Information Communication Technology Tax Reforms and Tax Compliance in Rwanda Case of Rwanda Revenue Authority in Gasabo District

By Daniel Twesige, Faustin Gasheja, Jonas Baryandama & Uwamahoro Alexis

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Keyterms: ICT, tax reforms, tax compliance.

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INFORMATIONCOMMUNICATIONTECHNOLOGYTAXREFORMSANDTAXCOMPLIANCEINRWANDACASEOFRWANDAREVENUEAUTHORITYINGASABODISTRICT

Strictly as per the compliance and regulations of:

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Daniel Twesige [α], Faustin Gasheja [σ], Jonas Baryandama [ρ] & Uwamahoro Alexis [ω]

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I. Introduction

Tax revenue is very important for every government in the world as it enables the government to acquire assets and to cater for other operating expenses. More importantly, tax revenues enable the governments to reduce over dependence on foreign debts and grants to finance its operation.

Effective tax collection is to minimize revenue losses by detecting and preventing external tax evasion, i.e. smuggling, and as well all other forms of evasion. Several causes to revenue losses are encountered such as understatement of sales, omission of some transaction in recording, tax evasion and others to minimize the tax liability. Generally, organizations perform a fraud risk assessment and evaluate related internal control in revenue loss detection and control for better revenue generation (Ndungu, 2013). When the Revenue protection system is unable to detect and prevent such practices a lot of taxes remain uncollected and it can cause huge losses in tax revenues of the government (Land, 2004).

Due to increased need of increasing the tax base, many governments and other public sector organizations invested billions of money in information communication technology in order to provide better delivery services to its citizens and offer more effective government management. Ideally, online billing service is nothing but the process of delivery of bills and invoices in the electronic mode. The electronic billing system is also widely accepted by various government organizations for the benefit of people at large. The electronic billing system can be used to transact with a particular service provider or in general with all the service providers utilized by the user. While it is true that online billing has many advantages it also has some disadvantages. Some of the advantages of the electronic billing system include; The online billing services are one of the least expensive forms of billing when compared to the traditional billing, the electronic billing system also is absolutely hassle free as one can protect the bill with the help of password and can be opened only by the recipient. The electronic billing also provides a great advantage of saving time and effort that are normally lost in a traditional billing system.

All tax authorities have limited resources; lower than they need to ensure compliance with the obligations of each taxpayer owing tax. Consequently, effective tax administration requires that the tax be collected in a way that builds confidence among taxpayers and demonstrates that the system is working properly. This is why the tax authorities must rely on a Methodology for determining the most rational allocation of resources (Horn, 2013).

Several administrations have adopted information technology in their quest to combat noncompliance a case in point is the introduction of EBM in order to curb the value-added tax (VAT) payable on sales. The introduction of EBM typically requires considerable effort and has costs both for the administration and for the taxpayers that are affected by the requirements of the new rules. Despite their widespread use, and their considerable cost (Nchoe, 2003).

a) Problem Statement

The expansion of the tax base in Rwanda is increasingly recognized as an important policy goal, as an increase in domestic revenue sources promises to reduce aid dependence and reduce dictionary consequences of taxes on externally traded goods. E-

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filing is one of advanced e-governance system adopted in developed countries. This technology in billing has been adopted in Rwanda since August 2013 and ever since its adoption, there has been a considerable expansion of tax base.

Ndayisenga and Shukla (2016) found out that both electronic tax management system which consist of Tax Payment System, Mobile Tax Payment System and electronic Billing Machine System contributes to timely tax payment and reduced operational cost for both RRA staffs and clients. According to RRA (2014) before introduction of EBM, revenue collection using e-filing and e-payment was low and tax administration weak and this made the revenue collection authority fail to meet the targets. But after introduction as revealed by IMF (2014) the use of EBM has made considerable contribution across the country in terms raising the numbers of tax payers and increasing revenue collection. However, we cannot tell whether the achievements at national level reflect the reality in decentralized government entities specifically in Gasabo district due to lack of empirical evidence on it.

b) *Objectives of the Study*
i. To assess the contribution of ICT tax reforms in tax compliance in Rwanda.
ii. To establish a relationship between ICT tax reforms and tax compliance in Rwanda.

c) *Research Hypotheses*
i. ICT tax reforms have contributed significantly to the tax compliance in Rwanda.
ii. There is a significant relationship between ICT tax reforms and tax compliance in Rwanda.

II. THEORETICAL AND CONCEPTUAL FRAMEWORK

This section provides a theoretical and conceptual framework of the literature that relates to the study variables.

a) *Theoretical review*
The theories which anchored this study include the following

i. *Fiscal exchange theory*
The theory suggests that the presence of government expenditures may encourage tax compliance from the taxpayers. Tax compliance among society increases with perception of the availability of public goods and services being developed in relation to the tax paid (Moore, 1998). It suggested that government can increase tax compliance by providing goods and services that citizens prefer in a more efficient and accessible manner, emphasizing that taxes are necessary for the receipt of government services. Accordingly, taxpayers are concerning with what they are getting in return for their tax payments in the form of

public services. In this perspective, taxation and the provision of public goods/services become catalysts to taxpayer in compliant to the tax paid (Horn, 2013).

This theory is more practical and acceptable because, it advocates individual willingness to comply without direct coercion. Furthermore, it serves the government from high collection costs resulting from enforcement measures. According to this theory it can be said that whatever much the government or administrative authority adopt modern systems of collecting tax, the effectiveness of tax/revenue collection depends on the public services provided by the government to the tax payers

ii. *Social influences theory*
Human behavior in the area of taxation is influenced by social interaction in the same way as other forms of behavior Compliance behavior towards the tax systems may therefore be affected by the behavior of an individual's reference groups such as relatives, neighbors, and friends. If a taxpayer knows many people in his group who evade taxes, his commitments to comply will decline. On the other hand, social relationships may also help motivate individuals to comply and shy away tax evasion behavior in fear of the social sanctions imposed once discovered (Samson, 2012).

This theory to a large extent, support the fiscal exchange theory also noted that the society with government advocating good governance has better chances to comply with laws and orders including tax laws might create a tax payment culture among the society members. The implication of this theory is that in paying tax; behavior or culture of the society concerned intervene the processes. Therefore, for the government to attain 'big results' in tax collection there is the need for the tax collection agencies to carry out aggressive tax compliance campaigns that will assist in shaping behaviors of community members to become enthusiastic/keen in paying tax (Snavel, 1990).

iii. *Effective tax collection theory*
The standard theory of optimal taxation posits that a tax system should be chosen to maximize a social welfare function subject to a set of constraints. The literature on optimal taxation typically treats the social planner as a utilitarian: that is, the social welfare function is based on the utilities of individuals in the society (Slemrod, 2010). In its most general analyses, this literature uses a social welfare function that is a nonlinear function of individual utilities. Holtzman (2007) states that tax collection is the value of the tax payer's own time and resources along with any out of pocket costs paid to the tax preparers and other advisors, invested to ensure collection with the laws and also stated that tax collection is the provision of tax information at the proper time and ensuring returns accurately report tax liability.

Gideon and Alouis (2013) wrote that an efficient national revenue collection system is the hub of every public administration system and the cornerstone of sound fiscal management. It enables governments to finance budget deficits from domestic sources, thus dissuading recourse to offshore sourcing.

Tax collection can either be through voluntary tax collection or involuntary tax collection. Voluntary tax collection involves obeying the tax laws without any state enforcement actions that leads to maximizing revenues because administration costs are low in both the economic and psychic sense. The government wastes little money and time in collecting the tax and tax payers suffer little alienation in parting with their money (Onoja & Iwarere, 2015).

b) Conceptual review

i. ICT tax reforms

Digitalization of the tax system has been a major concern of many countries. In August 2013, legislation was introduced in Rwanda, to assist firms' book-keeping, to level the playing field amongst all retailers, and, most importantly, to reduce tax evasion for value added tax (VAT). This legislation, announced in Ministerial Order 002/13/10, and the accompanying Commissioner General (CG) rules. All the reforms in Rwanda's tax base system were aimed at improving tax collections, administrations, and above all tax compliance. In a bid to improve tax compliance, Rwanda Revenue Authority (RRA) decided to opt for electronic tax management system which includes e payment, e filling and electronic tax education in order to improve on tax collection in the country. These tax reforms include the EBM, online declaration and payment and online tax registration.

Naibei & al, (2011) conducted a study to find out reasons for the adoption of Electronic Fiscal Devices in tax collection in Kenya. Interviews and questionnaires were used as the main instruments for data collection. Primary and secondary data were collected and analyzed. From the findings of the study, the most common stated reasons for adoption of this new system of tax collection were to secure sales information followed by enhancing tax compliances. Also the findings indicated that the system was introduced so as to reduce invoice fraud in Kenya which was being conducted before. The study recommended that, the effective use of these machines in tax collection will remove the day to day conflicts between the taxpayers and the government particularly the tax authority.

Naibei, *et al*, (2011), conducted a study on the purpose of assessing the impact of use of Electronic Tax Registers (ETRs) on Value Added Tax (VAT) compliance among private business firms in Kisumu city, Kenya. Results revealed that effective and regular use of ETR has a significant impact on the Value Added Tax (VAT) complia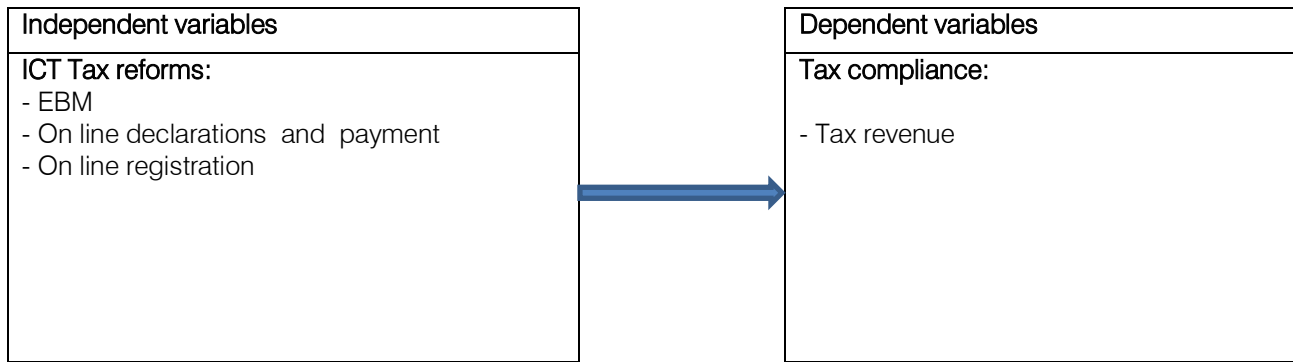nce. Based on the research findings the study concluded that use of ETR has a significant impact on VAT compliance in Kenya. However, the study also recommended that the government needed appropriate strategies to overcome challenges which may face the users of ETRs machines.

Yalemtesfa (2011) conducted a study on the importance of using EBM to increase revenue collection in Ethiopia. The findings from the study indicated that, the use of EBM reduce the operation cost of the government that was incurred to collect VAT as well as improve the business income of taxpayers. Also the study indicated that while EBM improving the efficiency and effectiveness of government operations also provides timely and accurate tax information to businesses and increases the availability of electronic tax filing. The study concluded that introduction of EBM helped to decreases tax evasions and need to create enough awareness and strong regular audit follow up to get those fruit full benefit of using EBM. The study recommended that creating awareness of the people by newspapers, pamphlets, with attractive radio and television programs is very important in eliminates the tax evasions and can enhance the efficiency of the ERCA.

ii. Tax compliance

According to (OECD, 2010), the extent to which compliance (e.g. filing, reporting and payment) has been improved as a result of revenue body activities would clearly be an indication of a revenue body's effectiveness. There are four basic tax compliance obligations of citizens and businesses that generally speaking must be administered by all revenue bodies in accordance with their respective tax laws: to register for tax purposes; to file tax returns on time (i.e. by the date stipulated in the law); to correctly report tax liabilities and to pay taxes on time.

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Independent variables		Dependent variables
ICT Tax reforms: - EBM - On line declarations and payment - On line registration		Tax compliance: - Tax revenue

Source: Researcher's intention, 2019

Figure 2.1: Conceptual framework

Figure 2.1 above show the relationship between variables. The independent variable which is ICT tax reforms is measured by EBM reforms, online declaration and payment and online registration. These have got a direct effect on tax compliance which is measured by tax revenue.

III. Research Methodology

a) Research design

This study used descriptive and cause research design. Descriptive research design was used to describe ICT tax reforms. Cause research design was used to establish the relationship between ICT tax reforms and tax compliance in Gasabo district.

b) Population of the study and Sample size

The target population for this study included employees of RRA Gasabo branch. The total number of population used in this study was 128 employees of RRA in Gasabo district and 5 representatives of tax payers in Gasabo district. Yamane's (1967) formula was used to calculate sample sizes. $n = \frac{N}{1+N(e)^2}$

Where n is the sample size, N is the population size and e is the level of precision.

$$n = \frac{128}{1+128(0.1)^2} = \frac{128}{2.28} = 56.14 \approx 56$$

c) Sampling techniques

Stratified random sampling is a method of sampling that involves the division of a population into smaller groups known as strata. In stratified random sampling, the strata are formed based on members' shared attributes or characteristics. This implies that sample size of each categories of tax collectors and tax auditors was selected by using stratified random sampling techniques. Among 128 employees of RRA in Gasabo, the researcher selected only 56 employees from different department which included 8 officers in charge of tax collection and tax audit in large tax payers, 31 officers in charge of tax collection and tax audit in Small & medium and 7 officers in charge of tax collection and tax audit in each sector of Gasabo district in each sector of Gasabo district

d) Methods of data collection

To get this information the researcher went on field and collect raw data from the employees of RRA. In this study, questionnaire was used to collect primary data. The primary data was based on the research objectives of the study. Secondary data is the data that is already in existence and found in published reports, books and internet (Saunders *et al.,* 2007) and may be used by researcher for their studies (Krishnaswami and Ranagnatham, 2006). In this research, the secondary data was collected from reviewing existing from reports at RRA Gasabo Branch

e) Data analysis

The data were analyzed by using both descriptive statistics and inferential statistics such as Pearson's correlation was used to analyze the data. The data was then analyzed using descriptive statistics such as frequencies, percentages, mean and standard deviation. Findings were presented using tables for further analysis and to facilitate comparison. Inferential statistics through the use of multiple regression model was used were used to establish the relationship between the study variables. The independent variables were measured by EBM, Online declaration and payment (ODP), online tax registration (OTR). On the other hand, tax compliance was measured by tax revenue (TR)

TR = F(EBM, ODP, OTR)

TR = $\beta 0 + \beta_1 EBM + \beta_2 ODP + \beta_3 OTR + \alpha$

IV. Result and Discussion

This section presents the findings of the study, the analysis and interpretation of the results Findings were derived from the questionnaires to employees of RRA Gasabo branch. It attempts to analyze data

generated from the study which include qualitative and quantitative information collected from the respondents.

a) *Assessment of the contribution of EBM in Gasabo district*

The study sought to find out the appreciation of respondents on electronic billing machine adopted by RRA in the aims of facilitating tax collection in Gasabo district.

Table 1: Assessment of the contribution of EBM in Gasabo district

	SD		D		N		A		SA		Mean	St. Dev
	fi	%	fi	%	fi	%	fi	%	fi	%		
Standardization of the tax payment	1	1.8	2	3.6	4	7.1	6	10.7	43	76.8	4.57	.91
Automation of the tax payment	1	1.8	4	7.1	2	3.6	8	14.3	41	73.2	4.54	.97
EBM is used in computerization of tax collection	1	1.8	2	3.6	0	.0	15	26.8	38	67.9	4.55	.83
EBM is used in integration of the tax system with other government systems	0	.0	0	.0	0	.0	12	21.4	44	78.6	4.79	.41
To bring innovation in the tax payment	0	.0	0	.0	0	.0	45	80.4	11	19.6	4.20	.40
Clients check tax statement easily from any business location by use of EBM	0	.0	7	12.5	2	3.6	8	14.3	39	69.6	4.41	1.04
Clients produce invoice easily by use of EBM	0	.0	2	3.6	1	1.8	3	5.4	50	89.3	4.80	.64
EBM is used to records sales and controller	0	.0	7	12.5	2	3.6	8	14.3	39	69.6	4.41	1.04
Electronic billing machine system has made tax auditing/accountability easier	0	.0	3	5.4	3	5.4	9	16.1	41	73.2	4.57	.83
EBM has made communication easy with clients	2	3.6	3	5.4	8	14.3	8	14.3	35	62.5	4.27	1.12
EBM has make taxation service more assured than conventional method	2	3.6	2	3.6	8	14.3	8	14.3	36	64.3	4.32	1.08
EBM has made tax service more accessibility and available	0	.0	2	3.6	1	1.8	9	16.1	44	78.6	4.70	.69
Overall mean on use of EBM											4.52	0.81

Source: Primary data, 2019

The results indicated that 1.8% of respondents strongly disagreed, 3.6% of respondents disagreed, 7.1% of respondents were neutral whereas 10.7% of respondents agreed and the majority 76.8% of respondents strongly agreed that EBM is important because its standardization of the tax payment and was rated with very high *mean* of 4.57; (*SD = 0.91*) which implies that respondents have heterogeneity perception on this assertion.

The findings show that 1.8% of respondents strongly disagreed, 7.1% of respondents disagreed, 3.6% of respondents were neutral whereas 14.3% of respondents agreed and the majority 73.2% of respondents strongly agreed that EBM is automation of the tax payment and was rated with very high *mean* of 4.53; (*SD = 0.97*) which implies that respondents have heterogeneity perception on this assertion.

The findings illustrated that 1.8% of respondents strongly disagreed, 3.6% of respondents disagreed while 26.8% of respondents agreed and the majority 67.9% of respondents strongly agreed that EBM is used in computerization of tax collection and was rated with very high *mean* of 4.55; (*SD = 0.83*) which implies that respondents have heterogeneity perception on this assertion. The findings illustrated that 12.5% of respondents disagreed and 3.6% of respondents were neutral while 14.3% of respondents agreed and the majority 69.6% of respondents strongly agreed that EBM is used to records sales and controller and was rated with very high *mean* of 4.41; (*SD = 1.04*) which implies that respondents have heterogeneity perception on this assertion.

The findings indicated that none of respondents disagreed or strongly disagreed whereas 21.4% of respondents agreed and the majority 78.6% of respondents strongly agreed that EBM is used in integration of the tax system with other government systems and rated with high mean 4.79 and homogeneity standard deviation equal to 0.41 this implies that respondents have the same view regarding to EBM is used in integration of the tax system with other government systems.

The findings show that none of respondents disagreed or strongly disagreed whereas 19.6% of respondents strongly agreed and the majority 80.4% of respondents agreed that EBM bring innovation in the tax

payment and rated with high mean score 4.2 and standard deviation equal to 0.40 which implies that homogeneity perception.

The results from the table above indicated that 12.5% of respondents disagreed and 3.6% of respondents were neutral while 14.3% of respondents agreed and the majority 69.6% of respondents strongly agreed that clients pay tax easily from any business location by use of electronic billing machine: This was indicated by a very high mean of 4.41 and a heterogeneity standard deviation of 1.04.

The results show that 3.6% of respondents disagreed, 1.8% of respondents were neutral while 5.4% of respondents agreed and the majority 89.3% of respondents strongly agreed that clients produce invoice easily by use of electronic billing machine and was rated with very high mean score of 4.80 and (*SD = 0.64*) . This implies that respondents have heterogeneity perception.

The results show that 62.5% of respondents strongly agreed that electronic billing machine has made communication easy with clients and rated with very high mean score of 4.27 and (SD=1.12) Hence respondents have heterogeneity perception on how EBM services has made communication easy with clients. This findings are in the line with Geetha and Sekar(2012), One of the most important advantages of a billing and currency counting machine is that it saves a lot of time and manual efforts. Productivity can be easily increased with these machines. A billing machine proves to be advantageous in producing the sum totals for various money transactions and to generate the bills faster and accurately.

The findings indicated that 3.6% of respondents strongly disagreed, 3.6% of respondents disagreed and 14.3% of respondents were neutral whereas 14.3% of respondents agreed and the majority 64.3% of respondents agreed that EBM has make taxation service more assured than conventional method and was rated with high mean score 4.32 and standard deviation equal to 1.08 implies that heterogeneity perception response.

The results show that 73.2% of respondents strongly agreed that electronic billing machine system has made tax auditing/accountability easier and was rated with very high mean score 4.57 and SD= 0.83 implies that heterogeneity perception responses that tax auditing/accountability become easier.

The results show that 73.2% of respondents strongly agreed that electronic billing machine system has made tax auditing/accountability easier and was rated with very high mean score 4.57 and SD= 0.83 implies that heterogeneity perception responses that tax auditing/accountability become easier.

The results show that 3.6% of respondents disagreed, 1.8% of respondents were neutral whereas

16.1% of respondents agreed and the majority 78.6% of respondents strongly agreed that EBM has made tax service more accessibility and available and was rated with very high mean score 4.7 and SD= 0.69 implies that heterogeneity perception responses that EBM has made tax service more accessibility and available. The tax payers said that they used to have problems of keeping records for tax assessment before using EBM. But now with EBM, it is easy, simple and fast. The bad part about it is that I do not like to pay too much tax to the government". The comment above clearly shows that the EBM is beneficial and what is required is education to the tax payers about its benefits for the country at large.

The overall view of respondents on electronic billing machine services was rated with very high mean score 4.52 which implies a strong evidence of the existence of the fact and standard deviation of 0.81great than 0.5 which implies that respondents have heterogeneity perception on the use of electronic billing machine in Gasabo district. From the findings quoted in the above passage permitted researcher to share the same views of respondents on the fact that EBM are adopted and used in Gasabo as mean of collecting VAT but remains some doubt because all respondents did not have the same view as indicated above. This was due to the analysis on what efficacy the EBM is expected to provide on ease of tax-collection. In fact, the understanding for the necessity is one but also the willingness to use EBM is another issue. To this perspective, participants to the study asserted that as EBM use is still new means of tax-clearance while changes is a process, they continue enforcing sensitizations on both sellers to use EBM and any buyer to request an invoice of EBM until this will be implemented to all services. Yet, in optimist's views, the respondents accept that the numbers of those who use EBM is increasing consider the period that this new means of paying taxes has been integrated in Rwanda.

b) On line declaration and payment

The study sought to assess the contribution of online tax declaration and payment on tax compliance in Gasabo district.

Table 4.7: Assessment of online declaration and payment on tax compliance

	SD		D		N		A		SA		Mean	St. Dev
	fi	%	fi	%	fi	%	fi	%	fi	%		
All registered taxpayers file their returns on time.	0	.0	1	1.8	0	.0	3	5.4	52	92.9	4.89	.45
The system is able to track taxpayers who do not file their returns.	0	.0	0	.0	6	10.7	45	80.4	5	8.9	3.98	.45
Taxpayers are able to declare and pay actual taxes on time.	1	1.8	0	.0	0	.0	49	87.5	6	10.7	4.05	.52
Taxpayers who do not file their returns are followed up.	0	.0	0	.0	1	1.8	35	62.5	20	35.7	4.34	.51
Taxpayers are able to keep records, file returns and pay tax on time without intervention of tax officials.	0	.0	0	.0	0	.0	4	7.1	52	92.9	4.93	.26
All taxpayers are aware of the consequences of delay or non remittance of tax.	0	.0	1	1.8	2	3.6	8	14.3	45	80.4	4.73	.62
All taxpayers disclose income earned for tax purpose.	0	.0	2	3.6	1	1.8	3	5.4	50	89.3	4.80	.64

Source: Primary data, 2019

The findings show that 1.8% of respondents disagreed while 5.2% of respondents agreed and the majority 92.9% of respondents strongly agreed that all registered taxpayers file their returns on time and this statements was rated and has very high mean core equal to 4.89; SD=0.45). This implies that respondents have homogeneity perception responses.

The findings show that none of respondents disagreed or strongly disagreed and 10.7% of respondents were neutral whereas 8.9% of respondents strongly agreed and the majority 87.5% of respondents agreed that the system is able to track taxpayers who do not file their returns and this statements was rated and has high mean core equal to 3.98; SD=0.45). This implies that respondents have homogeneity perception responses on above statements.

The findings indicated that 1.8% of respondents strongly disagreed whereas 10.7% of respondents strongly agreed and the majority 87.5% of respondents agreed that taxpayers are able to declare and pay actual taxes on time and was rated with high mean score 4.05 and standard deviation equal to 0.52 implies that heterogeneity perception response.

The findings show that none of respondents disagreed or strongly disagreed whereas 7.1% of respondents strongly agreed and the majority 92.9% of respondents agreed that taxpayers are able to keep records, file returns and pay tax on time without intervention of tax officials and this statements was rated and has high mean core equal to 4.93; SD=0.26). This implies that respondents have homogeneity perception responses on above statements.

The findings show that none of respondents disagreed or strongly disagreed and 1.8% of respondents were neutral whereas 35.7% of respondents strongly agreed and the majority 62.5% of respondents agreed that taxpayers who do not file their returns are followed up and has high mean core equal to 4.34; SD=0.51). This implies that respondents have heterogeneity perception responses on above statements.

The findings show that 1.8% of respondents disagreed and 3.6% of respondents were neutral while 14.3% of respondents agreed and the majority 80.4% of respondents agreed that all taxpayers are aware of the consequences of delay or non remittance of tax and this statements was rated and has high mean core equal to 4.73; SD=0.62). This implies that respondents have heterogeneity perception responses on above statements.

The results demonstrated that 3.6% of respondents disagreed and 1.8% of respondents were neutral while 5.4% of respondents agreed and the majority 89.3% of respondents agreed that all taxpayers disclose income earned for tax purpose and this statements was rated and has high mean core equal to 4.80; SD=0.64). This implies that respondents have heterogeneity perception responses on above statements.

The overall view of respondents on the level of tax compliance in Gasabo district was rated at very high mean score 4.53 which implies there is strong existence fact and standard deviation equal to 04.9 which implies that respondents have the same view regarding to the level of tax compliance in Gasabo district was very high in Gasabo district via using electronic billing machine. These findings are in the line with Kakembo, (2007), revealed that tax compliance is

significantly positively related to revenue collection. Mutuality one of the components of relational norms was also found to be significantly related to tax compliance. He said Intention to pay taxes is also significantly positively related to attitudes and tax compliance which would help to increase on domestic revenue. Therkildsen, (2004) said that the act of tax counseling improves on tax compliance of tax payers, hence increasing performance in revenue collection in a country. He found out that the objective of tax counseling is to assist taxpayers in matters related to tax and encourage the voluntary submission of accurate tax returns and payment of taxes. Generally, tax counseling offices provide advice on the interpretation and application of tax laws, procedures for filing returns and applications.

Regarding the aspect of tax maximization RRA indicated that, the introduction of EBM has improved tax collection to make revenue available for carrying government services. The RRA official said; it is much easier to identify who did not pay tax or use the device since we monitor each device separately and identify problems. We can see all users of the devices through the device mac address. We normally see taxpayers who fail to use the device properly. However for those not registered we cannot monitor their tax payment behaviour." They however remarked that there are still a lot of tax payers that are not fully using the EBM to maximize tax collection. In contrast, tax payers merely commented and accepted that it is a government procedure or duty to increase tax collection. One of a tax payer reported that; "we pay tax but we don't see any changes in social services, we see officials gaining and we continue to suffer as a community.

After that we understand the position of participants to the study on how they perceive the awareness of taxpayers to use EBM in their service and in line of verifying the achievement of our second objective, researcher further consulted the services of RRA, especially in the Department of EBM and asked recorded data on the improvement has be done in the tax-collection since the EBM has been integrated. In addition, these recorded data permit the researcher to attain the main aim of the research topic in ensuring whether really the use of EBM for the taxpayers has contributed to the increase of tax collection. For adequacy of data we asked this question; "Please show us how the taxes have increased from 2012 to 2016 through the use of EBM."The recorded data have been represented in the following table according the period of our research. The findings are consistent with Naibei*et al*.(2011) found that the most common stated reasons for adoption of this new system of tax collection were to secure sales information followed by enhancing tax compliances and also the findings indicated that the system was introduced so as to reduce invoice fraud in Kenya which was being conducted before.

c) Online tax registration in Gasabo district

The study sought to assess the level of tax registration in Gasabo district. The respondents were asked where agreed or disagreed with the statements regarding tax registration. The results from the respondents were summarized in the table below.

Table 3: Online tax registration and tax compliance

	SD		D		N		A		SA		Mean	St. Dev
	fi	%	fi	%	fi	%	fi	%	fi	%		
Every taxpayer identified is always registered.	3	5.4	0	0.0	0	0.0	8	14.3	45	80.4	4.64	.94
A quick check is done on taxpayers to establish if they are correctly registered.	3	5.4	5	8.9	0	0.0	10	17.9	38	67.9	4.34	1.20
The ranking of eligible tax payable is based on taxpayer's income.	0	0.0	3	5.4	3	5.4	11	19.6	39	69.6	4.54	.83
Tax offices are effective in identifying and registering all potential taxpayers.	1	1.8	2	3.6	3	5.4	10	17.9	40	71.4	4.54	.89
Identification methods are effective in registering all potential taxpayers.	0	0.0	4	7.1	1	1.8	15	26.8	36	64.3	4.48	.85
All registered tax payers are followed up to find out if they are active.	4	7.1	2	3.6	2	3.6	4	7.1	44	78.6	4.46	1.19
All taxpayers' basic information are collected and recorded on a timely basis.	4	7.1	5	8.9	2	3.6	5	8.9	40	71.4	4.29	1.30
Taxpayers are able to register without intervention of tax officials.	1	1.8	3	5.4	1	1.8	10	17.9	41	73.2	4.55	.91
Overall mean											4.48	1.01

Source: Primary data, 2019

The results indicated that the majority 80.4% of respondents strongly agreed that every taxpayer identified is always registered with (Mean =4.64 and standard deviation of 0.94), 67.9% of respondents strongly agreed that a quick check is done on taxpayers to establish if they are correctly registered with (Mean =4.34 and standard deviation of 1.20), 69.6% of respondents strongly agreed that the ranking of eligible tax payable is based on taxpayer's income with (Mean =4.54 and standard deviation of 0.83), 71.4% of respondents strongly agreed that tax offices are effective in identifying and registering all potential taxpayers with (Mean =4.54 and standard deviation of 0.89), 61.8% of respondents strongly agreed that identification methods are effective in registering all potential taxpayers with (very high Mean =4.48 and standard deviation of 0.85), 78.6% of respondents strongly agreed that All registered tax payers are followed up to find out if they are active with (very high mean =4.46 and standard deviation of 1.19), 71.4% of respondents strongly agreed that all taxpayers' basic information are collected and recorded on a timely basis

with (very high mean score =4.29 and standard deviation of 1.33) and finally 73.2% of respondents strongly agreed that taxpayers are able to register without intervention of tax officials. with (Mean =4.55 and standard deviation of 0.91). The overall view on respondents on the level of tax registration in Gasabo district was very high with mean score 4.48 which implies a strong evidence of the existence of the fact and standard deviation was 1.01 which implies that respondents have heterogeneity perception on the level of tax registration in Gasabo district. The RRA official said; it is much easier to indentify who did not pay tax or use the device since we monitor each device separately and identify problems. This findings is consistent with RRA (2017), said that the aim of RRA in introducing EBM is to increase the registration of all taxpayers in the national database and the issuing of a national PIN for everybody. If the political will exists that all taxpayers or even all citizens should be registered under national PINs, incentives have to be created to encourage people to register with the national tax authorities

Table 4: Tax revenue by tax type

Revenue	2012/2013		2013/2014		2014/2015		2015/2016		2016/2017	
	(Rwf bn)	%	(Rwf bn)	%	(Rwf bn)	%	(Rwf bn)	%	(Rwf bn)	%
PAYE	174.1	26.7	185.9	24.3	205.4	23.9	229.7	23.3	257.7	23.70
Profit tax	105.2	16.1	122.2	16.0	150.7	17.5	159.3	16.1	190.5	17.50
VAT	199.7	30.6	259.1	33.9	286.2	33.3	323.2	32.8	352.4	32.40
Excise tax	99.8	15.3	110.4	14.5	120.6	14.0	138.1	14.0	134.2	12.30
Import duty	48.2	7.4	57.9	7.6	63.5	7.4	75.1	7.6	76.5	7.00
Other	25.0	3.8	27.9	3.7	32.7	3.8	61.3	6.2	75.6	7.00
Total revenue	651.9	100	763.4	100	859.1	100	986.7	100	1.086.8	100

Source: RRA, report (2012-2016)

The table above indicated tax revenue by tax type in Rwanda, the results indicated that VAT has been increased after introducing electronic billing machine in Rwanda where in 2012/2013, VAT was199.7(30.6%) out of total revenue; In 2013/2014, VAT was 259.1(33.9%) out of total revenue. In 2014/2015, VAT was

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286.2(33.3%) out of total revenue. In 2015/2016, VAT was equal to 323.2(32.8%) out of total tax revenue in Rwanda while in 2016/2017, VAT was equal to 352.4 (32.4%) out of total tax revenue in Rwanda. This implies that after implementation of electronic billing machine VAT has been increased over the last five years.

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.748[a]	.560	.450	6.72758

a. Predictors: (Constant), EBM, online declaration and payment, online registration

The results show that 56% of the variation in the tax compliance is caused by ICT tax reforms. This shows that there is strong relationship between ICT tax reforms and tax compliance.

Table 6: ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	454.176	1	454.176	8.345	.001[a]
	Residual	90.521	5	18.104		
	Total	544.697	6			

a. *Predictors: (Constant), EBM, online declaration and payment, online registration*

b. *Dependent Variable: Tax revenue*

The test on the strength of the model to be able to predict tax revenue shows that the model is statically significant since the P-value is less than 5%. This therefore means that the independent variables can statistically predict the tax compliance.

Table 7: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.494	.116		4.758	.002
	EBM	.907	.260	.427	3.488	.030
	Online declaration and payment	.365	.154	.249	2.370	.050
	Online registration	3.476	1.087	.455	3.198	.037

a. *Dependent Variable: Tax revenue*

Results in table 7 show the strength of each variable in the predication of the dependent variable. The result shows that all variables are statistically significant since their P- values are less than 5%. The results further revealed that there is positive relationship between EBM, online tax declaration and payment and on line tax registration and tax compliance.

V. Conclusion and Recommendations

a) Conclusion

The findings established that ICT tax reforms contributes to timely tax payment and reduced operational cost for both RRA staffs and clients. The system has also made clients pay tax from any business location, has made communication collaboration between tax payers easier, has made tax auditing/accountability easier and lastly has increased Revenue collection. Analyses of the relationship between ICT tax reforms and tax compliance have indicated a strong relationship. However, the results indicated that ICT tax reforms only contribute 56% on the tax compliance. Therefore, ICT tax reforms are not complete measures of tax compliance other factors which enhances tax compliance should be considered.

b) Policy Recommendations

The researcher has come up with the following recommendations in order to support electronic tax management system and revenue collection in Rwanda

i. Other factors such as tax education and tax penalties should be employed to enhance tax compliance since ICT tax reforms only contributes 56% on the tax compliance.

ii. RRA should employ skilled personnel with more experience on network management in order to ensure the reliability of network and a need to train the taxpayer on the use ICT in the tax management.

iii. RRA management should keep on upgrading their e tax technology in order to have an up to date system for effective service delivery

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