

Effect of Internal Controls and Data Integration on Fiscal Performance of Narok County Government, Kenya

Ngetich Gloria Jepchirchir

Student, School of Business and Entrepreneurship
Jomo Kenyatta University of Agriculture and Technology, Kenya

Dr. James Gitari

Lecturer, School of Business and Entrepreneurship
Jomo Kenyatta University of Agriculture and Technology, Kenya

Abstract: *Internal controls and data integration as components of revenue automation streamlines collection workflows, reduces the workload of the collectors, and minimizes fraud. They therefore enhance efficiency and fiscal performance. However, the adoption of automated revenue collection in Kenyan County governments is progressing slowly and it is being applied partially. As a result, most county governments have not been able to meet revenue collection targets and expenditure needs. The current study analyzed the effect of internal controls and data integration on fiscal performance of Narok County Government. The study employed descriptive research design. The target population was the 73 county government staff in revenue collection, accounts/finance and administrative departments. Census technique was used where all the 73 officials were involved in the study. Data was collected through structured questionnaires. Descriptive findings revealed that internal controls and data integration affect the fiscal performance of Narok County Government. Correlation analysis results indicated that the relationship between internal controls and fiscal performance was significant ($r=0.467^{**}$; $p=0.000$) at 99% confidence level. The results implied that internal controls affect fiscal performance. The relationship between the data integration and fiscal performance was also significant ($r=0.718^{**}$; $p=0.000$). Therefore, the data integration component of revenue automation significantly affect the fiscal performance. Regression analysis results showed beta coefficients ($\beta= 0.209$; $p= 0.001$) and ($\beta=0.499$; $p= 0.000$) for internal controls and data integration respectively which meant that they significantly enhance fiscal performance. It was concluded that internal controls provide assurance for revenue collection and expenditure in an effective manner and according to the fiscal planning. Data integration leads to new and better collection approaches that enhances county's revenue collection. It is recommended that County Government of Narok should segregate processes for internal controls and increase oversight over revenue collections. They should also ensure that developers and implementers of data integration technology understand the County's fiscal objectives in order to achieve adequate revenue collections and better fiscal performance.*

Key Words: *Internal Controls, Data Integration, Fiscal Performance, Narok County Government*

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I. Introduction

Automation of revenue collection promote proper control of overall revenue receipts which lead to sound fiscal performance (Blesse & Baskaran, 2016). Internal controls and data integration are key components of automation. Internal controls are usually established based on a risk-oriented approach of an organization to ensure that they can reduce revenue losses (Sow & Razafimahefa, 2017). Effective internal control reduces the risk of revenue loss and helps to ensure that revenue planning information is complete, accurate, and reliable. Internal controls streamline revenue plans to achieve the fiscal performance objectives of the local governments (Narbón-Perpiñá & De Witte, 2018). Preventative internal controls specifically avert revenue losses. They typically comprise policies and procedures that protect the revenue bases (Liu, Shi, Xue, & Wang, 2019). Data integration is established within the automation framework to enhance revenue collection by local governments (Liste & Sørensen, 2015). Data integration in the context of revenue collection entails combinations of information from different revenue sources. It combines revenue records from intergovernmental transfers, land and property rates, business permits, cess, and parking fees into a single and unified view (Narbón-Perpiñá & De Witte, 2018). Therefore, data integration is meant to give the local authorities streamlined operations that can keep transaction costs minimal (Liu et al, 2019).

In Kenya, a study by Njoroge (2018) showed a strong link between automation and revenue collection. As such, automation of revenue systems improves revenue collection. Furthermore, Gituma (2017) established that government policy, rules, and regulations, corruption, employee qualification, skills and training, technology, and information systems affect optimal revenue collection by the County Government of Embu. Similarly, a research by Madegwa and Namusonge (2018) established that automation through aspect of communication affected revenue collection in the County Government of Trans-Nzoia. However, automation has been applied partially in county governments and its purpose is yet to be fully attained. Automation of revenue collection and its application has also encountered challenges including lack of necessary skills of the revenue collectors. Moreover, partial automation implies that revenue collection is not fully automated nor cashless hence collectors may not bank county funds on daily basis (Madegwa & Namusonge, 2018). This has opened avenues for misuse of available revenues and eventually affect the fiscal performance of county Governments in Kenya.

Internal controls and data integration as components of revenue automation streamlines collection workflows, reduces the workload of the collectors, and minimizes fraud (Blesse & Baskaran, 2016). They therefore enhance efficiency and fiscal performance. However, the adoption of automated revenue collection in Kenyan County governments is progressing slowly and it is being applied partially. As a result, most county governments have not been able to meet revenue collection targets and expenditure needs. A report by the controller of budget indicated that counties collected Kshs.12.72 billion against the target of 54.41 billion in the 2019/2020 financial year. Collection of inadequate revenue subjects county governments to risks of failing to deliver services and accumulation of pending bills which amounts to poor fiscal performance (Gituma, 2017). There has been intensified need for sufficient revenue in county governments to improve fiscal performance through meeting expenditure needs and service delivery to the county residents. Automated revenue systems promote efficiency and increase revenue collection (Narbón-Perpiñá et al, 2018). Nevertheless, the main aspects of automation comprising data integration and internal controls have not been discussed satisfactorily in the previous research works in Kenya. The current study examined the effect of internal controls and data integration on the fiscal performance of the Narok County Government.

II. Objectives of the Study

- i. To determine the effect of internal controls on fiscal performance of Narok County Government.
- ii. To determine the effect of data integration on fiscal performance of Narok County Government.

III. Literature Review

According to Kenton and Mansa (2020) internal controls are a organizations' processes, rules and procedures for maintaining the accuracy of financial and accounting records, encouraging transparency, and preventing fraud. In addition to compliance with laws and regulations and preventing workers from stealing assets or committing fraud, internal controls contributes to improved performance. Organization's internal control mechanism protects the interests of stakeholders and safeguards financial reports hence leading to reasonable investment and credit decisions (Okidi, Akello, & Opio, 2021). Consistency of an internal control system of an organization has a major impact on the accuracy of management decisions. However, organizations that have ineffective internal control systems encounter management errors in their operations (Doxey, 2019). Internal control involves control environment, communication and risk assessment strategies. Control environment is a set of guidelines, procedures and processes that provide the basis for the consistency of the organization's internal control. A successful control climate produces a supportive atmosphere and sets the tone for effective internal control to be enforced (Kinyua, Gakure, Gekara, & Orwa, 2015).

Effective communication within an organization empowers employees to endorse and prescribe internal control bearing on sensible execution which is utilized as a piece of the ordinary tasks of a business (Agbenyo, Jiang, & Cobblah, 2018). More organizations are acknowledging the necessity of internal communications. Communication makes possible the interaction between members of the working team. A manager should be the first to establish bridges between the members of the organization, through a careful and effective communication. Through communication, organization activities scroll correctly (Bucăța & Rizescu, 2017). Risk assessment is also an integral part of internal controls. County governments ought to set up automated monitoring activities to accomplish their fiscal goals and mission effectively and efficiently and to minimize the risks that may impede their accomplishment in addition to coping rapidly and adequately with any extraordinary or unexpected occurrence as soon as it is detected (Mahadeen, Al-Dmour, Obeidat, & Tarhini, 2016). The theory of reasoned action explains and predict behavior based on attitudes, norms and intentions. The constructs of TRA are evaluations of behavioral outcomes which leads to attitude, then normative beliefs, motivation to comply which leads to subjective norms. Internal controls are based on evaluations and aims to minimize risks and protect assets, ensure accuracy of records, promote operational efficiency, and encourage adherence to policies, and regulations (Doxey, 2019). The TRA assumes that the behavior under investigation is

under volitional control, that is, the revenue collectors believe that they can execute the behavior whenever they are willing to do it.

Revenue automation incorporates the aspect of data integration which is the process of combining data residing at different sources and providing the user with a unified view of these data (Ahamed, Ramkumar, & Hariharan, 2015). The driving force of data integration is the ability for companies to transform their business through the automation and integration of businesses processes (Mahadeen *et al.*, 2016). Additionally, companies are expanding to a value chain approach, including customers and suppliers. Enterprise application integration and master data are the critical institution information related to the transactional and analytical operations of the county governments. Master data management is a combination of applications and technologies that consolidates, cleans, augments corporate data and synchronizes it with all applications, business processes, and analytical tools. This results in significant improvements in operational efficiency, accurate reporting and strategic decision making (Dewi, Utami, & Sudaryatno, 2019). Master data management should therefore be a system of business processes and technology components that ensures information about business objects, such as materials, products, employees, customers, suppliers, and assets is well protected. Diffusion of innovation theory explains data integration and revenue automation. The key components of diffusion of innovation theory include innovation, communication channels, time, and social system. This is applied by County governments to manage and protect revenue data with aim of improving fiscal performance.

Significant research gaps were identified from the empirical review and formed the basis of the current research. A study by Waithera (2015) established that online process of automation of revenue collection processes influence Meru County Government's performance. Based on the findings, the online payment process of automation of revenue collection and performance have a significant relationship. Furthermore, the performance of County Government of Meru is influenced by the response process of automation of revenue collection processes. The variables for the study were online process, online receipting, online payment and online response which differ from the current study. The variables for the current study were internal controls and data integration.

Madegwa, Makokha, and Namusonge (2018) researched on the effects of automation of revenue collection on the performance of County Government of Trans Nzoia. Findings established that automation of revenue systems lead to time saving, compliance with government rules, controlled cross-border flow of goods, revenue payment channels and that collection costs which influence county performance. Moreover, the study concluded that county performance is dependent on online response process of automation of revenue collection processes. The study also established that risk management, tax data entry and feedback influence performance. From the findings of this study, some elements of automation such as Enterprise Application Integration (EAI), data storage and migration and master data management were not well discussed and were the focal point of the current research.

Jananga, Bogonko, and Ong'yo (2018) examined the use of Automation in revenue collection in Nakuru county government Kenya. The study adopted a survey research design, which covered the sub – counties of Nakuru county government, namely Nakuru East, Nakuru West, Njoro, Molo, Kuresoi North and South, Rongai, Subukia, Bahati, Gilgil and Naivasha. Based on the study findings, it is concluded that, there has been increased number of citizens using automation hence effective revenue collection. Automation ensures accuracy/ competence in revenue collection, timely recording of revenue; it has enhanced regulation in revenue collection and has led to controlled revenue collection in the County.

Ngeno (2018) established that automation, integrated internal control process, efficiency and human resource management affect revenue collection to a great extent. Moreover, a study by Otinga, Sechero and Otinga (2020) established that automation of revenue collection significantly improve revenue generation in county government. Automated revenue systems minimize financial embezzlements, improve revenue mapping initiatives and enable county governments to identify all sources of county revenues thus boosts revenue generation and fiscal performance. However, the current study focused on control environment, communication and risk assessment parameters and fiscal performance of county government of Narok.

IV. Research Methodology

The current research adopted descriptive research design. Descriptive research design helps in collection of detailed information for analysis (Easterby-Smith, Jaspersen, Thorpe, & Valizade, 2021). The target population was the 73 county staff attached to the revenue collection, accounts / finance and administrative divisions. Census technique was employed where all the 73 respondents were involved in the study. The researcher used standardized questionnaires for data collection. Questionnaires were used since they have the ability to provide anonymity with the respondents which was a significant benefit as the study was on sensitive issues of revenues. Descriptive and inferential data analysis methods were used. The analysis of data was aided by Statistical Packages for Social Sciences (SPSS). Means, percentages, and standard deviations were

used in the descriptive analysis. In making inferences on the relationship between variables, correlation analysis and multiple linear regression were used.

V. Results

The study aimed to determine the effect of internal controls and data integration on fiscal performance of Narok County Government. The researcher conducted descriptive and inferential analysis.

5.1 Effect of Internal Controls on Fiscal Performance of Narok County Government

The study sought to determine the effect of internal controls as a component of revenue automation on fiscal performance of Narok County Government. The findings are illustrated on Table 1.

Table 1: Effect of Internal Controls on Fiscal Performance of Narok County Government

Internal Controls	N	SA 5	A 4	N 3	D 2	SD 1	Mean	Std. Dev.
1. We have effective internal controls for revenue collection through utilization of automated revenue systems.	61	52.5%	31.1%	11.5%	4.9%	-	4.31	0.867
2. Our control environment appropriately sets tone for revenue collection activities and reliability of revenue reporting.	61	26.2%	21.4%	47.5%	1.6%	3.3%	3.66	0.998
3. We have effective automated systems for communication regarding revenue collection operations.	61	47.5%	34.4%	14.8%	3.3%	-	4.26	0.835
4. Our automated correspondence with revenue payers and public opinion enhance revenue collection.	61	42.6%	37.7%	13.1%	3.3%	3.3%	4.13	0.991
5. We have effective risk assessment software with a complete risk management framework	61	26.2%	1.8%	27.9%	16.4%	11.5%	3.31	1.336
6. Automated monitoring activities minimize risks in revenue collection operations.	61	55.7%	19.7%	19.7%	1.6%	3.3%	4.23	1.039
7. Risks related to information systems (i.e., adequacy of backup systems, etc.) are carefully addressed by management.	61	24.6%	29.5%	32.8%	6.6%	6.6%	3.59	1.131

Descriptive findings of the study established that internal controls as an element of revenue automation affected the fiscal performance of Narok County Government. 52.5% of the respondents strongly agreed while 31.1% agreed hence at least 83.6% concurred (mean= 4.31; std.dev=0.867) that county government of Narok has effective internal controls for revenue collection through utilization of automated revenue systems. Utilization of automated revenue systems improve revenue collection which enhances fiscal performance. However, 47.5% of the respondents were indifferent (mean= 3.66; std. dev= 0.998) regarding the effect of control environment on revenue collection activities and reliability of revenue reporting. 81.9% of the respondents agreed (mean=4.26; std. dev= 0.835) that the County Government of Narok has effective automated systems for communication regarding revenue collection operations. They further concurred (mean= 4.13; std. dev= 0.991) that automated correspondence with revenue payers and public opinion enhance revenue collection. 27.9% of the respondents had differing opinions (mean=3.31; std. dev= 1.336) on the effectiveness of risk assessment software and risk management framework. 55.7% strongly agreed (Mean= 4.23; Std. Dev=1.039) that automated monitoring activities minimize risks in revenue collection operations.

Based on the descriptive research findings, the fiscal performance of county government of Narok depend on the effective and efficient collection of revenue. The results further shows that efficiency is determined by the automation of revenue collection systems. The need for optimization in regard to collection require proper internal controls. Internal controls provide assurance that a County's fiscal objectives are achieved and undesired revenue collection based risks are detected and corrected according to compliance frameworks. Internal controls promote efficiency, reduce risks of revenue loss and contribute to stable fiscal performance.

5.2 Effect of Data Integration on Fiscal Performance of Narok County Government

The study aimed to establish the effect of data integration on fiscal performance of Narok County Government. Findings are shown on Table 2.

Table 2: Effect of Data Integration on Fiscal Performance of Narok County Government

Data Integration	N	SA 5	A 4	N 3	D 2	SD 1	Mean	Std. Dev.
1. Our revenue information can effectively be shared through the integrated data systems.	61	24.6%	55.8%	18%	1.6%	-	4.03	0.706
2. We have strong local data centers for safe storage and transmission of data.	61	41%	37.7%	18%	3.3%	-	4.16	0.840
3. Our county has appropriate data migration platform that meets data quality requirements during data integration	61	26.2%	13.1%	42.6%	14.8%	3.3%	3.44	1.133
4. Enterprise Application Integration is fully operational in our county government.	61	24.6%	19.7%	36.1%	9.8%	9.8%	3.39	1.242
5. We have operational cloud service models for data integration in revenue collection.	61	45.9%	37.7%	13.1%	3.3%	-	4.26	0.814
6. Master Data Management software sand technology that consolidates, cleans, increases and synchronizes organizational data is functioning.	61	42.5%	27.9%	23%	6.6%	-	4.07	0.964

Descriptive findings showed that data integration affect the fiscal performance of Narok County Government. 24.6% of the respondents strongly agreed and 55.8% agreed (mean=4.03; std. dev= 0.706) that revenue information can effectively be shared through the integrated data systems. 78.8% of the respondents at least agreed (mean=4.16; std. dev= 0.840) that strong local data centers for safe storage and transmission of data. However, 36.1% of the respondents had differing opinions (mean=3.39; std. dev= 1.242) enterprise application integration was fully operational in our county government. 86.6% of the respondents at least agreed (mean= 4.26; std. dev= 0.814) that they have operational cloud service models for data integration in revenue collection. 42.5% of the respondents strongly agreed (mean= 4.07; std. dev= 0.964) that master data management software and technology consolidates, cleans, increases and synchronizes organizational data. The findings showed that data integration as a component of revenue automation play a greater role in streamlining revenue collection by county government of Narok. Data integration and revenue automation at large is central to improving county governments' fiscal performance. It ensures that they are digitally enabled and data-driven so as to effectively serve a diverse array of revenue payers. Effective data integration transforms the core revenue collection thereby improving operational efficiency and fiscal performance.

5.3 Descriptive Statistics for Fiscal Performance of Narok County Government

The researcher sought views of the respondents on the fiscal performance of Narok County Government and findings are illustrated on Table 3.

Table 3: Descriptive Statistics for Fiscal Performance of Narok County Government

Fiscal Performance	N	SA 5	A 4	N 3	D 2	SD 1	Mean	Std. Dev.
1. Our county revenue collections from trade licenses, house rents, cess fees, and property rates have increased for the past five years.	61	55.8%	31.1%	11.5%	1.6%	-	4.41	0.761
2. Our revenue collections for the past years have been meeting the revenue targets.	61	19.7%	27.9%	42.6%	6.6%	3.3%	3.54	0.993
3. Our revenue collections meets the county government's budgetary expenditure needs.	61	37.7%	55.7%	6.6%	-	-	4.31	0.593
4. Our automated revenue systems have reduced the costs of revenue collections.	61	36.1%	45.9%	18%	-	-	4.18	0.719

The findings of the study established that fiscal performance is indicated by amount of revenue collected, ability of revenue collected to meet targets and budgetary expenditures and cost of revenue collection. The findings indicated that 86.9% of the respondents at least agreed (mean=4.41; std. dev= 0.761) that county revenue collections from trade licenses, house rents, cess fees, and property rates have increased for the past five years. Increase in level of revenues is an indicator improvement in fiscal performance. However, they had indifferent views (mean=3.54; std. dev) on revenue collections and revenue targets for the county governments.

55.7% of the respondents agreed (mean=4.31; std. dev=0.593) that revenue collections meets the county government’s budgetary expenditure needs. 36.1% strongly agreed while 45.9% also concurred that (mean=4.18; std. dev= 0.719) that automated revenue systems have reduced the costs of revenue collections. This has contributed to improved fiscal performance in terms of revenue collection and utilization aspects of Narok County Government. Findings shows that revenue automation components of internal controls and data integration affect the fiscal performance. Fiscal performance is largely determined by the level of revenue collection. The results also indicate that automated revenue collection enable County Governments to meet revenue targets and expenditure needs. Furthermore, revenue automation minimize collection costs and risks thereby enhancing efficiency and fiscal performance.

5.4 Correlation Analysis

Correlation analysis was undertaken to establish the strength and direction of relationship between the between revenue automation components; internal controls and data integration and the fiscal performance. The findings are illustrated on Table 4.

Table 4: Correlation Matrix

		Fiscal Performance	Internal Controls	Data Integration
Fiscal Performance	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	61		
Internal Controls	Pearson Correlation	.467**	1	
	Sig. (2-tailed)	.000		
	N	61	61	
Data Integration	Pearson Correlation	.718**	.250	1
	Sig. (2-tailed)	.000	.052	
	N	61	61	61

** . Correlation is significant at the 0.01 level (2-tailed).

Correlation analysis shows that there was a positive and significant relationship between internal controls and fiscal performance of Narok County Government. The correlation coefficient (r=0.467**; p=0.000) was significant at 99% confidence level. This implies that revenue automation enhance control environment, communication and risk assessment aspects in revenue collection. This contributes to increased amounts of revenue collected, improves ability of revenue collection to meet targets and budgetary expenditure needs. Furthermore, internal controls leads to reduction of revenue collection costs. Therefore, an improvement in internal controls in regard to revenue automation leads to improved fiscal performance.

The results also indicated that the relationship between the data integration and fiscal performance was strong, positive and significant. The correlation coefficient (r=0.718**; p=0.000) was significant at 5% significance level. This implied that data integration component of revenue automation significantly affects the fiscal performance. Enterprise application integration, data storage and migration and master data management leads to increased revenue collections thus promote fiscal performance of Narok County Government.

5.5 Regression Analysis

Regression analysis was performed to predict the changes or variations in fiscal performance from the changes in the revenue automation; internal controls and data integration. Results are shown on Tables 5, 6, and 7.

Table 5: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.777 ^a	.604	.590	.28716

a. Predictors: (Constant), Internal Controls, Data Integration

Regression model summary shows a strong relationship between revenue automation and fiscal performance. The correlation coefficients was R= 0.777 with coefficient of determination R²= 0.604. It implies that 60.4% of variation in fiscal performance is accounted for by variations in internal controls and data integration.

Table 6: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.283	2	3.641	44.161	.000 ^b
	Residual	4.783	58	.082		
	Total	12.066	60			

a. Dependent Variable: Fiscal Performance

b. Predictors: (Constant), Internal Controls, Data Integration

The Analysis of Variance (ANOVA) test the model fitness and overall significance. The F-value was 44.161 and significant at 95% confidence level. It implied that all revenue automation aspects of internal controls and data integration taken together influenced fiscal performance.

Table 7: Regression Coefficients^a

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	1.350	.301		4.484	.000
	Internal Controls	.209	.058	.307	3.595	.001
	Data Integration	.499	.066	.641	7.509	.000

a. Dependent Variable: fiscal performance

The study applied this regression model;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

Where;

Y = Fiscal Performance

β_0 = Regression constant

β_1, β_2 = Beta Coefficients

X_1 = Internal Controls

X_2 = Data Integration

ε = Standard error of the estimate

The regression model was interpreted as; $Y = 1.350 + 0.209X_1 + 0.499X_2$

The regression results shows that one unit change in internal controls leads to 0.209 units change in fiscal performance. One unit change in data integration contributed to 0.499 units change in fiscal performance. The beta coefficient for internal controls ($\beta = 0.209$; $p = 0.001$) was significant at 5% significance level. The beta coefficient for data integration ($\beta = 0.499$; $p = 0.000$) was significant at 95% confidence level. The regression results revealed that internal controls and data integration affected fiscal performance of Narok County Government.

VI. Conclusion

In conclusion, the research findings showed that internal controls provide assurance for revenue collection and expenditure in an effective manner and according to the fiscal planning. Internal controls help county government to achieve their fiscal objectives through checks and balances which help to prevent fraud, waste, and abuse of revenue collections. Data integration is vital in analysis of revenue data as it recognizes the revenue trends and aid decision making for improved revenue collection. Revenue automation expands the scope of revenue collection since data integration leads to new and better collection approaches that enhances county revenues. Effective revenue collection strategies depends on integrated information; enterprise application integration, data storage and migration and master data management to ensure revenue administrators can react quickly to the needs of the revenue collectors and the payers.

VII. Recommendation

County Government of Narok should segregate processes for internal controls and increase oversight over revenue collections. They should also ensure that developers and implementers of data integration technology understand the County's fiscal objectives in order to achieve adequate revenue collections and better fiscal performance.

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