

EFFECT OF INFORMATION TECHNOLOGY ON REVENUE COLLECTION AMONG COUNTY GOVERNMENTS IN KENYA

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ABSTRACT

This study examines the effect of information technology (IT) on revenue collection among county governments in Kenya. The specific objectives of the study were to evaluate the extent to which mobile payments, IT training, e-government platform adoption, and cyber security measures respectively affected the revenue collection among county governments in Kenya. Revenue collection in Kenyan counties remains a pressing concern, and technology is increasingly viewed as a potential solution to enhance efficiency and accountability. Unified theory of Acceptance and use of technology, Human capital theory, Diffusion of Innovation theory, Enterprise risk management theory reinforced the study. This study used descriptive research design and deployed primary data collection using a structured questionnaire. Sampling was conducted using purposeful simple random sampling. The sampling frame comprises the staff dealing with revenue collection, IT, and finance related to revenue collection in all the 47 counties under investigation. The analysis was done using R programming software. The findings reveal that while mobile payments offer convenience and accessibility, they do not show a statistically significant impact on revenue collection. In contrast, IT training for county staff and the adoption of e-government platforms positively correlate with improved revenue collection, underscoring the importance of operational efficiency and streamlined digital service delivery. The study also finds that although cyber security is crucial for protecting sensitive data, it does not significantly influence revenue generation in the short term. These results suggest that counties should prioritize IT training and expand e-government platforms to enhance revenue collection effectiveness. Future research could explore longitudinal impacts, sector specific studies and cross analysis across counties for a more comprehensive understanding.

Keywords: Cyber security measures, E- Government platform adoption, Information Technology Training, Mobile payment, Revenue collection.

1.0 INTRODUCTION

1.1 Background of the Study

In response to the need for enhanced grassroots service delivery and development, the Kenyan 2010 Constitution established 47 devolved county governments. The underlying goal was to bring services and development closer to the people. Central to the achievement of these goals is revenue collection, which finances both recurrent and development budgets. Revenue collection, broadly defined, refers to the process through which governments obtain taxes from

citizens, businesses, institutions, and residents [1]. Effective and efficient revenue systems are crucial for service delivery, particularly in developing countries where challenges such as tax evasion are prevalent [2, 3].

Kenya and its county governments face persistent revenue collection challenges, attributed largely to limited technological application and insufficient IT training [4]. This study investigates the influence of mobile payments, IT training, adoption of e-government platforms, and cybersecurity on revenue collection within Kenya's county governments. These factors were identified through literature emphasizing their significant roles in enhancing tax mobilization across global, regional, and local contexts.

Globally, there has been a marked shift from traditional paper-based tax systems to digital platforms. The integration of IT has enabled governments to overcome challenges such as administrative delays, high costs, and corruption. These innovations are instrumental in increasing efficiency and tax compliance [5]. Research across 96 developing countries confirms the positive influence of ICT readiness and utilization on tax revenue [6]. In Finland, Wandaogo et al. [7] found that mobile payments increased transparency, thereby improving compliance and reducing evasion. Uyar et al. [8] observed similar outcomes in countries with higher ICT adoption. Further, Hwang et al. [9] reported that continued IT training in Singapore enhanced tax processing timeliness and accuracy. Despite heavy investment in e-filing in the USA, Carter et al. [10] highlighted that usage was undermined by personal perceptions related to security and self-efficacy, demonstrating that cybersecurity remains a vital determinant of technology adoption.

Regionally, African governments have increasingly embraced IT to improve revenue systems. For instance, South Africa achieved a 9.7% increase in tax revenues during the 2022/2023 fiscal year, attributed to digital tax administration and improved voluntary compliance [11]. Similarly, Tanzania saw its tax-to-GDP ratio grow from 10% in 2004/2005 to 11.8% in 2022/2023, reflecting positive IT implementation outcomes [12]. In Zambia, Lubinda [13] reported that mobile payments significantly influenced tax compliance. Nigeria's e-government platforms enhanced transparency and citizen engagement through real-time data access [14]. However, Ramsal et al. [15] found that inadequate training hindered effective use of digital tools in Zanzibar, emphasizing the need for IT training. In a broader sense, cybersecurity investments play a crucial role in protecting data integrity and maintaining accountability [16].

In the Kenyan context, empirical studies provide mixed insights. Maiyo et al. [17] found that cashless methods positively affected revenue in Uasin Gishu County. [18] concluded that training significantly impacted revenue in Nairobi County. Chege et al. [18] emphasized that digital tools' effectiveness relies on user proficiency. Further, Maseru [19] demonstrated a significant correlation between cybersecurity training and tax system performance at the Kenya Revenue Authority (KRA), findings supported by Njoroge [20], who showed that robust cybersecurity systems enhanced revenue protection. However, existing research tends to focus on specific counties or national agencies such as KRA, leaving a notable empirical gap regarding how county governments broadly utilize IT to improve revenue collection.

1.2 Information Technology and Revenue Collection

Information technology refers to systems for collecting, storing, processing, and analyzing data. As Melville et al. [21] noted, information systems integrate human resources with hardware and software. Globally, mobile payment systems have emerged as pivotal digital technologies enhancing tax administration [22]. Defined variously as the use of mobile devices to initiate, authorize, and confirm financial transactions [23–25], mobile payments provide a flexible and efficient method for revenue collection. Despite their potential, their effectiveness depends on coverage, adoption rates, and perceived security [7, 26, 27].

In South Africa, the high adoption of mobile payments is reflected in the 51 million mobile money accounts reported in 2019 [28]. Eksteen and Humbani [29] identified perceived proximity risks as a barrier to adoption. In Nigeria, Saidu et al. [30] found that perceived usefulness and ease of use were major influencers of mobile payment adoption, whereas perceived risk had a negligible effect. Kenya's M-PESA system stands as a hallmark of mobile financial innovation. Widely adopted across East Africa, M-PESA has enhanced financial inclusion and enabled low-income households to better manage risks through income smoothing [31].

Collectively, these findings suggest that mobile payments, IT training, and cybersecurity strategies play a significant role in enhancing revenue collection. However, the extent and mechanisms through which these technologies affect revenue at the county level in Kenya remain underexplored, underscoring the importance of the current study.

1.3 Revenue Collection in Kenya's County Governments: Challenges and Opportunities

Revenue collection is a critical function through which governments mobilize funds from individuals, businesses, and other entities to finance public service delivery, infrastructure development, and operational costs [32]. In Kenya, this process is governed by policies and strategies designed to guide efficient collection mechanisms. However, county governments have faced persistent challenges that undermine their revenue collection capabilities. These include corruption, financial mismanagement, weak administrative and policy frameworks, and limited adoption of modern technology [33]. Audits conducted within counties have uncovered fraudulent activities such as document forgery, which erode public trust and weaken accountability. Although technological interventions like mobile payments and e-government platforms have been introduced to enhance transparency, these measures have not fully resolved the underlying challenges. Consequently, counties continue to rely heavily on transfers from the national government, which are often inadequate to meet local development needs [33]. Addressing these issues through improved governance and technology adoption is crucial for enhancing the fiscal health and service delivery capacity of county governments in Kenya.

This scenario mirrors findings from other decentralized systems globally. For example, Bahl and Bird [2018] examined decentralized revenue collection systems where local governments are empowered to collect taxes and fees. They identified capacity constraints and corruption as major impediments to effective revenue mobilization, challenges that are similarly observed in Kenyan counties today. The study by Mbui and Minja [2018] corroborates these findings, highlighting corruption, mismanagement, and limited technological innovation as critical barriers to efficient county revenue collection. These findings align with earlier research by

Balunywa et al. [2014], which emphasized that efficient revenue collection systems are essential for public sector service delivery and economic development.

Globally, tax revenue trends provide insights into effective revenue mobilization. The European Union's 2022 Annual Taxation Report [?] documented an 8.0% increase in nominal tax revenues compared to 2021, driven by a 12.5% growth in capital taxes, 6.5% rise in consumption taxes, and a 6.8% increase in labor taxes. These increases were attributed to higher business profits, private consumption, and employment growth, respectively. This demonstrates how efficient tax administration, economic expansion, and compliance can contribute to revenue growth.

Within sub-Saharan Africa, revenue collection remains a significant constraint on economic growth [36]. The African Union Development Agency (AUDA-NEPAD) has emphasized the need for digitization to streamline revenue collection, enhance compliance, and reduce leakages [?]. Specifically, African countries are encouraged to computerize tax systems and expand their tax base by digitizing both formal and informal sectors.

South Africa exemplifies progress in this regard. The 2022/2023 fiscal year saw a 9.7% increase in revenue collection attributed to the adoption of IT-driven tax administration and improved voluntary compliance [11]. Growth was observed across all tax segments, including personal income tax (8.3%), company income tax (7.6%), value-added tax (8.0%), and customs duties (27.0%). This growth enabled the government to fund social welfare programs and infrastructure development effectively.

Tanzania also reported improved revenue mobilization, with the tax-to-GDP ratio increasing from 10% in 2004/2005 to 11.8% in 2022/2023, alongside a rise in public expenditure from 12.6% to 18.2% [37]. Despite this progress, Tanzania's revenue performance remains below regional averages for sub-Saharan Africa and low- to middle-income countries.

In Kenya, the 2010 Constitution established a two-tier tax system involving the national government and 47 devolved county governments [38]. While the national government collects major taxes, counties are empowered to collect own-source revenues such as property rates, business permits, and market fees to finance devolved functions and recurrent expenditures. The Kenya Revenue Authority (KRA) has leveraged information technology platforms, including iTax and IFMIS, to enhance tax administration efficiency [39]. This has resulted in record national revenue collection growth of 11.1% in the 2023/2024 fiscal year, achieving 95.5% of the revenue target. However, despite these improvements, counties have yet to realize their full revenue potential due to persistent structural and administrative challenges.

The establishment of the 47 county governments in 2013 under the Constitution of Kenya [40] marked a shift towards devolved governance aimed at promoting local development and equitable resource distribution. Each county government possesses executive and legislative arms responsible for managing devolved functions such as health, agriculture, and early childhood education. Counties generate revenue from sources including property taxes, business licenses, and market fees to finance these functions [41]. However, at inception, counties inherited weak revenue collection systems from defunct local governments, characterized by inadequate infrastructure, insufficient human resource capacity, and

outstanding debts [42]. Although counties have attempted to adopt new technologies to improve efficiency and accountability, challenges including low revenue collection rates, inefficiencies, corruption, and financial mismanagement remain prevalent.

The problem of inadequate revenue collection by county governments is starkly illustrated by data from Statista [43], which reported a 34% shortfall in own-source revenue against targets in the 2022/2023 fiscal year. This shortfall results in budget deficits, constraining counties' ability to finance devolved functions and undermining local service delivery. Despite the constitutional mandate for counties to collect revenue from various sources [42], the realization of this mandate has been limited by inherited weak systems and ongoing administrative challenges.

Studies underscore that poor revenue collection negatively affects the economic development and service delivery capacity of the public sector [35]. The challenges in Kenya's counties are exacerbated by corruption, financial mismanagement, and a lack of modern technology, as detailed by Mbui and Minja [33]. These findings concur with the work of Bahl and Bird [34] who identified capacity deficits and corruption as critical issues in decentralized revenue collection systems. Additional research by Manyasi [44] and Adam Smith International [45] similarly documents low revenue collection among counties, highlighting the urgent need for innovative solutions, particularly the application of technology, to enhance revenue collection systems.

In summary, the literature reveals that while county governments in Kenya are constitutionally mandated to collect own-source revenue to fund devolved services, they face significant obstacles including corruption, weak administrative capacity, and inadequate technological integration. These challenges have resulted in persistent budget deficits and compromised service delivery. Globally and regionally, digital transformation of tax systems has proven effective in enhancing revenue mobilization and compliance. Thus, adopting and scaling digital and technological solutions, alongside robust governance reforms, is imperative for improving the efficiency and effectiveness of revenue collection in Kenya's counties.

The Unified Theory of Acceptance and Use of Technology (UTAUT) was developed by Venkatesh et al. in 2003 by synthesizing insights from eight different models of technology acceptance, including the Theory of Planned Behavior and the Technology Acceptance Model (TAM) [46]. UTAUT focuses on four core factors influencing innovation use: performance expectancy, effort expectancy, social influence, and facilitating conditions. It measures the perceived benefits of technology in improving performance, ease of use, social pressure, and availability of resources and support. This theory has been widely applied in understanding the adoption of technologies such as mobile payment systems, where trust, ease of use, social influence, and infrastructure availability are critical [47]. Despite its comprehensive nature, UTAUT faces critiques regarding its complexity, potential contextual limitations, and an emphasis on individual factors while sometimes overlooking organizational and cultural influences [48].

Human Capital Theory, introduced by Schultz and further developed by Becker in the early 1960s, posits that investments in education and training enhance individual productivity and economic growth [49]. The theory argues that skills and knowledge development are analogous

to investing in physical capital, yielding future returns such as higher earnings and organizational performance [50]. This theory aligns well with IT training programs, where developing employees' technological competencies improves productivity and operational efficiency. For example, county government staff who receive IT training can effectively use innovations like e-government platforms and automated payment systems, thereby increasing revenue collection efficiency [50]. Nonetheless, Human Capital Theory has been critiqued for oversimplifying the relationship between education and productivity, neglecting social and cultural barriers, and assuming equal access to training opportunities [49].

The Diffusion of Innovation Theory, developed by Everett Rogers in 1962, explains how new ideas and technologies spread through social systems over time [51]. The theory categorizes adopters into innovators, early adopters, early majority, late majority, and laggards, and highlights factors influencing adoption such as relative advantage, compatibility, complexity, and communication channels. This framework has been useful in understanding e-government platform adoption, where early government innovators can influence wider acceptance through opinion leaders, while addressing barriers like complexity through targeted training [52]. However, the theory has limitations including its assumption of a linear adoption process, insufficient attention to environmental and cultural influences, simplistic adopter categorization, and failure to address resistance to change, which is particularly relevant in public sector innovations like revenue collection systems [52].

Enterprise Risk Management (ERM) theory, introduced by Miller in 1992, offers an integrated approach to identifying, assessing, and managing risks across an organization to optimize performance and mitigate negative impacts [53]. ERM is closely linked to cybersecurity risk management, helping organizations identify threats like cyberattacks and deploy measures such as firewalls and intrusion detection systems to protect assets [54]. However, ERM theory faces criticisms related to inaccuracies in risk identification and assessment, reliance on subjective judgments, and difficulties in managing complex, interrelated risks in rapidly evolving environments such as cybersecurity [55, 56]. These limitations underscore the challenges of applying ERM in dynamic contexts like county governments' IT revenue systems, where a cyberattack could have severe operational consequences.

1.4 Mobile Payment and Revenue Collection

Numerous global studies have established a positive relationship between mobile payment systems and revenue collection efficiency. For instance, Jucevski et al. [57] in Sweden and Wandaogo et al. [58] in Finland found that mobile payments improved tax compliance by enhancing transparency and reducing evasion opportunities. In the United States, Liu et al. [59] and Iman [60] demonstrated that mobile payment adoption significantly increased sales tax revenue and overall municipal revenue collection. African research by Okunogbe and Santoro [61] highlighted the benefits of technology adoption while cautioning about inequities among taxpayers with limited technological access. In Kenya, studies by Maiyo et al. [62] and Limo et al. [63] using primary data from counties like Uasin Gishu and Nandi confirmed that mobile payments substantially boost revenue collection performance. Similarly, Mukhwaya et al. [64], Mwasaru [65], and Mugambi and Wanjohi [66] affirmed that mobile money platforms enhance taxpayer compliance and expand the tax base. However, gaps remain in primary data

coverage across all counties and contextual applicability of findings from developed economies to Kenya.

1.5 Information Technology Training and Revenue Collection

Empirical evidence globally supports the positive impact of IT training on revenue collection efficiency. Studies in South Korea [67], Singapore [68], and India [69] linked comprehensive IT training to improved tax compliance, processing accuracy, and revenue growth. Regionally, Ramsal et al. [70] in Zanzibar emphasized the need for adequate training to optimize use of tax technologies. In Kenya, Nyangito [71] and Chege et al. [72] found that IT training positively influenced organizational performance and digital tool effectiveness in Nairobi County government. Despite these findings, methodological limitations such as reliance on cross-sectional studies and limited focus on broader organizational effects suggest a need for longitudinal research and expanded conceptual frameworks.

1.6 E-Government Platform Adoption and Revenue Collection

The adoption of e-government platforms globally has been shown to enhance revenue mobilization by reducing tax compliance costs and tax evasion. Cross-country analyses by the World Bank [73] and others [74–77] show e-filing systems improve tax revenue ratios, especially in less developed countries. Regional studies such as Asomba et al.

[78] in Nigeria report increased transparency and accountability due to e-government adoption, although challenges like digital divides and cybersecurity threats persist. Other African country studies, including Oloyede [79] and Olusuyi and Yidiat [80] in Nigeria, Verkijika and De Wet [81] in South Africa, Mokube and Eboni [82] in Rwanda and Kenya, and Isaac and Lillian [83] in Uganda, consistently link digital tax systems with improved revenue collection. In Kenya, Olonde [84] showed that the iTax system positively affects tax compliance. Despite these insights, methodological gaps such as limited longitudinal data and contextual differences across African countries highlight the need for broader comparative research including Kenyan counties.

1.7 Cyber Security Measures and Revenue Collection

Cybersecurity concerns have emerged as a significant factor affecting revenue collection systems worldwide. In the United States, malicious cyber activity in 2016 alone caused economic damages between \$57 billion and \$109 billion, impacting businesses and tax administration [85]. Despite substantial investments in electronic tax systems, adoption remains limited due to concerns over self-efficacy and digital security [86]. Similarly, the need to critically evaluate the limits of digital security technologies has been underscored [87]. In Africa, cybersecurity challenges are growing rapidly, with weak regulatory frameworks and under-resourced data protection agencies contributing to the vulnerability of digital revenue systems [88]. Studies conducted in Nigeria, Kenya, and South Africa suggest that safeguarding e-tax platforms through improved cybersecurity frameworks is vital for their functionality [89]. Moreover, cybersecurity investments have been found to reinforce governance by mitigating fraud and enhancing transparency [90].

In Kenya, empirical studies have shown a significant link between cybersecurity measures and enhanced revenue collection efficiency. Omosa's [91] regression analysis revealed a strong positive relationship between investments in cybersecurity infrastructure and reduced cyber fraud at the Kenya Revenue Authority (KRA). Additionally, cybersecurity training for KRA employees has been shown to improve the performance of tax systems [92]. Similar findings by Njoroge [93] emphasized the critical role of cybersecurity in safeguarding revenue streams across KRA departments. Beyond public institutions, research among private university students in Kenya revealed a significant association between cybersecurity awareness and the adoption of e-marketplaces, highlighting the broader implications of cybersecurity in digital transactions [94]. Nonetheless, these studies are primarily cross-sectional and lack a longitudinal dimension, limiting their capacity to assess the long-term effects of cybersecurity investments. Furthermore, there is a conceptual gap in understanding how cybersecurity affects other aspects of institutional behavior, such as compliance rates and audit outcomes. Future research should focus on comparative and longitudinal designs to broaden insights into the effectiveness of cybersecurity in revenue administration.

2.0 MATERIALS AND METHODS

2.1 Introduction

This section outlines the research methodology applied in the study, detailing the research design, target population, sampling techniques, data collection and procedures, data analysis methods, and ethical considerations.

2.2 Research Design

The study employed a descriptive research design which systematically explores and explains phenomena without altering the environment [95]. This design was suitable for examining how information technology influences revenue collection in Kenyan county governments. It enabled observation and documentation of factors such as mobile payment systems, IT training, e-government platforms, and cybersecurity practices.

2.3 Target Population

The target population comprised all 47 counties in Kenya [96]. The focus was on counties engaged in revenue collection activities, with primary data gathered to support generalization of the findings.

2.4 Sampling Technique

Purposeful simple random sampling without replacement was used to ensure representation across subgroups. Respondents with experience in revenue collection, IT, and finance were selected. A pilot survey was conducted in three counties to refine the instruments. This approach minimized bias and enhanced the accuracy of the findings [97].

2.5 Data Collection Instruments and Procedure

Primary data were collected using a Computer-Assisted Personal Interviewing (CAPI) questionnaire. The structured questionnaire included sections on demographics, mobile payment indicators, IT training, e-government indicators, cybersecurity, and revenue collection. The tool was scripted in Kobo Collect. Approval for data collection was granted by KCA University.

2.5.1 Validity of the Study

Validity was ensured through literature review and expert consultations to confirm that the instrument measured intended constructs [98]. The Kaiser-Meyer-Olkin (KMO) and Bartlett's test were used, with values above 0.5 indicating validity.

2.5.2 Reliability of the Study Instrument

Reliability was measured using Cronbach's Alpha, where values above 0.70 indicated internal consistency [99]. Pilot testing helped in revising or removing unreliable items, enhancing credibility and replicability.

2.5.3 Diagnostic Tests

The study performed diagnostic tests including multicollinearity, normality, heteroscedasticity, and linearity tests.

- Multicollinearity: Tested using the Variance Inflation Factor (VIF); values above 10 indicated multicollinearity [100–104].
- Normality: Assessed using the Shapiro-Wilk test; p-values above 0.05 supported normal distribution [101, 105].
- Heteroscedasticity: Evaluated using the Breusch-Pagan test; p-values below 0.05 indicated violation of constant variance [106–109].
- Linearity: Checked with residual plots and Ramsey's RESET test; confirmed correct model specification [101, 105, 110].

2.6 Data Analysis and Processing

Collected data were cleaned, coded, and analyzed using R programming [111]. Descriptive statistics summarized demographic data, while inferential statistics (multiple linear regression) examined the relationship between IT dimensions and revenue collection [112, 113]. The model used was:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \quad (1)$$

Where:

- y = Revenue collection
- x_1 = Mobile payments
- x_2 = IT Training
- x_3 = E-government platforms
- x_4 = Cybersecurity measures

- a = Intercept
- ε = Error term

3.0 RESULTS

3.1 Introduction

This chapter presents data analysis and presentations obtained to establish the effect of information technology on revenue collection among county governments in Kenya. The data is analyzed and presented in the form of tables.

3.2 Response Rate

As shown in Table 1, the questionnaires that the researcher administered were 470 out of which only 418 fully filled questionnaires were returned, 52 had errors and had to be removed from the study.

Table 1: Response Rate

Response	Frequency	Response Rate
Returned	418	88.94%
Not Returned	52	11.06%
Total	470	100.00%

Source: Researcher, 2025

From the returned questionnaires, it gave a response rate of 88.94%, which was within what Sekaran (2003) prescribed as a significant response rate for statistical analysis and established it at a minimum value of 50%.

3.3 Demographic Characteristics

Both frequency and percentage were two of the statistical measures used in the analysis to describe the sample in terms of their demographic characteristics, such as age, educational qualifications, level of experience, and duration in the current station. Although this was not core to the study purpose, it aided the study to contextualize the findings and formulate appropriate recommendations to establish the influence of information technology on revenue collection among county governments in Kenya.

3.3.1 Distribution of Participants by Level of Education

The education level attained by the sampled respondents is important in that it plays a vital role in the collection of revenue among county governments in Kenya. The results are indicated in Table 2.

Table 2: Distribution of Respondents by Education Level

Educational Level	Frequency	Percent
No formal education	-	-
Primary education level	-	-

Diploma	90	21.42%
Undergraduate level	214	50.84%
Post graduate level	134	31.93%
Total	418	100.00%

Source: Researcher, 2025

3.3.2 Length in Profession

The study sought to determine the duration the respondents have been in the profession. This information was necessary as it was meant to help ascertain the extent to which their responses would be relied upon for valid conclusions based on experience. Results are shown in Table 3.

Table 3: Length of Profession

Working Duration	Frequency	Percentage
Less than 3 years	102	24.37%
3–6 years	148	35.29%
7–10 years	58	13.87%
Above 10 years	110	26.47%
Total	418	100.00%

Source: Researcher, 2025

3.4 Reliability Analysis

Reliability analysis was subsequently done using Cronbach’s alpha, which measures the internal consistency by establishing if certain items within a scale measure the same construct. The findings were as shown in Table 4.

Table 4: Scale Reliability Coefficients

Constructs	Alpha Value	No. of Items	Comments
Mobile Payments	0.8682	6	Reliable
Information Technology Training	0.8060	6	Reliable
E-government Platform Adoption	0.7380	6	Reliable
Cyber Security Measures	0.8830	6	Reliable
Revenue Collection	0.7750	7	Reliable

Source: Researcher, 2025

3.5 Validity Analysis

To establish the validity of study instruments, tests of sampling adequacy were used. This enabled the study to identify whether the items of the latent variables were appropriate for further analysis. Table 5 shows the Kaiser-Meyer-Olkin (KMO) test of sampling adequacy and Bartlett’s test of sphericity.

Table 5: Sampling Adequacy and Bartlett’s Test of Sphericity

Factors	KMO	Bartlett’s Test

		Approx. Chi-Square	df	Sig.	
Mobile Payments	0.8862	874.631	28	0.000	0.024
Information Technology Training	0.8559	679.040	28	0.000	0.055
E-government Platform Adoption	0.7896	416.633	28	0.000	0.168
Cyber Security Measures	0.8425	1106.496	28	0.000	0.009
Revenue Collection	0.6999	1112.540	28	0.001	0.101

Source: Researcher, 2025

3.6 Descriptive Statistics

Descriptive analysis included an assessment of the influence of mobile payments, information technology training, e-government platform adoption, and cyber security measures on revenue collection among county governments in Kenya.

3.6.1 Mobile Payment and Revenue Collection in County Governments

The responses were rated on a Likert scale. The results are shown in Table 6.

Table 6: Mobile Payments

Mobile Payments	SD	D	N	A	SA	Mean	S
Accessibility of mobile services enhances revenue collection	5.04%	10.5%	10.92%	57.98%	15.55%	3.685	
Convenience of mobile services enhances revenue collection	2.94%	10.92%	9.66%	52.94%	23.53%	3.832	
Availability of mobile network coverage enhances revenue collection	4.62%	10.92%	8.40%	45.38%	30.67%	3.866	
Reliability of mobile services enhances revenue collection	9.66%	18.49%	7.98%	17.23%	46.64%	3.727	
Ease of use of mobile telephones enhances revenue collection	6.72%	9.24%	11.34%	41.18%	31.51%	3.815	
The speed of use of mobile services enhances revenue collection	3.78%	10.08%	8.82%	40.76%	36.55%	3.962	
Overall Mean						3.859	

Source: Researcher, 2025

4.0 DISCUSSION

Summary, Conclusions and Recommendations of the Study

5.0 INTRODUCTION

This chapter presents a summary, discussions, and recommendations of the results on the effects of information technology on revenue collection among county governments in Kenya. The chapter also presents limitations and further areas of study.

6.0 SUMMARY OF THE STUDY

This section provides a comprehensive summary of the primary findings related to the effect of Information Technology on revenue collection among county governments in Kenya while focusing on the four objectives of the study: to assess the effect of mobile payments, information technology training, e-government platform adoption, and cybersecurity measures on revenue collection. The variables were analyzed quantitatively using primary data.

6.1 Mobile Payments and Revenue Collection in County Governments in Kenya

The study findings indicate that accessibility, convenience, reliability, and ease of use of mobile payments positively influence revenue collection, with a strong correlation ($r = 0.8606$). However, a unit increase in mobile payments led to a non-significant decline in revenue collection by 0.1415, holding other factors constant. These findings align with prior studies that highlight the benefits of mobile payments in enhancing government revenue collection [? ?]. However, contrary to this study's findings, [?] in Kenya reported a significant positive relationship, suggesting that contextual factors such as adoption rates, transaction costs, and integration with existing financial systems may moderate the effectiveness of mobile payment solutions.

6.2 Information Technology Training and Revenue Collection in County Governments in Kenya

The study established that regular IT training significantly enhances revenue collection ($r = 0.4889$), with a unit increase in training leading to a significant increase in revenue collection by 0.1507. This is consistent with findings by [???], who argue that capacity-building programs improve digital governance and public service delivery. However, this contrasts with [?], who found that inadequate infrastructure and lack of training hinder IT effectiveness in developing countries.

6.3 E-Government Platform Adoption and Revenue Collection in County Governments in Kenya

The study indicates a significant relationship ($r = 0.4120$) between e-government platform adoption and revenue collection, with a unit increase in adoption leading to a rise in revenue collection by 0.9220. This finding is in line with previous studies [? ??] that show improved efficiency and accountability through e-governance. However, [?] highlights that challenges like low internet access and resistance to change may hinder progress.

6.4 Cybersecurity Measures and Revenue Collection in County Governments in Kenya

The study found that cybersecurity measures had a non-significant relationship with revenue collection, with a slight decline of -0.0508 per unit increase. This contrasts with findings from [? ?], which suggest that secure frameworks enhance trust and transaction volumes. However, the results align with [?], who argue that overregulation or poorly designed security systems can reduce efficiency.

7.0 CONCLUSIONS OF THE STUDY

The study examined the effects of Information Technology (IT) on revenue collection among county governments in Kenya by analyzing mobile payments, IT training, e-government platform adoption, and cybersecurity measures. The findings confirm a statistically significant relationship between IT training and revenue collection. Additionally, the adoption of e-government platforms was found to significantly influence revenue collection.

8.0 RECOMMENDATIONS OF THE STUDY

Based on the findings, the study recommends the following:

8.1 Regular and Comprehensive Training

County governments in Kenya should invest in regular, hands-on IT training to improve staff competency with digital tools for revenue collection. This may lead to more efficient operations, reduced errors, and increased revenue.

8.2 E-Government Platforms Implementation

Counties should prioritize the implementation of e-government platforms to promote transparency, accountability, and operational efficiency. Awareness campaigns should accompany adoption to encourage public use.

9.0 LIMITATIONS OF THE STUDY

Despite the valuable insights, the study had several limitations:

- The use of self-reported data may have introduced bias or inaccuracies.
- The short study duration may not capture long-term effects of IT interventions like cybersecurity.
- External variables such as political, economic, or legal influences were not included but could affect revenue collection.

Future studies could use third-party audits and real-time data collection to verify findings and incorporate broader influencing factors.

10.0 AREAS FOR FURTHER STUDY

Further research could explore:

- A comparative study of counties with high versus low revenue collection efficiency.
- Longitudinal analysis to capture the long-term impact of IT adoption.
- Citizen perception and engagement with IT systems.
- Emerging technologies such as blockchain, AI, and machine learning in public finance.
- Sector-specific impacts of IT adoption (e.g., property rates, trade licenses, parking, or market fees).

11.0 CONCLUSION

11.1 Acknowledgment

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11.2 Declarations

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• **Conflict of interest**

The authors declare no conflict of interest.

• **Author contribution**

Conceptualization, Design, methodology, Janet O. and Victor M .

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