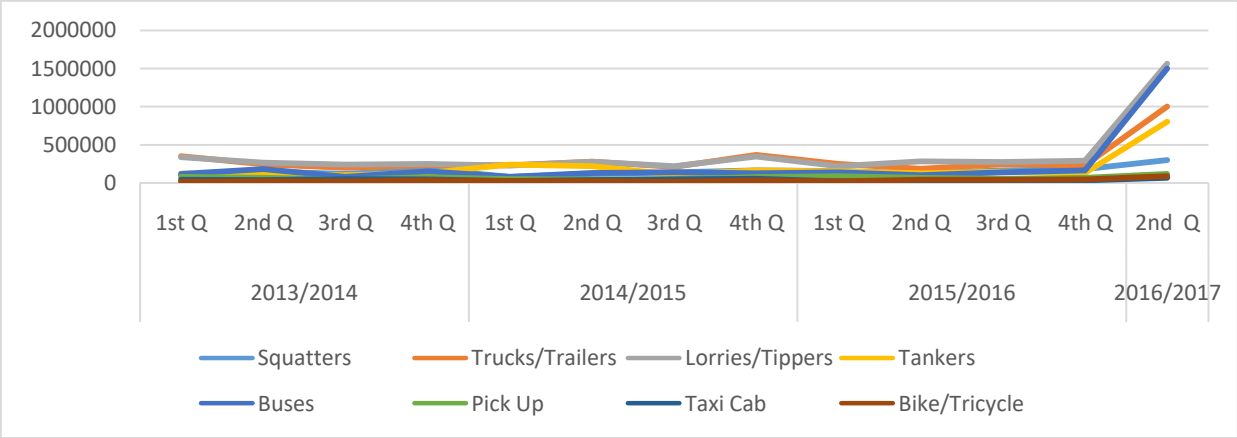

Figure 4: Line Graph Representation of Revenue Collection Trend in Oredo LGA.

Table 2: Revenue Collection (Daily) in Egor LGA.

Category	2013/2014				2014/2015				2015/2016				2016/2017
	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q	2nd Q
Squatters	80000	100000	120000	140000	50000	100000	135000	160000	145000	115000	154500	170000	285000
Trucks/ Trailers	250000	215000	180000	220000	210000	260000	110000	345000	220000	165550	225000	210000	1100000
Lorries/ Tippers	320000	245000	230000	240000	220000	280000	230000	335000	220000	275000	255000	260000	1365000
Tankers	100000	105000	100000	120000	240000	210500	120000	155000	140000	135050	135000	120000	825000
Buses	80000	120000	70000	150000	70000	130000	143000	125000	130000	110000	132000	160000	1400000
Pick Up	65000	65000	45000	65000	50000	45000	50000	55000	55000	75000	64000	65000	105000
Taxi Cab	45000	34000	46000	45000	25800	28000	40000	44000	22000	25000	25000	35500	75500
Bike/ Tricycle	12500	22000	12500	30200	24200	20500	19850	35100	20800	40900	37400	47500	80330
TOTAL												**1068000**	**5235830**

Table 2 showed clearly increase in all category of revenue collected after the implementation of the automated revenue collection system in Egor LGA. The 4th quarter of 2016 for example showed that revenue that accrued to Egor LGA under the category of buses was N160,000.00. However, in the 2nd quarter of 2017 after the implementation of the automated revenue collection system app, buses generated N1,400,000.00. Squatters in the 4th quarter of 2016 before the implementation of the automated revenue collection system app generated N170,000.00, while in the 2nd quarter of 2017 after the implementation of the automated revenue collection system app generated N285,000.00. Tankers in the 4th quarter of 2016 produced N120,000.00 while in the 2nd quarter of 2017 after the implementation of the automated revenue collection system app generated N825,000.00. These same results can be said for taxi/cab, lorries/trailers etc. as shown in Table 2.

The line chart of Figure 5 in Egor LGA showed a consistent rise in trend of all category of revenue after the implementation of the automated revenue collection system. Tankers revenue collection is represented by orange color, buses biro blue, squatters light blue, trucks/trailers brown, pickup green, taxi cab navy blue and bike/tricycle is dark brown. Every line in the chart is at its highest at the 2nd quarter of 2017 after the implementation of the automated revenue collection system app.

H_1: There is a significant relationship between increase in government revenue collection turn over and automated revenue system app with a tax/revenue payers' database

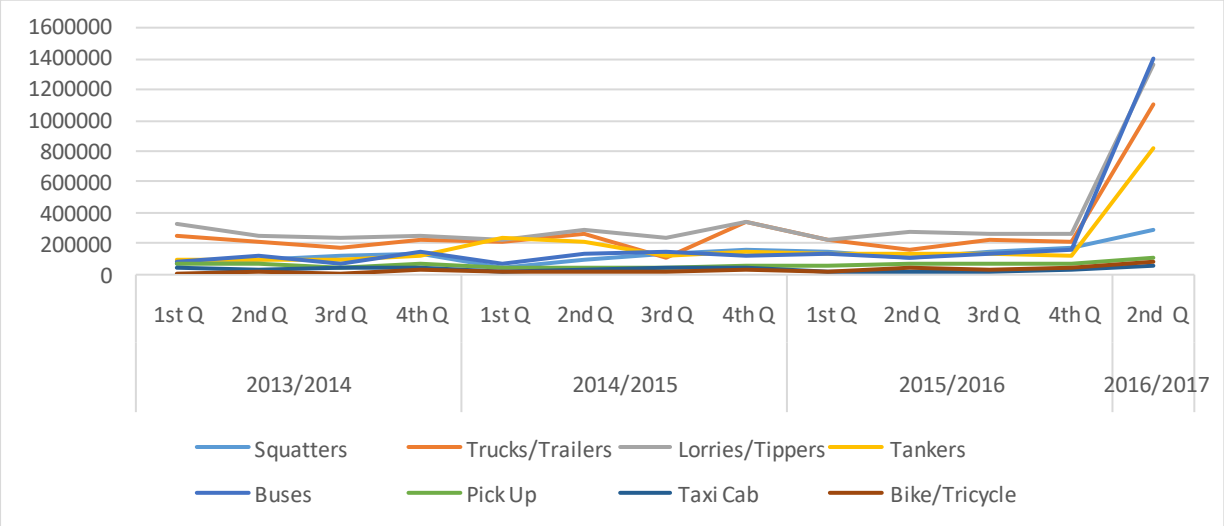

Figure 5: Line Graph Representation of Revenue Collection Trend in Egor LGA.

Table 3: Chi-Square Tests for Oredo and Egor LGAs.

	YES	NO	NOT SURE	TOTAL
Business People	40	5	5	50
Others	45	5	0	50
Total	85	10	5	100

Table 4: Chi-Square Tests for Oredo and Egor LGAs.

	YES	NO	NOT SURE	TOTAL
literate	35	8	7	50
illiterate	40	5	5	50
Total	75	13	12	100

H_{01}: automated revenue collection system does not affect revenue turn over

H_{02}: automated revenue collection system does affect revenue turn over significantly.

The Chi-square result is 0.147 for the groups that said yes (see Table 3), with a corresponding P-value of 0.0735, which gives a probability of 73.5% validity to the alternate hypothesis that automated revenue collection system has significant relationship with revenue turn over in both LGAs.

H_2: There is no significant difference between rapid development in the state and the automated revenue collection system app

H_{01}: increased revenue from automated revenue collection system does not lead to rapid development in the state.

H_{02}: increased revenue from automated revenue collection system does lead to rapid development in the state.

The Chi-square result is 0.17 for the groups that said yes (see Table 4), with a corresponding P-value of 0.085, which gives a probability of 85% validity to the alternate hypothesis that automated revenue collection system has significant relationship with revenue turn over in both LGAs.

For a computing service to support the mission aim and strategic direction of its institution, its support devices must be responsive to and flexible in meeting the needs of those who are

their customers and it must undertake research into what is required of them.

The main objectives of the study was to find out the effect of the automated revenue collection system on revenue turn-over for Oredo and Egor and how that turn-over translated to rapid development in the localities affected. The results from the findings clearly showed that the automated revenue collection system indeed ultimately leads to economic growth that leads to rapid development in the areas affected.

Over 70% of the respondents on the two alternate hypotheses corroborated this claim by the way they answered the questionnaire given to them. The findings also showed that revenue payers' payment compliance level increased since the introduction of the automated revenue collection system because of the fact that a database is there to record their daily or monthly transactions. More so, respondents are of the opinion that financial fraud in this regard will be eradicated.

The study showed significant increase in revenue generated in the 2nd quarter of 2017 when the automated revenue collection system was implemented. From the chi-square test in Oredo and Egor LGAs, it was clear that automated revenue collection system with the database influenced the revenue generation from all the revenue collection categories (Squatters, Trucks/Trailers, Lorries/Tippers, Tankers, Buses, Pick Up, Taxi Cab, Bike/Tricycle) and beats covered in this study.

CONCLUSION

The study concludes that the introduction of automated revenue collection system with a database enhanced both the revenue generation, turn-over as well as aide rapid development. This was clearly shown in the tables, figures and charts used in this research work. From the various researches done previously in this regard it is apparent that rapid development of infrastructure follows economic growth. Hence, another conclusion is that automated revenue collection also leads to effective rapid development wherever it is properly implemented.

Following the study, the following recommendations are made:

i. The State government should extend the implementation to all eighteen LGAs in the state for even spread of developments across the entire state.

ii. Since the development of any location irrespective of the tier of government is dependent on the fiscal status, the researcher encouraged the Edo state government not to handle this innovation with "political gloves", rather to invest heavily in more advanced but more user-friendly technology in generating revenue for the state.

iii. The Government should migrate from the use of laptops to mobile phones with long lasting batteries.

iv. The government should train the various government workers properly on the use of these gadgets to minimize down time in the collection of revenue.

v. The researcher looks forward to a time when the government would implement fully cashless (e-payment) transactions in the collection of revenue. And finally,

vi. The researchers encourage the government to think of ways to collect revenue online for literate revenue payers using their own smart phone with the collection app available on google play store etc.

REFERENCES

1. Agbeyegbe, T., J.G. Stotsky, and M.A. Wolde. 2004. "Trade Liberalization, Exchange Rate Changes, and Tax Revenue in Sub-Saharan Africa". IMF Working Paper, WP/04/178. International Monetary Fund: Washington, DC. 2(2):105-115.

2. Amin, M.A. 2013. "Is There an African Resource Curse?". Paper presented to the House Sub-Committee on Africa. 3: 27 (86): New York, NY.

3. Bahwan CyberTek (BCT). 2012. "Cuecent Integrated Revenue Collection System". Natick, MA. 60-75.

4. Chioma, P. 2017. "Edo State Government Edo Jobs Initiative Project: Unpublished Feasibility Study". *Journal for Auditing and Taxation*, 6: I-24

5. Elijah, G. 2017. “Edo State Government Edo Jobs Initiative Project: Unpublished Feasibility Study”. *Journal of International Accounting*. (8): 2-11.

6. Gidisu, S.T. 2012. “Automation System Procedure of the Ghana Revenue Authority”. *Journal of Kwame Nkrumah University of Science and Technology*. 5(7):45-47.

7. Hinrisch, H.H. 1966. “A General Theory of Tax Structure Change during Economic Development”. *Harvard Law School International Tax Program Development*. 10-11.

8. Huang, Z. and P. Palvia. 2001. “ERP Implementation Issues in Advanced and Developing Countries”. *Business Process Management Journal*. 7(3):276-284.

9. Kahneman, D. and T. Amos. 1979. “Prospect Theory: An analysis of Decision Under Risk”. *Econometrical.* 47:263-292.

10. Mitullah, W.V., et al. 2005. “Management of Resources by Local Authorities: The Case of Local Authority Transfer Fund. Nairobi”. *CLARIPRESS*. 23-27.

11. Muriithi, K.M. and D.E. Moyi. 2003. “Tax Reforms and Revenue Mobilization in Kenya”. AERC Research Paper, 131.

12. Odoyo, O., M. Oginda, M. Obura, F. Aila, O. Ojera, and M. Siring. 2013. “Effect of Information Systems on Revenue Collection by Local Authorities in Homa Bay County, Kenya”. *Universal Journal of Accounting and Finance*. 1(1):29-33.

13. Prichard, H. 2010. “Towards Governance Focused Tax Reform Agenda”. IDS Working Paper. *Journal of Economics Literature*. 36:11-46.

14. Schweiger, D.M. and A.S. DeNisi. 1991. “Communication with Employees Following a Merger: A Longitudinal Field Experiment”. *Academy of Management Journal*. 34(1):110-135.

15. Shields, J. 1999. “Transforming Organizations, Methods for Accelerating Culture Change Processes”. *Information Knowledge Systems Management*. 1(2):105-115.

16. Simonson, M. 2005. “Distance Education: Eight Steps for Transforming an Organization”. *The Quarterly Review of Distance Education*. 6(2):7-8.

17. Spencer, J. and N. Casey. 2007. “Toy Recall Shows Challenge China Poses to Partners”. *The Wall Street Journal Online*. Mar. 8, 2007, Retrieved Sept. 11, 2014, from: http://online.wsj.com/public/article_print/SB118607762324386327.html

18. UNCTAD. 2008. “Use of Customs Automation Systems, Trust Fund for Trade in Environments with Little or no Infrastructure”. *International Organizations*. 18th July 2013. 12 – 34.

19. Wasilewski, F.L. 2000. “The Economic Development and Taxation System by Comparing the Case of Brazil and Japan”. *Journal of Economics in Public Policy and Taxation*. 11 – 32.

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