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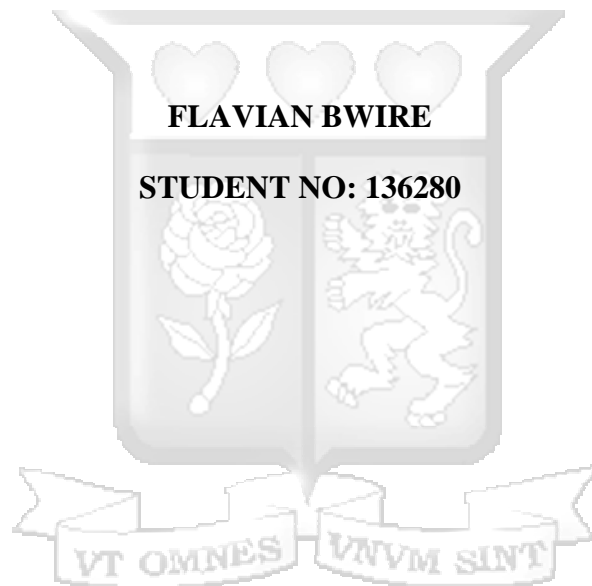
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**AN ASSESSMENT OF THE FACTORS INFLUENCING THE IMPLEMENTATION OF  
REVENUE AUTOMATION PROCESS OF NAIROBI COUNTY, KENYA.**



**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE  
REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF  
PUBLIC POLICY AND MANAGEMENT STRATHMORE UNIVERSITY**

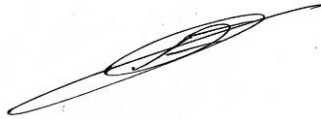
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Approval

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## ABSTRACT

Since the inception of the devolved system of governance, county governments have been grappling with revenue mobilization challenges. These challenges in collecting adequate revenue have resulted in increased shortcomings in meeting development and recurrent expenditure. This has necessitated the county governments to churn out traditional methods of revenue collection and management for a more robust automated system. However, to date despite the County Government of Nairobi, having three different leaders, the implementation of an automated revenue systems has been an elusive undertaking plagued by inconsistencies in implementation, continuous wrangles and lack of user acceptance. As such it's imperative to have a deeper understanding of what leads to this persistent failure in the revenue automation process. Hence, this study sought to conduct an assessment of the factors influencing the implementation of revenue automation process of Nairobi County, Kenya. By doing so, this research was able to recommend possible measures and strategies that can equip the county governments in pursuing revenue automation process. Specifically, the study examined effect of policy factors, governance factors and human resource factors and how they influence the implementation of revenue automation process of Nairobi County, Kenya. The research applied a descriptive research design that was anchored on a pragmatism philosophy, and guided by the institutional theory and the diffusion of innovations theory. The population for the study was 94 employees within Nairobi County Government Revenue Administration Department. A census sample was obtained for this research. The research instrument was semi-structured in nature with open-ended questions and Likert scale statements. The research tool was pretested among 10% of the sample respondents who were not allowed to participate in the final data collection. The collected study data was analyzed using quantitative and qualitative approaches with findings presented in charts, bar graphs and tables. The research obtained 84% response rate which was considered sufficient for generalization of the results of the study. Regression findings showed that governance, human resource and policy factors lead to positive change in the implementation of revenue automation process in Nairobi County. The study concluded that policy and human resource factors do have a positive and significant effect on the implementation of revenue automation process in Nairobi County while governance factors did not significantly contribute to the automation process. The study recommends that the local governments ensure the develop relevant and up to date policies that can adequately address user's expectations and their concerns, especially with regards to its impact on the employees' jobs and ability to execute their duties. The study calls for regular, organizational and individual-specific IT skills competency building, professional development, and training as well as use of up-to-date performance metrics when rewarding and remunerating staff who play essential roles in the implementation of automated systems.

*Keywords; revenue automation process, governance factors, human resource factors, policy factors*



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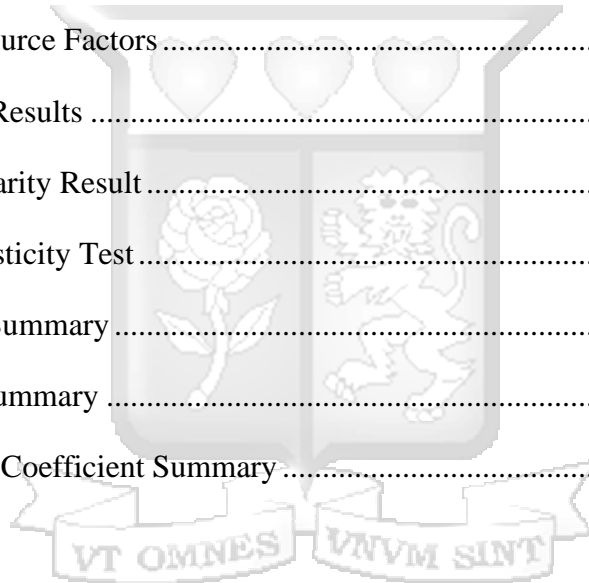
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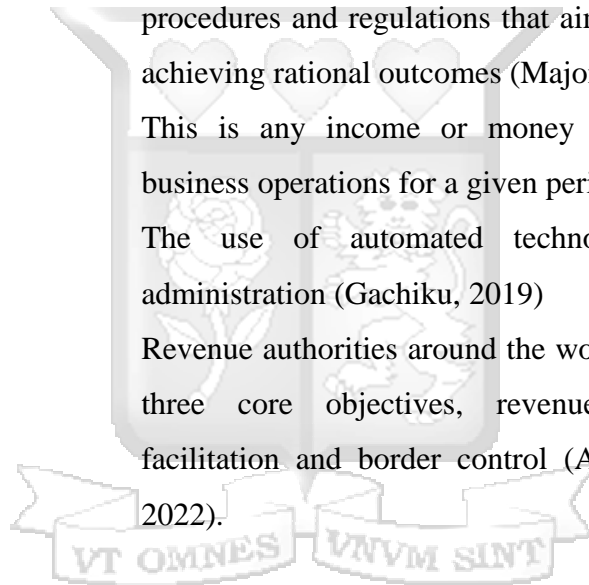
**LIST OF ABBREVIATIONS**

<b>CG</b>	County governments
<b>ICT</b>	Information Communication and Technology
<b>IT</b>	Information Technology
<b>KRA</b>	Kenya Revenue Authority
<b>TD</b>	Technological Determinism
<b>PPM</b>	Push, Pull, And Mooring Factors



## DEFINITION OF TERMS

<b>Governance factors</b>	Governance refers to the rules that govern how the government, citizens and businesses legally solve conflicts (Scassa, 2021).
<b>Human resource factors</b>	Human resources refer to the people within an organization (Werdhiastutie, Suhariadi, & Partiw, 2020)
<b>Policy factors</b>	Policies refer to those administrative actions, guidelines, procedures and regulations that aim at guiding towards achieving rational outcomes (Majone, 2019).
<b>Revenue</b>	This is any income or money generated from the business operations for a given period of time.
<b>Revenue automation</b>	The use of automated technologies in revenue administration (Gachiku, 2019)
<b>Revenue authorities</b>	Revenue authorities around the world exist to carry out three core objectives, revenue collection, trade facilitation and border control (Anamanjia & Maina, 2022).



# CHAPTER ONE: INTRODUCTION

## 1.1 Background to the Study

Effective and transparent revenue administration is key to improved standards of living and economic development since poor revenue administration exposes administrative units to revenue leakages that limit generation of revenue used to finance public sector infrastructure projects, services and growth policies (Irungu & Gakuu, 2019). Mandala et al. (2020) confirm that automated systems introduce significant efficiencies to the process that can result in increased revenue collections. Affirming that effective revenue administration is an indicator of good governance, however, Irungu and Gakuu (2019) report that Kenyan county governments are encountering significant challenges in their attempts at automating the revenue administration process and still lose billions to tax evasion, corruption and lack of transparency. The County Own Source Revenue (OSR) Report (2019) indicates that while between 2014 and 2018 many counties increased revenues collected, and that three counties tripled their revenue collections, Nairobi County's OSR grew by less than 1 per cent, despite having the potential to finance 40 per cent of its budget. In that period, the county government has used three different systems with Mutua (2023) reporting that currently, the county's internal revenues have dipped by 28 percent in the past year.

Automated systems promise to integrate taxpayers with new electronic tax registers which complete tax administration in real-time and at reduced costs (Atambo & Katuse, 2017). Belay (2020) shows use of ICTs in tax administration, electronic filing of personal/corporate income tax, as well as automated application of budget settlements and Lele and Lele (2019) assert that automation can improve customer efficiency and communication. Pereira and Romero (2017) report that automated revenue administration enable remote tax data entry, automated processing, computation and analysis as well as generation of tax reports and feedback necessary for control and risk management (Pereira & Romero, 2017). However, Ilumba (2019) indicates that automation of the revenue administration process is a complicated and resource-intensive activity that requires firm-wide buy-in, technically skilled employees, a high degree of interconnectedness and the incorporation of a large number of stakeholders. Belay (2020) concur and add that

automating the revenue process requires proper infrastructure and a sizable, efficient workforce that can effectively supervise the process.

Kabaka (2019) points out that globally, the degree of revenue process automation differs significantly, and that different systems have been implemented to varying success levels and pace. For instance, Shakil and Tasnia (2022) indicate that revenue administration is highly regulated and reliant on sophisticated techniques for tax collection and distribution in developed economies, hence its success. In Asia and the Pacific, the Asian Development Bank (2020) reports that counties in Samoa and Fiji have adopted the Automated System for Customs Data for customs administration in border counties, and Lynch, et al. (2020) add that county governments in Japan, and New Zealand have adopted biometric identification which enhanced the identification of individuals. According to these researchers, artificial intelligence systems have enhanced taxpayer registration and identification which significantly enhances the revenue process. However, Odden (2022) affirms that while these technologies have the potential to transform the revenue administration process, biometric ID initiatives present significant legal challenges relating to taxpayer privacy and data treatment and can impact automation implementation.

Evidence from Ali and Osmanaj (2020) identify the role of government support, policy as well as institutional guidelines on successful implementation of cloud computing in local governments in Australia. In Singapore, Malaysia and Mexico, Yasa et al. (2022) report that the governments were instrumental in promoting automation as the next stage of effective revenue administration, and have instituted supportive policies, allocated finances towards acquiring the necessary technologies and instituted trainings to develop the staff's IT capabilities to counter internal resistance. Chen (2019) pointed out that skills and competency development significantly enhanced the pace of adoption of autonomous shuttle services by taxpayers in urban centres and Korinek and Stiglitz (2018) aver that addressing the user's technical competency, social, economic and political considerations would improve the pace and distributional effect of revenue automation.

Qader and Kheder (2016) avers that automating revenue processes depends on the situational state of the administrative authority in terms of available ICTs, human expertise and the structure of tax administration. This implies that effective revenue automation highly relies on the users being able to use the systems effectively to enhance revenue administration. In Nigeria, Ibe and Pibowei

(2022) points out that county's budgetary allocations have significant impacts on their ability and intention to implement automated revenue administration systems. According to Ilumba (2019), the support of managers has significant outcomes on the continued use of automated revenue systems at customs and border points, noting that managers have to reduce employees' uncertainty and work to improve their IT skills and competencies. In Tanzania, Makubi and Issa (2018) demonstrate that automation, enforcement of ethics and anti-corruption laws and regulations, and leadership commitment are among the main factors promoting integrity of the country's revenue authority. This study was based on the national regulatory authority.

Hudson, Hunter and Peckham (2019) show how cost factors, infrastructure and human resource capacity challenges have impacted the implementation of the Integrated Customs Management System (iCMS) at the port of Mombasa, resulting in the technology having little impact on addressing delay challenges. Nairobi County has a tumultuous revenue automation history. Abuya (2022) reports that the county's first foray into automated county systems started in 2014 with the first integrated platform developed by the county as part of the nation's goal of digitizing public services. The system was then replaced in 2019 by another system developed by the Kenyan Revenue Authority, before being replaced by another in 2022. This history implies a gap in execution of the implementation process given different technologies are available yet the implementation process is yet to yield the desired results, and there is no continuity.

Gichuru (2023) confirms the lack of consistency in the approach to governance has had significant implications on the county's revenue automation success. Nyaga (2019) adds that many governments have been accused of using irregular tender awarding practices and creating loopholes within the systems to defraud the government. Accordingly, Kombo (2023) reports that many counties lose billions to corruption despite increasing the number of automated revenue streams. Oguso (2022) confirms that Nairobi County is yet to successfully automate all of its revenue streams. The Nairobi City County (2022) report indicates that despite automating all the 135 revenue streams, the Nairobi Revenue Service is unable to meet the county's revenue targets. The (NCC) 2022 committee reports that the system is unstable and often cripples revenue collection whenever it crashes. Kombo (2023) revealed challenges linked to corrupt practices, inappropriate implementation strategy, inadequate capacity of human resources and lack of clear government policy and direction from county officials. Kombo (2023) also reports that currently, the county collects only one-third of its possible income.

This research sought to examine the factors influencing the successful automation of the revenue administration process in a local government context and operate under the assumption that implementation success depends on a host of factors influenced not only by organizational factors but also by external factors such as the political environment and the users' perceptions of the technology.

### **1.1.1 Revenue Automation Process**

Automation refers to the integration of new technologies into process execution to minimize human input (Kock, 2021). Bessen et al. (2020) consider automation to be the creation, adoption and use of interconnected technologies with the aim of monitoring and controlling production and delivery of products and services. Revenue automation process refers to the use of technologies in revenue administration which includes entry and processing of tax data, computation and analysis as well as automatic production of tax reports and feedback that can facilitate control and risk management (Gachiku, 2019). Revenue automation takes advantage of emerging technologies such as artificial intelligence and robotic process automation to streamline the revenue administration process and promote transparency and efficiency. Amegavi, Bawole and Buabeng (2018) affirm that automated revenue management systems provide real-time monitoring, live updates, and timely report generation, preventing billing inaccuracies, reducing invoice processing time, and increasing revenue administrator's general operational efficiency. The degree of automation in the revenue process can be indicated by the number of automated revenue streams, the degree of user acceptance, and the extent of integration of automated systems (Kombo, 2023).

### **1.1.2 Implementation of the Revenue Automation Process**

Revenue authorities around the world exist to carry out three core objectives, revenue collection, trade facilitation and border control (Anamanjia & Maina, 2022). The implementation of the revenue automation process or, "e-government implementation" is a continuous process whereby automated technologies are continuously introduced into official government processes to enhance service delivery and transparency within the public sector. According to Chen (2019), automating revenue processes begins with the decision to adapt which is influenced by internal and external factors that can be examined from the scope of diffusion thinking. Karuru (2021) shows automation in data checks, reminders, interactive voice response while Bergmann, et al. (2020) highlight the combination of data analytics, machine learning, and robotic process automation as

the new technologies with the potential to increase efficiency and transparency of government services.

While many governments have embraced automation as a strategy to increase efficiency, many tax authorities, especially in developing economies are still in their nascent stage of implementation, with many reacting to external pressure with little regards to internal “readiness” (Irungu & Gakuu, 2019). This slow uptake of automation technologies in the revenue process has prompted empirical research from Hesselink and Chappin (2019) show significant influences of the size of the local government, its financial and technical capacity, leadership, organizational culture as well as management capacity and political environment on e-government implementation in Portugal. Kathure (2018) asserts that e-government policies, change management programmes, and Human Resource Management (HRM) have significant influences on the degree of automation in the revenue process.

Mandala, Odhiambo and Wanga (2020) highlight the role of the management and political orientation on successful e-government implementation. According to Kathure (2018), successful implementation of revenue automation/ revenue digitization in the public setting is a continuous process that can be examined through external (policy) and internal (governance and human resource) dimensions.

Policy factors refer to those administrative actions, guidelines, procedures and regulations that aim at guiding towards achieving rational outcomes (Majone, 2019). Hudson, et al. (2019) refer to policy factors the set of rules ascribed by a group of individuals, an organization or country. According to Hudson, et al. (2019), a policy framework provides strategic directions that can be relied upon to advance overarching priorities. The researchers identify e-governance laws, regulations and directives as significant policy factors that can influence the success of e-services implementation. According to Lv, Shao and Lee (2021), regulations can act both as stimulants or constraints to new technology adoption but was basing their findings on factors influencing green technology adoption. Zhang, et al (2014) show the influence of infrastructural development policies on cost of accessing new technologies and information sharing freedom in the era of digitization.

Governance refers to the rules that govern how the government, citizens and businesses legally solve conflicts (Scassa, 2021). Sebele-Mpofu (2020) confirms that governance factors have

significant impacts on the policies adopted by an organization and its intention to adhere to those policies in research that examined the effect of internal governance practices on compliance with regulations, industry best practices and corporate policies. A good governance system measures the efficiency of public institutions in conducting public affairs and managing public resources to guarantee the realization of human rights in accordance with the rule of law (Scherer & Voegtlin, 2020). The effectiveness of governance factors can be evaluated through an assessment of an organization's internal structures, oversight protocols, code of values, reporting guidelines and risk management quality. Vishnoi, Tripathi, and Bagga (2019) show the role of an independent board of governors in planning and implementation of robotics and automated technologies but in the context of private businesses.

Human resources refer to the personnel involved in actual execution of an organization's goals and objectives and the quality of human resources within an organization is a source of competitive advantage (Flechsig, Anslinger, & Lasch, 2022). Human resources encompass all the human capital, knowledge and skills commanded by the workforce of an organization (Kevin, 2019). In the context of adoption of automated systems, the technical knowledge, experiences and competence in implementing revenue automation have significant impacts on the degree of successful implementation (Werdhiastutie, Suhariadi, & Partiw, 2020). Human resource quality can be indicated by HR development policies, HR planning and HR IT skills (Munguti, 2022). Accordingly, Smrutirekha (2022) opines that customers and service providers have a significant influence on adoption and use of revenue management systems in the hotels' sector.

### **1.1.3 Nairobi City County Government**

Nairobi City County is the capital city of Kenya and one of the 47 counties. Being a county, property taxes form the main source of revenue for the county which contributes the most to the national kitty (Okiro, 2015). County governments in Kenya source their revenues from own source revenues and inter-governmental transfers, with own source revenues forming the lion's share of counties' income. Despite being the capital city, the county has faced severe economic challenges and difficulties in tax administration, as well as implementation of change strategies (Mutua & Wamalwa, 2017). Over the years, NCCG has employed a mix of manual and electronic methods in revenue administration despite many KRA and NCCG staff being unfamiliar with ICT policies and regulations (Okiro, 2015). According to (Owino, Senaji, Eng, & Ntara, 2017), these

challenges have resulted in weak collection systems, infrastructure, administrative and technical capacity as well as weak links between taxes and service delivery. The NCCG is rarely able to realize its revenue potential and Abuya (2022) affirms that it loses approximately Sh. 2 billion each month from revenue loopholes. Despite significant developments at automation, the county is unable to meet its revenue targets and only collects a third of the expected revenues (Kombo, 2023).

As affirmed by Owino, et al., (2017), NCCG is struggling to make noticeable improvements in public service delivery despite increased efforts to streamline the revenue process. According to Wambua (2017), the authority has faced several challenges including poor operating procedures, a negative corporate culture, poor levels of integrity, staff resistance, duplication of structures among other structural deficiencies. Despite digital technologies playing a key role in addressing some of the aforementioned challenges, Transparency International considers Kenya to have of the weakest governance structures, and according to the corruption perception index, the country ranks 123 out of 180 countries (Otieno, 2019). Indeed, the county has a long way to go to improve control of corruption and automation presents an opportunity to combat such social ills and requires an effectively implemented strategy that has considered policy, human resource and governance factors drivers of strategy implementation.

## **1.2 Statement of the Problem**

African countries are committed to implementing the Agenda 2063 which necessitates they make necessary interventions to enhance domestic resource mobilization and advance economic growth. They have since embarked on multiple initiatives including devolution of governance services and adoption of automated technologies to enhance local and regional revenue mobilization (Agyei-Ababio, Ansong, & Assa-Agyei, 2023). However, Simbarashe (2020) remarks that most sub-Saharan economies struggle with revenue administration and the tax regimes are crippled with numerous inefficiencies and gaps in governance that weaken revenue administration. Gachiku (2019) cites poorly developed policies, lack of oversight and transparency, as well as limited technical skills and understanding of emerging IT technologies as challenges impacting effective integration of revenue administration systems. Nairobi County government, despite implementing automated revenue administration systems, has only seen revenue mobilization increase by one percent between 2013 and 2018 (County Own Source Revenue Report, 2019). The report confirms

that the county government lacks clear revenue projection methods, has inadequate resources, weak revenue administration structures and faces significant political pressure that can result in non-alignment of revenue streams and revenue leakages. The county government can benefit significantly by understanding the factors that determine its ability to effectively automate the revenue administration process.

Empirical analysis into the barriers to automation of public services reveals that limited comprehension of these tools is one of the main barriers to their adoption (Hai, Van, & Tuyet, 2021). The study specified adoption of the tools during the COVID-19 pandemic while the current specifies revenue automation in non-crisis periods. On the other hand, Adeghe and Akinyemi (2020) in their study pointed out that corruption among revenue agents, high illiteracy level of electronic payment users and lack of transparent leadership are hampering Lagos State's ability to effectively implement electronic payment systems and revenue generation. The research had conceptual gaps in that it focused on one automated system and on revenue generation rather than automation of the revenue process. According to Oguso (2022) the county government of Mombasa has failed at optimizing their own source revenue mobilization due to inadequate revenue automation stemming from limited IT infrastructure, legal policy challenges, poor tax awareness, inadequate staff numbers, non-compliance levels and poor enforcement of regulatory policies.

Despite there being numerous analyses into automation in the private sector, there is little analysis of the same in the context of public sector revenue administration, and even less within local governments. Local researchers such as Ligeyo (2019) based their study in Siaya County or Kiambu County Gachiku (2019), or multiple counties Oguso (2022). All these local governments use different systems, have vastly different revenue streams, and follow different policies instituted by the national government. According to Ligeyo (2019), revenue streams that are automated show greater stability in collection than non-automated revenue streams while Oguso (2022) suggests that HR development procedures and policies be aligned. Having a grasp of the constraints to effectively automating revenue streams would enhance revenue administration and this study sought to isolate the factors influencing revenue automation in Nairobi County government. Hence this research conducted an analysis of the factors affecting the implementation of revenue automation process of Nairobi County, Kenya.

### **1.3 General Objective**

The main objective of this research was to carry out an assessment of the factors influencing the implementation of revenue automation process of Nairobi County, Kenya.

#### **1.3.1 Specific Objectives**

- i. To assess the effect of policy factors on the implementation of the revenue automation process of Nairobi County, Kenya.
- ii. To determine the influence of governance factors on the implementation of the revenue automation process of Nairobi County, Kenya.
- iii. To establish the effect of human resource factors on the implementation of the revenue automation process of Nairobi County, Kenya.
- iv. To suggest measures to enhance efficiency in the implementation of the revenue automation process of Nairobi County, Kenya.

#### **1.4 Research Questions**

- i. What is the effect of policy factors on the implementation of the revenue automation process of Nairobi County, Kenya?
- ii. What is the effect of governance factors on implementation of the revenue automation process of Nairobi County, Kenya?
- iii. What is the effect of human resource factors on the implementation of the revenue automation process of Nairobi County, Kenya?
- v. What measures can be taken to enhance efficiency in the implementation of the revenue automation process of Nairobi County, Kenya?

#### **1.5 Scope of the study**

This study sought to examine the antecedents for successful implementation of Revenue Automation Process of Nairobi County, Kenya. The study utilized a descriptive design to achieve its objectives. The study adopted a quantitative methodology with the theoretical scope being the Diffusion of innovations theory, and the institutional theory. The geographical scope of the study focussed on all the revenue departments within the sub-counties in Nairobi City County. The study collected data from NCCG/KRA staff and include only those involved in the revenue automation

process. The study collected data between February and April 2024 to provide adequate time for reply.

## **1.6 Significance of the Study**

### **1.6.1 To Policy**

The study findings and recommendations are of value to the county government on explaining the effect of automation on revenue collection among individuals and businesses within Nairobi County. Hence, the county government will use the study result in policy formulation and implementation. The study will also pinpoint on the strengths and weaknesses related to revenue automation and possible solutions to the challenges for efficient and effective revenue collection.

### **1.6.2 To Management of NCCG**

This study focuses on automation drivers in Nairobi County and its findings was important to members of the county government in charge of developing internal policies and standards of operation in the county government. It will help in identification of barriers to effective implementation of automated revenue process and this can help in advancing automation goals in county governments and improve broadening the tax base and enhance revenue mobilization. It will also provide a justification for the county government to continue pursuing revenue automation goals.

### **1.6.3 To Scholars**

The study is of value to the students, scholars and researchers interested in adding value to the existing body of knowledge on automation process and revenue collection. Advancing this knowledge is important to governments seeking to increase automation processes. It will not only provide a link between innovation diffusion theory and revenue automation but also identify gaps in research that should inspire future empirical analysis into automaton of revenue administration and other administrative processes. It will also serve as a reference material.



## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

This chapter presented the theoretical underpinning of the current research and previous researchers' findings on the factors influencing successful automation. The theoretical section identified the over-arching variables while the empirical section will help present findings from different settings. A summary of the gaps was then provided and a conceptual framework depicting the variables' relationships presented.

#### 2.2 Review of Theoretical Literature

##### 2.2.1 Diffusion of Innovation

The Diffusion of Innovation (DOI) Theory was developed by Rogers (1962) in an attempt to explain how, idea or product gains momentum and diffuses (or spreads) over time through a population or industry. The end of diffusion is that people, as part of a social system, come to accept and adopt a new idea, behaviour, or product. Rodgers (1962) asserts that adoption requires the person adopting the new idea, behaviour or product to be new or foreign to existing norms. The scholar asserts that adoption of a new idea, behaviour, product or innovation is not simultaneous, and that some are more ready to adopt the innovation than others.

Empirical evidence shows that the ability to adopt a new technology differs and that people who adopt the new innovation have different characteristics than people who adopt an innovation later. In essence, Rodgers (1962) opines that when promoting an innovation to a target population, it is essential that the marketer understands the target population that would encourage or discourage new technologies' adoption. Five categories of adopters were established; early adopters, early majority, late majority and laggards. In application of the theory in organizational settings, Rogers (2003) identifies three determinants of organizational innovativeness: attitude toward change, internal characteristics of organizational structure and external characteristics of the organization. Critics of the theory argue that the theory's use is limited to an assessment of adoption behaviours rather than cessation or prevention of behaviours (Lin, Carter, & Liu, 2021), and also for failing to consider the user's resources and the social support afforded them in support of adoption new technologies (Glyptis, et al., 2020).

Despite its criticisms, the theory presents a means for understanding the factors contributing to the adoption of new products, ideas, or technologies. Otieno and Omwenga (2016) used the theory in analysis of success factors for e-government and identified citizen demand for increased efficiency as a significant driver of e-government. Research from Kathure (2018) points to a significant association between e-Gp policies, e-Gp planning and e-Gp change management on efficient e-GP implementation. IT resources and staff competency were identified by Dias (2020) in research into the determinants of e-government implementation at the local level. Automation success is a function of previous efforts at IT integration, HR's IT competency, and it can be said that the degree of success in previous efforts can predict current and future success. The theory captures the external as well as internal factors that may influence automation of revenue processes and its multifaceted capabilities was key to assessing the human resource factors that may influence the implementation of automated revenue processes. The theory also identifies the extent of digital adoption within organizations and anchored the variables that was useful in assessment of the degree of automation of revenue processes.

### **2.2.2 Institutional theory**

Institutions define and determine the rules of the game in a society (North, 1991) and the institutional theory (Meyer and Rowan, 1977; DiMaggio and Powell, 1983), considers the processes through which structures, rules, norms, and routines, become established as authoritative guidelines for how people, businesses and governments behave generally. The Institutional theory provides a way for understanding how the aforementioned elements are created, diffused, adapted over space and time; and how they fall into decline and disuse and in an organizational context, affirms that the practices firms adopt are products of social, rather than economic pressures. Scott (1995), for instance affirms that for a firm to survive, it need legitimacy which it can gain by conforming to the rules and belief systems of the existing environment. In this manner, while external pressure such as customer demand can influence organizational change, firms in similar sectors can also influence others to adapt and change their approach and vice-versa.

According to DiMaggio and Powell (1983), isomorphism within and across organizations occur over time due to regulatory (political and legislative influences), mimetic (replication of other organization's practices) and normative (social pressure). While the theory mainly explains how a new innnovation is diffused, adopted, or copied by others, Kim et al. (2009) used the theory in

identifying the challenges to effective implementation of e-government, demonstrating the theory's reach. Greve and Argote (2015) also consider the theory to be key in the analysis of how organizations behave in a competitive environment. According to findings from Sherer, Meyerhoefer and Peng (2016), for instance, in the healthcare sector, mimetic forces, coercive forces and normative forces all continually influence electronic health records (EHRs) adoption in medical service delivery. Critics of the institutional theory argue that the theory sought to explain the world of politics which is highly dynamic and susceptible to change yet it is inherently static in nature. Adam (2020) argues that institutional theorists lack an emancipatory agenda and focus on smaller, more manageable issues rather than larger structures of domination. However, these criticisms make it perfect for the current study which sought to focus on revenue automation drivers in a subset of the national government.

According to Adam (2020), the theory has emerged as a useful tool in analyses into organizational issues as it helps in explaining the behaviour of organizations, why organisational structures and practices become entrenched, and reasons for organizational change. This theory has been useful in previous research and can advance the goals of the current research that sought to analyse factors influencing the implementation of automation technologies in revenue administration. Manoharan and Ingrams (2018) used the theory in assessing the local governments' perspective of e-government implementation and identified customer expectations, internal regulations and supportive policies as drivers of integrated management systems' implementation. According to Saxena (2017), the introduction of new rules and standards of operation, backed by enforcement can create coercive pressures that can stimulate organisational change either directly or indirectly via institutional dependencies. In the context of the current study, this theory informed the governance and policy factors and assess the influence of factors such as regulatory developments and institution-specific factors influence automation of the revenue administration.

### **2.3 Review of Empirical Literature**

This section presented findings from previous researchers on the factors that influence automation of government services. According to Laney (2016), integrating electronics into government services and processes has four development stages. At first, the aim is to ensure presence and it comprises static information provided to taxpayers. Interactive features are added in the second stage whereby governments can communicate with businesses, citizens and other government

agencies (Gorla & Chiravuri, 2016). At this stage, various interactive functions are usually added to government access points, ensuring the possibility of two-way responses between involved players. The third stage offers transaction capabilities and users can perform a wide variety of functions such as registration, license renewal, paying fees or taxes, as well as bid procurement contracts. The last stage involves transformation of e-government systems' interactions as the technologies act as stimulants to innovation of government business and operations (Janowski 2015). Data sharing at this stage is seamless as all institutions operate and collaborate under mutually agreed standards and regulations.

### **2.3.1 Policy Factors and Implementation of Revenue Automation Process**

Policies includes the principles, rules and guidelines that are formulated or adopted by government agencies. Policies lay down the basic framework for government operations and provide a clear picture to stakeholders about the expected outcomes and responsibilities of each participant. According to Heart, Ben-Assuli and Shabtai (2017), an effective policy provides guidelines and provisions that would make it easier for businesses to adopt and integrate new technologies and practices. Indeed, the literature review by Tan and Taeihagh (2020) assert that revenue automation rests on governments' ability to respond to technological developments appropriately by constructing clear regulatory frameworks that can mitigate technological risks, prioritize human capital development, and promote digital inclusivity. Hudson et al. (2019) report that effective policy design requires continuous collaboration with a range of stakeholders to connect taxpayers effectively in a joint deliberation effort.

As asserted by Kock (2021), the pace, extent, and distributional effect of automation is influenced by economic, social and individual drivers. The researcher examined adoption drivers from a policy, human resource and governance perspective and observed that policy changes have limited effects on automation success. However, while state policies have insignificant impacts on adoption decisions, the organizations' capacity to adopt and use ICT and exposure to the external environment were reported to have significant impacts on ICT adoption in South Africa.

While Kock (2021) evaluated ICT adoption from a human resource and governance perspective, Samsor (2021) used the context of conflicted nations in analysis into the challenges to e-Government implementation in Afghanistan and employed mixed method in analysis. The researcher was able to uncover the role of the government in addressing the main challenges which

were categorized into stakeholder involvement, coordination, information sharing, ICT literacy and e-Government awareness. Findings pointed to a significant influence of a clear policy and legal framework for e-Government implementation, ICT-friendly legal frameworks and e-government awareness campaigns on e-Government implementation.

Similar observations were made in Iraq where Qader and Kheder (2016) investigated the factors affecting e-Government implementation. The study used a qualitative methodology and the findings were that e-government implementation is a result of lack of trust in new technologies, lack of ICT competence and infrastructure. Assertions were that there is a persistent need to understand context-specific conditions and for the government to treat e-government like a reformation process and to include e-governance policies in the national development framework. The study also showed the importance of incentives and communication in increasing e-government acceptance.

On the other hand, Wulandari and Salomo (2021) used discourse methods in analysis of the effect of policies and factors influencing e-government parking tax implementation in Indonesia, affirming the implementation of different policies over the previous seven years. Findings were that tax administrators were seeing little success at increasing taxpayer compliance due to poor policies that failed to integrate multiple e-government platforms into uniform multi-service platform and enforce sanctions upon non-compliant taxpayers. The analysis also reveals that the sanctions for non-compliance are not in accordance with higher tax regulations and that the country's taxpayers and tax authorities are still unprepared to materially support e-government implementation.

The study by Othman and Razali (2018) employed literature review of the critical success factors for the integration of e-government services. Content analysis was applied on the collected data revealing the importance of coherent and integrated policies. The findings were that high level of leadership at the political and administrative level as well enabling policies are essential technical drivers of integration of citizen-centric e-government service delivery. The study called for policies addressing how firms can approach integration and collaboration across different agencies, interoperability and data exchange, and to promote efficiency and accountability by eliminating unintended duplications in processes and procedures.

Noting that e-filing is one of the most advanced and commonly used e-government services, Lallmahomed, Lallmahomed and Lallmahomed (2017) sought after the determinants of success of e-government services in Mauritius. The study specifically sought after the factors that drive continued usage of e-filing systems and convenience sampling. Data was collected from e-filing users and structural equation modelling used in hypothesis testing. Findings were that the user's satisfaction and the systems' quality was the main factor influencing continued usage of the system. The study stressed the need to center policies around quality information sharing in integrated platforms that address a wide variety of taxpayers' demand.

On the other hand, Otieno and Omwenga's (2016) analysis found no significant impact of ICT policies and regulations on successful implementation and access of e-government services. The researchers in the study sought after the taxpayer's opinions on the factors critical to the implementation of e-government services in Kenya focused on Huduma (Service) Centres. Instead, the results pointed to the existence of ICT Infrastructure, adequate citizen participation and awareness, internet connectivity, and government funding as the critical success factors. This study involved taxpayers who may have little understanding of the role of ICT policies on establishment of service delivery offices such as the Huduma Centres. Further, this study investigated the main Huduma centre and its features may not be characteristic of all service delivery centres.

Namuhisa's (2020) examination was on automation in the health sector and focused on uptake of mobile health technologies, with focus on mHealth standards and guidelines directing mHealth based systems and health strategies. According to the researcher, political factors such as leadership and governance, as well as stakeholder management affect the success of digitization projects. Findings from Ndirangu (2022) indicate that policies designed to facilitate reduction in effort duplication, promote data sharing between systems, and improve the service providers' ability to harness technologies have been instrumental to improving revenue collection in Kenya. The conclusions were that policy guideline rules create the operating environment and influence the cost of adoption which in turn may influence the degree of implementation of automated systems.

Kenya's national ICT policy aims to create the infrastructure conditions for use of high speed, wireless, internet across the country, data sharing, regional and international cooperation and digitization of all government services (Kibuku, Ochieng, & Wausi, 2020). The study was based

on universities while the current examined revenue automation within counties and especially on the ICT policies adopted in local government settings.

These studies are informative but provide an understanding from differing points of view. Kock (2021) examined adoption drivers from a policy, human resource and governance perspective, Samsor (2021) based their study off countries in conflict situations and Namuhisa's (2020) study was on mHealth policy implementation in the health sector. Moreover, the studies provided geographical gaps having evaluated digitization in Mauritius (Lallmahomed, Lallmahomed, & Lallmahomed, 2017), Indonesia (Qader & Kheder, 2016), and Afghanistan (Samsor, 2021). Moreover, Kock's (2021) analysis was on ICT adoption in South Africa and Qader and Kheder (2016) investigated the factors affecting e-Government implementation in relation to parking meters. Methodologically, Wulandari and Salomo (2021) used discourse methods in analysis and the study by Othman and Razali (2018) was a literature review which only assessed secondary data. This study advanced the information provided by assessing how political orientation, regulatory development and environmental pressures influence revenue automation.

### **2.3.2 Governance Factors and Implementation of Revenue Automation Process**

Governance factors inform decision making on matters regarding the distribution of rights and responsibilities, as well as ethical considerations for managers, board members and stakeholders within an organization. Governance factors determine what an organization's players should do and strives to promote uniformity and compliance to rules and regulations within an organization (Scassa, 2021). Governance is considered a core function of an organization and poor governance in the public sector is a precondition for mismanagement and corruption (Bahoo, Alon, & Paltrinieri, 2020).

Kolkareva, et al (2020) aver that automation of information exchange systems between fiscal and control and supervisory authorities requires significant legal impositions to enforce adherence to internationally recognized standards and public law. The study was based on banking information and tax secrets. Noting the importance of inter-governmental stability on revenue administration, Dhungana and Acharya (2021) noted that inadequate technical skills, imperfect experience, weak institutional capacity and limited legal and procedural developments have left local governments in Nepal unable to cooperate capitalize new tax administration technologies. As per Acharya and Zafarullah (2020), in federalized governments, proper description of the roles and responsibilities

of local authorities is necessary to increase the scope, area, and quality of services and improve local governments' cooperation with each other.

Arguing that little research has focused on individual and organizational drivers of new technologies' adoption, Kamal, Bigdeli, Themistocleous and Morabito (2015) contextualized factors affecting adoption into individual, decision making, and organizational contexts in the UK. The study used epistemological methods in analysis revealing significant effects of organizational structure and decision making on adoption success, with factors such as the degree of collaboration between departments, centralized and decentralized decision making, direct management style and organizational capability all having positive influences on adoption of integration technologies.

Defitri, et al. (2020) utilized the Technology Organization Environment (TOE) framework in their assessment of the factors determining e-government implementation in public service delivery in Indonesia, with specific focus on the management's orientation towards accountability. Analysis involved a SEM-PLS statistical tool whose results pointed to a significant impact of accountability on regional maximization of e-government platforms. The study also observes that e-government implementation cannot be successful without external pressure which influences ICT infrastructure capability, human resource capability and organizational culture.

Elsewhere, Hutahaean, Eunike and Silalahi (2023) researched on the influence of social media utilization, internal governance, and trust on e-government participation. Hypothesis testing involved PLS-SEM with findings revealing a significant association between trust and e-government portals utilization. The analysis revealed the role of good governance and transparency in inspiring trust towards government-initiated technologies among taxpayers. Further, the analysis revealed the need to use social media increase e-government awareness and to put continuity plans in place to guarantee sustained integration of emerging technologies.

Apleni and Smuts (2020) sought after the critical success factors for e- government implementation in South Africa using a case study and the Diffusion of Innovation (DOI). The analysis revealed that top management and government support is critical to successful adoption of e-government service delivery, while computer efficacy was identified as the driver of continued utilization. Further, legal policies, standards and guidelines for e-government service implementation were determined to moderate the operating environment while civil servants' awareness of emerging

technologies and their ICT capabilities were identified as important determinants of the quality-of-service delivery as well as optimisation of their processes.

Abu-Shanab and Shehabat (2018) based their assessment on the influence of knowledge management (KM) practices on the success of e-government initiatives. The study involved civil servants and relied on structural equation modelling in data analysis. Findings were that IT infrastructure and administrative factors have significant impacts on predicting e-government success, and that the management's KM practices moderate these impacts. The researchers concluded that aligning ICT infrastructure with human capacity improved consistently through training and mentorship is essential to creating an environment that favours e-government implementation.

However, according to Sulistiawaty, et al. (2021), knowledge management has insignificant effects on e-government success also sought after the critical success factors driving successful e-government implementation through the context of knowledge management, administrative management, and ICTs. Partial least squares were used in analysis of data from Indonesia managers and findings were that the variables have significant influences on e-government success. The management's involvement in setting the culture, planning and goal setting was determined to be essential to the continued use of online government portals. Wanjiru et al. (2019) identify competitive politics, weak collection systems, and limited infrastructural, administrative and technical capacity as the factors contributing to slow adoption of automated processes in a comparison of tax administration cooperation in Machakos, Kiambu and Laikipia counties.

These studies are unique in their analysis and help in identification of gaps that motivate the current examination. Kamal et al. (2015) used epistemological methods in analysis while South Africa's Apleni and Smuts (2020) used a case study approach in analysis. The current study adopted a mixed a approach and focus on revenue automation rather than technology adoption. The study by Abu-Shanab and Shehabat (2018) and Sulistiawaty, et al. (2021) presented a contextual gap having focused on knowledge management and its impact on e-government implementation, while the current will evaluate human resources competencies and skill revenue process automation success. This study addressed the effect of governance factors on implementation of automated revenue processes through an analysis of the codes of governance, regulations and management ethics on the implementation of automation in revenue processes.

### **2.3.3 Human Resource Factors and Implementation of Revenue Automation Process**

Human resources refer to the quality and of human assets within an organization. Human resources have significant impacts on successful implementation of automation technology as asserted by Sony and Mekoth (2022) in research on the success factors for industry 4.0 technologies. The study revealed that employee's adaptability skills are among the key success factors. In the research by Saniuk, Caganova and Saniuk (2021), aside from the employees' knowledge and skills, the management also had to have necessary skills and foresight to guarantee industry 4.0 implementation. However, poorly motivated employees can sabotage integration efforts as shown by Rathore, Qaiser, Ali and Sherazi (2019) whose analysis revealed that employee disinterest and negative perception of automation was an impediment to automation in Pakistani regional offices. This study sought to examine the impact of employee skills and competencies, attitude towards automation and IT education on the implementation of revenue automation process.

Söderström, Johansson and Toll (2021) sought to identify the factors that influence adoption of robots in process automation in the Swedish local government. The research used a mixed-methods approach and applied the push, pull, and mooring (PPM) framework. Findings were that organizational preparedness is a significant determinant of RPA implementation. Organizational willingness and attitude towards change, ownership of technologies, competence regarding technologies, and management support were considered vital prerequisites for automation.

Botswana's Mosweu and Bwalya (2018) used a cross-sectional design in an analysis that specified the determinants for adoption and use of the Document Workflow Management System in the public sector. Applying multivariate analysis, the researcher found significant impacts of performance expectance and facilitating conditions on the systems' use. Effort expectancy had insignificant impacts, affirming the need for demonstrating systems' effectiveness and increasing investment in more effective systems when employees feel capable. While Alassim, Alfayad and Abbott-Halpin (2017) affirm the importance of increased investment in infrastructure development in Saudi Arabia, the researchers add that poor implementation of the country's Yesser programme was a result of internal misunderstanding of new policies, unclear vision and plans, resistance to change as well as government departments' poor cooperation. The research used a qualitative approach.

Gupta, Bhaskar and Singh (2017) identified administrative technological challenges, infrastructural problems, lack of trust on computer applications, security concerns and the digital divide as the main challenges impacting e-government integration in developing economies. The study sought after the most salient drivers of e-government adoption and relied on the analytic hierarchy process (AHP). Findings were that understanding the organizational and technical factors are the most salient determinants of e-government adoption. The analysis concluded e-gov training programs, increasing technical infrastructure and internet access would improve employees' ability to utilize new integrated systems.

Amegavi, Bawole and Buabeng (2018) researched on the organisational level determinants of e-government implementation in South Africa's public sector. The study used purposive sampling and one-on-one in-depth interviews in data collection. Phenomenological analysis identified inadequate financial and human resources, low leadership support and low (ICT) literacy and infrastructure as the main factors impacting the effective implementation of computer-based programs in the department of vehicle licensing authority. The researcher affirmed that addressing IT capability challenges would increase the effectiveness of IT systems integration.

Similar challenges were identified in Tanzania where (Kisoka, 2020) carried out a case study on the assess factors affecting the use of e-government services at the National Examinations Council of Tanzania (NECTA). According to the analysis, there exists a knowledge gap between NECTA employees and NECTA customers which led to the systems' unsatisfactory performance. Further, lack of financing means that the authority could not equip its employees with latest technologies and training methods leading to slow uptake of e-government. The researcher affirmed that concerted efforts by both the government and associated stakeholders to cultivate awareness and disseminate ICT skills as well as supply updated technologies in centres of learning would improve success chances for integrated systems.

Wairiuko, Nyonje and Omulo (2018) specified the impact of human resource capacity on e-government adoption in Kajiado County, Kenya. The descriptive study applied the pragmatic paradigm and relied on regressions on analysis. HR capacity was singled out as the most significant driver of E-government adoption, highlighting the need for a user-centered approach when implementing information system. The study affirmed that acquiring a highly adaptable human

resource and establishing users' training needs as well as instituting financial and non-financial rewards would motivate the employees and increase their intentions to use e-gov services.

Kathure (2017) also avers that e-government procurement human resource management practices are the most salient determinants of e-GP implementation. The study specified integration of technologies in public procurement and focused on Kiambu County government. Results of the regressions revealed that other variables such as the management teams' e-GP plans, change management, and e-GP policies all predict effective e-GP implementation, leading to the conclusion that sound management plans guided by well-defined procedures and handled by trained and experienced HR professionals increase e-GP implementation. However, e-GP policies were singled out as having the least influence on e-GP implementation.

Chebon (2019) highlighted the need to build ICT staff capacity on technical, managerial and emerging technology skills at all government offices to realize the full effects of system automation. In the study, the HR IT competency, and IT training had significant effects on the implementation of system automation. In Nyeri County, Wachira (2020) demonstrated that staff IT capability and executive resources under organizational factors, technological and external environment factors have significant effects on the adoption of cloud-based integrated HR management systems in Nyeri County. In Machakos County, Munguti (2022) demonstrated that IT based HR training would improve the county's ability to adopt the integrated tax management system and enhance revenue mobilization. In the study, the management's ability to enforce taxable transactions and automate revenue streams was highlighted as a means to maximize revenue streams.

The studies reviewed in this section are also informative of how human resource factors can influence the degree of success in automation of administrative processes. However, Söderström, Johansson and Toll (2021) focused on robotic process automation in Sweden, Mosweu and Bwalya (2018) evaluated Document Workflow Management System in Botswana and Amegavi, Bawole and Buabeng (2018) based their analysis on internal level factors influencing government implementation. Further, the researchers used purposive sampling method and interviews to collect data. Kisoka (2020) employed case study approach that specified automation in the education sector and Gupta, et al. (2017) provided findings based on a hierarchical analysis perspective. This

study sought to use a descriptive approach in analysis of the success factors for successful revenue automation implementation in the county governments.

## **2.4 Summary of research gaps**

The study reviewed previous research findings on the factors influencing automation in different industries and regions. The studies by Abu-Shanab and Shehabat (2018) and Sulistiawaty, et al. (2021), for instance focused on knowledge management (KM) practices affirmed the importance of training and skills development in successful e-government implementation. However, these studies focus on one aspect of human resources. This study enhanced these findings through an analysis of other HR capabilities such as attitude towards new ITs and go further and assess how managerial support complements HR. The studies by Defitri, et al., (2020) present methodological gaps having used PLS-SEM in analysis. Further, these studies specified governance factors. Othman and Razali (2018) also present methodological gaps having carried out content analysis of previous literature. The current study collected primary data which gave voice to the users of automated technologies in revenue administration.

While the study by Samsor (2021) provides a clear link between a clear policy and legal framework for e-Government implementation, the study based its findings on the Afghani public sector and specified seeking after e-government implementation in conflicted nations. The study by Qader and Kheder (2016) also suffers from a similar undoing. The current study sought to investigate the factors in a country with a standardized national ICT policy. In presenting conceptual gaps, Wulandari and Salomo (2021) and Mosweu and Bwalya (2018) focused on e-tax implementation for tax collection and Document Workflow Management. The current study investigate automation of several government processes including tax filing (Lallmahomed, et al., 2017) and mHealth (Namuhisa, 2020). Kisoka (2020) and Otieno and Omwenga (2016) presents a contextual gap having carried out case studies of one government institution. Further, in reviewing the literature, it became evident that studies on drivers of implementation of revenue automation processes are lacking in Kenya. The studies by Kock (2021), for instance, provide evidence from South Africa, Rathore, et al., (2019) from Pakistan and Söderström, Johansson and Toll (2021) from Sweden. These findings were evaluated in Kenya. The gaps are elaborated further in table 2.1 below.

## 2.5 Conceptual Framework

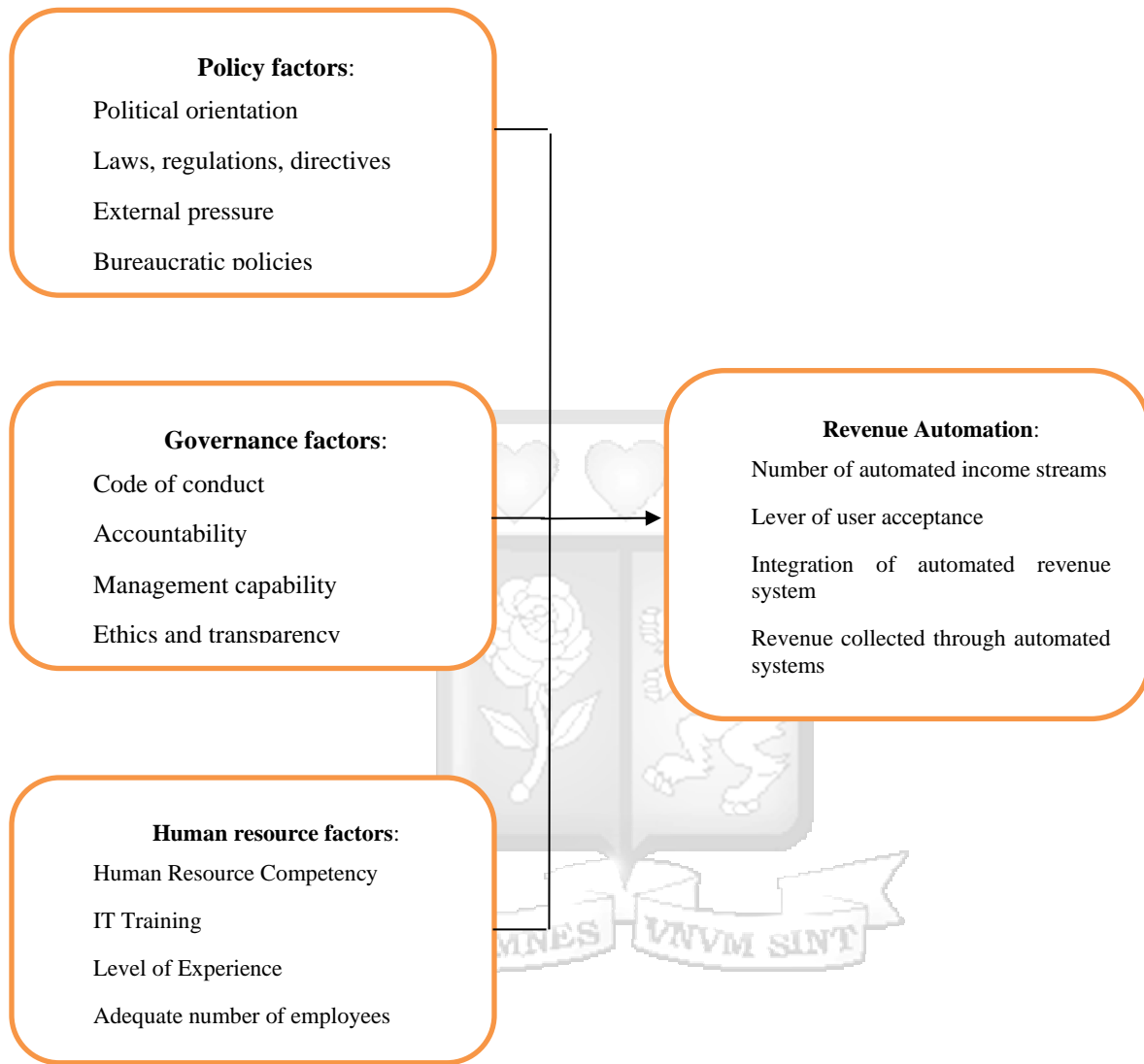
The interaction between the independent and dependent variable is depicted in the conceptual framework below;



**Figure 2.1 Conceptual Framework**

Independent Variables

Dependent variables



**Table 2.1 Operationalization of Study Variables**

Variable	Indicators	Measurement	Data analysis	Supporting literature	Supporting Theory
<b>Policy factors</b>	<ul style="list-style-type: none"> <li>Political orientation</li> </ul>	Ordinal 5-pt Likert Scale (Quantitative) Qualitative data	Descriptive analysis Correlation analysis Regression analysis	(Majone, 2019); Lv, Shao and Lee (2021); Hudson, Hunter and Peckham (2019)	Institutional Theory
	<ul style="list-style-type: none"> <li>Laws, regulations, directives</li> </ul>				
	<ul style="list-style-type: none"> <li>External pressure</li> <li>Bureaucratic policies</li> </ul>				
<b>Governance factors</b>	<ul style="list-style-type: none"> <li>Code of conduct</li> </ul>	Ordinal 5-pt Likert Scale (Quantitative) Qualitative data	Descriptive analysis Correlation analysis Regression analysis	(Scassa, 2021); (Scherer & Voegtlin, 2020); Vishnoi, Tripathi, and Bagga (2019)	Institutional Theory
	<ul style="list-style-type: none"> <li>Accountability</li> </ul>				
	<ul style="list-style-type: none"> <li>Management capability</li> </ul>				
	<ul style="list-style-type: none"> <li>Ethics and transparency</li> </ul>				
<b>Human resource factors</b>	<ul style="list-style-type: none"> <li>Human Resource Competency</li> </ul>	Ordinal 5-pt Likert Scale (Quantitative) Qualitative data	Descriptive analysis Correlation analysis Regression analysis	(Werdhiastutie, Suhariadi, & Partiwi, 2020); Chebon (2019)	Diffusion of Innovation theory
	<ul style="list-style-type: none"> <li>IT Training</li> </ul>				
	<ul style="list-style-type: none"> <li>Level of Experience</li> </ul>				
	<ul style="list-style-type: none"> <li>Adequate number of employees</li> </ul>				

**Implementation of Revenue Automation Process**

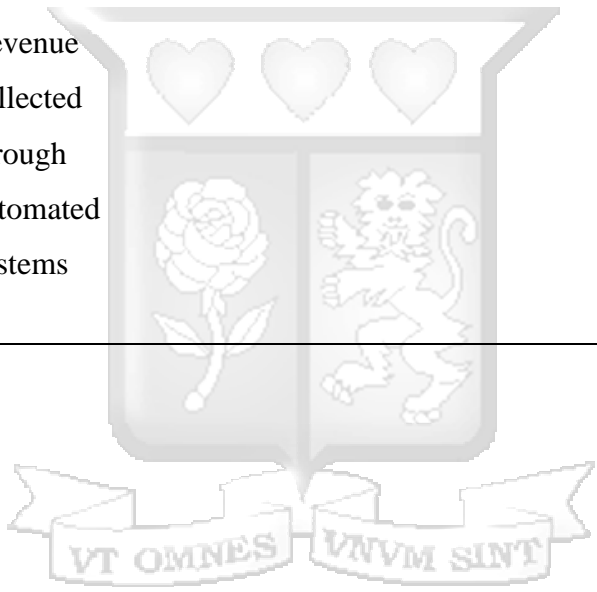
- Number of automated income streams
- Lever of user acceptance
- Integration of automated revenue system
- Revenue collected through automated systems

Ordinal  
5-pt Likert Scale  
(Quantitative)  
Qualitative data

Descriptive analysis  
Correlation analysis  
Regression analysis

Marieta (2022);  
Chen (2019);  
(Chege, Wanyembi, & Nyamboga, 2019).

Diffusion of Innovation theory



## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.1 Introduction

The third chapter of the study highlights the methodology that was applied in solving the study problem. The section specifically examines the design, the target population, the method of sampling and sample size, the instruments for collecting data, and the procedure, how data was analyzed and presented.

#### 3.2 Research Philosophy

Philosophy relates to the growth and basis of knowledge upon which assumptions and biases of a study are grounded. It stresses on what you are doing when conducting research; it encompasses the development of expertise in any research work and tends to address a specific problem in society (Gravetter & Forzano, 2018). This study adopted a pragmatism paradigm generates hypotheses that can be tested; while at the same time providing material useful in the development of laws (Newby, 2014). This approach stresses the essence of research projects to be conducted without bias without being influenced by the research subject. Reality matters to pragmatists as practical effects of ideas, and knowledge is valued for enabling actions to be carried out successfully (Sekaran & Bougie, 2019). The pragmatism is ideal for this research as it starts with a problem, and aims to contribute practical solutions that inform future practice. Hence this was ideal in conducting an assessment of the factors influencing the implementation of revenue automation process of Nairobi County, Kenya using both quantitative and qualitative research data.

#### 3.3 Research Design

Research design as the master plan that is used in the study to answer the research questions. It provides a framework for the collection and analysis of data and the choice gives a reflection on priorities that have been given to the range of dimensions of the research process (Gravetter & Forzano, 2018). The research design is the plan utilized in solving the research problem. This examination matter was deliberated using a descriptive research plan. Descriptive design involves the discovery of the what, where and how of a subject matter (Cooper & Schindler, 2003). According to Newby (2014), descriptive research design is used when collecting information about

people's attitude, opinions and habits and is appropriate for analyzing social behavior and patterns. Hence this study gathers up the findings to all of the activities. This design allows for both qualitative and quantitative tools in solving research problem.

### **3.4 Target Population**

Population is said to be a set of elements, events, people or household under the inquiry that a researcher wants to make some references (Newby, 2014). The research population is the items or objects that are of importance in solving the research problem (Mugenda & Mugenda, 2003). The population for the study consisted of all the 94 employees within Nairobi County Government Revenue Administration Department. The study targeted the employees since they have requisite knowledge on the what has been ailing the county in terms of implementing automated revenue collection. Further owing to their work experience with the various parties/agencies that have collaborated with the county in automation process they had relevant information to critically conduct an assessment of factors influencing the implementation of revenue automation process of Nairobi County, Kenya. The population of the survey thus was 94 employees.

### **3.5 Sampling Design and Sample Size**

Sampling technique provides the respondents who have information for in-depth analysis of the subject being studied (Cooper & Schindler, 2003). A sampling frame is a source of material or device from which a sample is drawn. A sample frame has characteristics of the target population (Zikmund, Babin, Carr, & Griffin, 2013). The sample frame for the study was drawn from employees within the revenue department in Nairobi County. According to Mugenda and Mugenda (2003) simple random sampling is the most representative when the sample is homogenous and a list of all target population is known. Simple random sampling helps to eliminate bias and it is highly suitable probability sampling (Sekaran & Bougie, 2010). The sample for the research was the 94 employees from the Revenue Department in Nairobi City County. The adoption of the census sampling ensured that all the participants have an equal representation in the research.

### **3.6 Data Collection Instruments**

Cooper and Schindler (2011) appreciate that many methods can be used for collecting data. The choice of a tool and instrument to be used in research depends mainly on the forms and attributes of the research and the expected data and results. This research dominantly utilized a primary

research data. Primary data comprises information gathered and collected by the use of questionnaires directly from each member of the research sample respondents. The study developed a structured questionnaire that will contain closed-ended questions. The study used a 5-point Likert scale with; 5 = very strong extent, 4 = strong extent, 3= moderate extent, 2= small extent and 1= not at all (no extent at all). The questionnaire was divided into five main parts. The first part collected demographic information; part two contained Likert-scale statements on the various selected factors influencing implementation of revenue automation the fifth section contained statements on the implementation of revenue automation process within Nairobi City County. Further, the research provided respondents with open-ended statements that allowing them to offer more opinion and experiences on the key themes of the study. This helped in improving the quality of the research data collected.

### **3.7 Data Collection Procedures**

The study ensured that research authorization was sought before undertaking the data collection from the sample participants. The study applied for research permit from the National Commission for Science Technology and Innovation. The study utilized the drop and pick method in the data collection process. This involved the recruitment and debriefing of research assistants who delivered the questionnaires to the study participants. Where not possible to adopt this technique, the study used Google forms to enhance the response rate due to the current pandemic.

The study further conducted a pilot test of the research instrument. This was done with 10% of the sample respondents who were not included in the final research. According to Kothari and Garg (2014), the aim of a pilot study normally tests the clarity and see if correspondents understand questions and that they yield results as expected. The pilot test was key to implementing reliability and validity tests of the research instruments. **The participants involved in the pilot tests were not considered for the main research. The study involved 10 officials in the pilot testing of the research instrument.**

#### **3.7.1 Validity Test**

The degree to which a research tool meets its measuring expectations is referred to as the validity (Cooper & Schindler, 2003). Content validity is used to measure the variables of interest. It can be used to measure the appropriate sampling of the content domain of items in a questionnaire. The researcher ensured that the research tool is constructed by taking into consideration all the

conceptualized items. Further, the research supervisor was engaged in the review of the research tool to ensure completeness. Lastly, the study conducted the KMO and Bartlett Sphericity Test to check on the sampling adequacy of the instrument which can confirm the validity of the questionnaire being used in the survey.

**Table 3.1 KMO and Bartlett Sphericity Test**

<b>Variable</b>	<b>Diagnostics</b>	<b>Value</b>
<b>Revenue automation</b>	KMO Measure of Sampling Adequacy	0.735
	Bartlett's Test of Sphericity	<i>Chi. Sq= 257.668, df = 15, Sig. = .000</i>
<b>Policy factors</b>	KMO Measure of Sampling Adequacy	0.854
	Bartlett's Test of Sphericity	<i>Chi. Sq= 430.139, df = 21, Sig. = .000</i>
<b>Governance factors</b>	KMO Measure of Sampling Adequacy	0.840
	Bartlett's Test of Sphericity	<i>Chi. Sq= 331.139, df = 15, Sig. = .000</i>
<b>Human resource factors</b>	KMO Measure of Sampling Adequacy	0.848
	Bartlett's Test of Sphericity	<i>Chi. Sq= 371.733, df = 6, Sig. = .000</i>

Findings of the analysis showed KMO test had value above .05 which was an indication that the observations met the sampling adequacy. The analysis revealed that the Bartlett's Test of Sphericity sig values were below .05 which was an indication that factor analysis can be applied for the research variables.

### 3.7.2 Reliability Test

Reliability refers to the consistency or stability of a measurement. A test or instrument with good reliability means that the respondent obtained the same score on repeated testing as long as no other extraneous factors affect the score (Elsayed, 2012). This research focused on the Cronbach Alpha scores as the main measure of assessing the internal consistency of the questionnaire. The alpha score varies between 0-1 with the key thresholds applied being; values above .90 are considered excellent, values above; .80 are considered good and values around .70 are often considered acceptable although not ideal for assessing the internally consistent (Taherdoost, 2016). Thus, this study considered all variables with Alphas scores above 0.70.

**Table 3.2 Reliability Results**

<b>Variable</b>	<b>Cronbach's Alpha</b>	<b>N of Items</b>	<b>Decision</b>
Revenue automation	.847	6	Instrument adopted for the main survey
Policy factors	.928	7	Instrument adopted for the main survey
Governance factors	.907	6	Instrument adopted for the main survey
Human resource factors	.920	6	Instrument adopted for the main survey



### 3.8 Data Analysis and Presentation

Data analysis is the processing of data to make meaningful information (Cooper & Schindler, 2011). The questionnaires were examined, cleaned, and sorted to ensure that all the relevant data was coded, categorized, and stored for analysis using a statistical package for social science (SPSS) Version 25. The quantitative data that was collected from the close-ended questions was analyzed using descriptive statistics. The descriptive statistics of the study comprised of percentages, means, standard deviations, and frequencies.

The computed mean for the statements on the research constructs was aggregated into the individual values and applied for further inferential analysis. The inferential analysis focused on both correlation and regression analysis. The study adopted the Spearman Rank correlation to

establish the direction of the effect of independent variables on the dependent variable. Lastly, the study applied regression analysis to determine the strength of the relationship between the selected variables and the revenue automation processes. Various diagnostic checks; normality, collinearity, linearity and heteroscedasticity were applied before regression analysis. The qualitative research data was analyzed using content analysis within the themes of the study. The analyzed data was presented using charts, figures and tables. The following regression model was estimated in this study;

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon$$

Where;

Y = Dependent variable (implementation of revenue automation process)

$\alpha$  = the model intercept

$\beta_{1-3}$  = Coefficient of independent variables

$X_1$  – policy factors

$X_2$  – governance factors

$X_3$  – human resource factors

$\varepsilon$  = Error Term

### 3.9 Ethical Considerations

Research ethics refers to the appropriateness of the researcher's behaviour regarding the rights of those who become the subject of the research project or those who are affected by it (Ghauri, Grønhaug, & Strange, 2020). The researcher addressed the following ethical issues: participants' consent, confidentiality, and anonymity through the research process and the reporting. The study ensured that all the respondents have signed the consent form before taking part in the research. The study sought the ethical approval from the University before undertaking the research work. In contrast, a research permit was sought from NACOSTI before collecting data from the field.

## CHAPTER FOUR

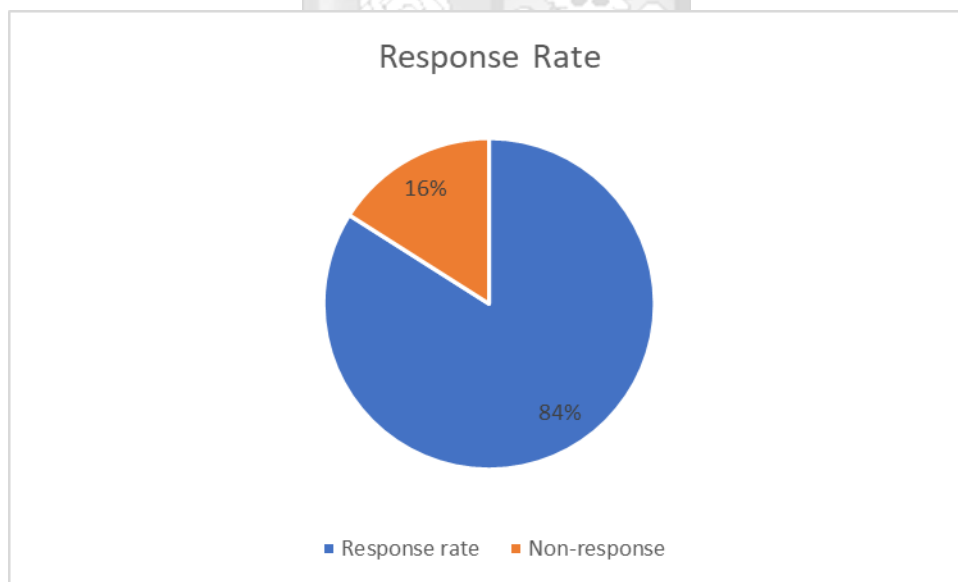
### PRESENTATION OF RESEARCH FINDINGS

#### 4.1 Introduction

The chapter presented the results that were obtained from the analysis of the collected primary study data. The main areas covered the response rate, the background information, descriptive and correlation analysis. Further the regression findings were presented to determine the magnitude of effect of the predictor variables on the implementation of revenue automation.

#### 4.2 Response Rate

The population for the study consisted of all the 94 employees within Nairobi County Government Revenue Administration Department. The study adopted a census sampling and was able to obtain 79 responses translating to 84% response rate which was considered sufficient for generalization of the results of the study as shown in Figure 4.1 below



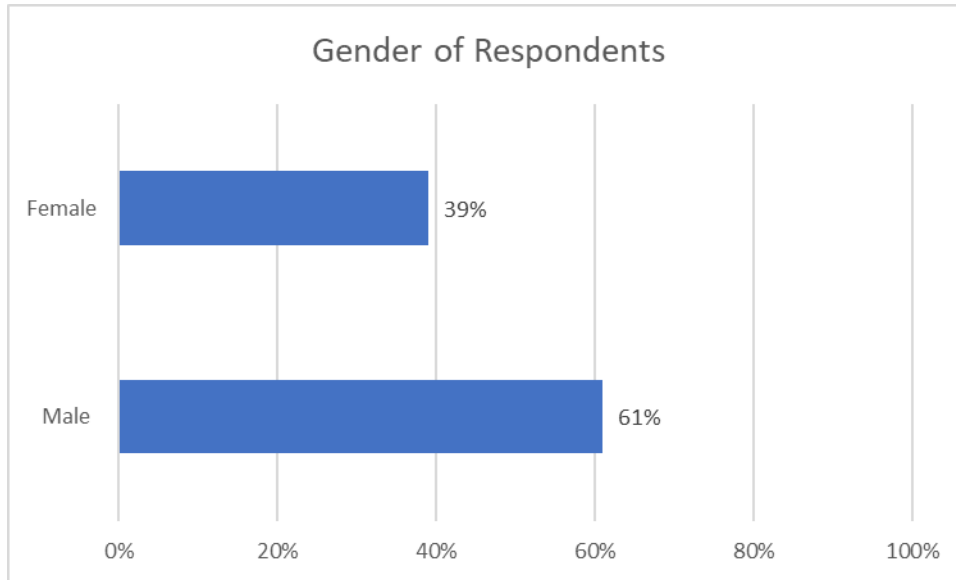
**Figure 4.1 Response Rate**

#### 4.3 Background Information

The research reviewed various characteristics of the respondents and the county and results are presented in this section.

### 4.3.1 Gender of Participants

The analysis revealed that majority of officials within the county, 61%, were male personnel with only 39% being female. This indicated there was minimal gender diversity within the revenue department workforce in the county.



**Figure 4.2 Gender of Participants**

### 4.3.2 Highest education Qualification

The participants were queried on their education attainment and the response are presented in Table 4.1

**Table 4.1 Participants Education Level**

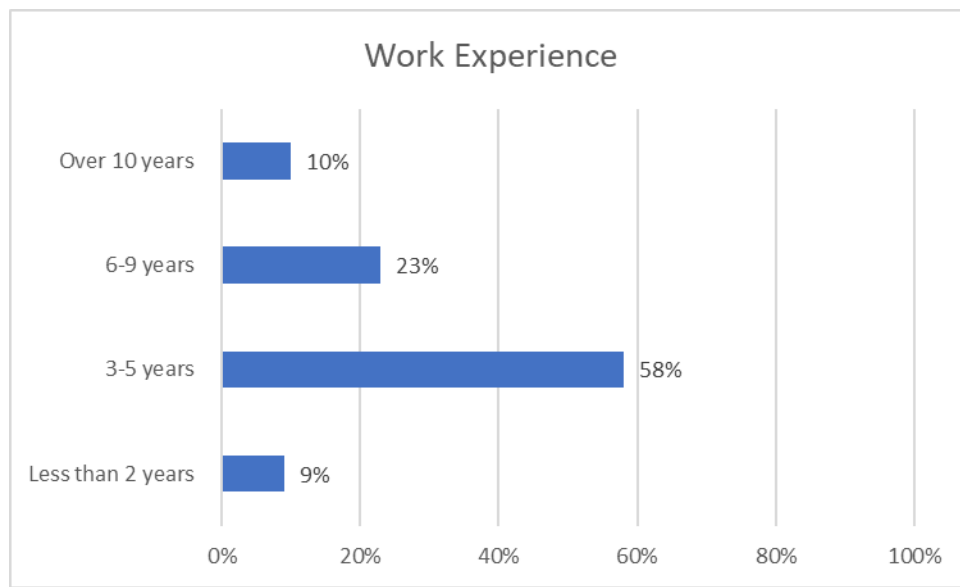
	Frequency	Percent
College level	4	5.1
Undergraduate degree	32	40.5
Postgraduate degree	43	54.4
Total	79	100.0

Results revealed that majority of the respondents 54% (n = 43) had a postgraduate degree, 41% had an undergraduate degree and 5% a college level degree. The findings implied that officials

within the department have higher education qualification which provides them with necessary skills and knowledge required in performing their roles.

#### 4.3.3 Length of Period working in Revenue Department

The study analyzed how long the officials have worked within the county and results showed that majority (58%) have worked for atleast 3-5 years, 23% for 6-9 years and 10% for over 10 years. This signified that the officials do hold adequate experience in the workplace hence had necessary knowledge on the variables being investigated in the survey.



**Figure 4.3 Length of Period working in Revenue Department**

#### 4.3.4 Revenue Automation and Employee Training

The analysis revealed that 29% of the participants indicated that revenue automation had been affected to a moderate extent with only 24% noting it was indicated to small extent. The respondents 41% agreed that the county oftenly undertake training on automation of revenue services with 39% indicating they have sometimes been involved in the training.

#### 4.4 Descriptive Analysis

The research conducted descriptive analysis to summarize the responses obtained from the structured questionnaires. Further, qualitative analysis was done using content analysis along the themes of the study.

#### 4.4.1 Implementation of Revenue Automation Process

Majority of the participants (56%) noted the county has allocated atleast 10 million Kshs. - 50 million Kshs to support the revenue automation process within the department. The study further reviewed the responses and summary is presented in Table 4.2

**Table 4.2 Implementation of Revenue Automation Process**

	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
The county has significantly improved the level of financial allocation to support the automation the revenue systems	79	2.8734	.89682
The county has achieved full automation of revenue systems across	79	2.8354	1.14836
There is widespread acceptability and usage of automated revenue systems among the public/users	79	3.0127	1.05604
The county has enacted a policy to guide the integration of automated revenue systems across all units	79	3.1392	1.16282
There is widespread user satisfaction with automated revenue system due to ease of use	79	2.8734	1.21283
There is minimal level of complaints by users since introduction of automated revenue systems	79	2.6076	1.27518

To a moderate extent (mean = 3.1392) the county has enacted a policy to guide the integration of automated revenue systems across all units. The respondents noted to a moderate extent there is widespread acceptability and usage of automated revenue systems among the public/users (mean = 3.0127). Findings showed to a moderate extent there is widespread user satisfaction with automated revenue system due to ease of use (mean = 2.8734).

*“Participants further noted there is need for increased accountability in the system and improvement in usability of the automated systems. Respondents also showed their skills of the personnel need to be reinforced through training and sensitization to improve the implementation*

*process. This will make it easier to solve customer complaints and minimize reluctance to use the automated systems. The research further showed the county needs to enhance its awareness and sensitization drives to create buy-in from the taxpayers and reinforce the execution of the automated process. Overall, the respondents acknowledged that automation has fostered revenue collection and minimized pilferage of revenue thus enhancing the development of the county.”*

#### **4.4.2 Policy Factors**

The analysis indicated that the county has designed and pursues more than 4 policies centered towards supporting revenue automation annually within the county. However, 84% of the respondents noted that only a few of them have been fully implemented showing the challenge to the execution of revenue automation process.

**Table 4.3 Policy Factors**

	N	Mean	Std. Deviation
The directives from the executive branch have significantly eased the implementation process of the automated systems	79	3.0000	1.14354
The county leadership has provided a systematic framework and guidelines to manage the implementation of the automated revenue systems	79	3.1646	1.09111
The county ensures the automated revenue systems is aligned to the national and devolved governments by-laws on management of public revenue	79	3.4557	1.10706
The county continuously reviews the internal policy on revenue automation to ensure there are minimal collisions with government regulations	79	3.2025	1.03006
The county works closely with our users and strategic partners to ensure there is seamless integration of the automated revenue systems	79	3.3418	1.06079
The county ensures there is involvement of all parties to address any gaps in the systems and minimize external pressure	79	3.0759	1.18508
The county government has streamlined its internal policies to support effective implementation process	79	2.8101	1.09867

Participants noted to a moderate extent (mean = 3.4457) the county ensures the automated revenue systems is aligned to the national and devolved governments by-laws on management of public revenue. To a moderate extent the respondents noted the county works closely with our users and strategic partners to ensure there is seamless integration of the automated revenue systems (mean = 3.3418). The results showed to a moderate extent (mean = 2.8101) the county government has streamlined its internal policies to support effective implementation process.

*“The respondents noted that county officials should reinforce compliance to the policies guiding automation processes and focus on creating a positive perception across the county to achieve the aims of the process. Further, enforcement of county directives should be upheld thus ensuring there are no caveats in the implementation process. Participants further indicated there is need for the integration of all stakeholders that would highly influence policies in the county government positively. Lastly, the laws in place need to be amended for them to allow for full automation of revenue collection processes.”*

#### **4.4.3 Governance Factors**

Regarding involvement of county leadership in the revenue automation process, the majority of respondents (53%) noted they are highly involved while 42% indicated they are moderately involved. Concerning the management support for employees in designing and implementing new revenue automation plans, 56% indicated there was moderate management involvement and 38% there was high involvement.

**Table 4.4 Governance Factors**

	N	Mean	Std. Deviation
The county government has mandated all employees to adhere to the formulated code of conduct to ensure they support the attainment of county objectives in the revenue automation process	79	3.3291	1.12912
The county executive has developed a transparency charter which mandates our employees to be accountable for their actions in the revenue automation process	79	3.4304	1.18412
The executive management engages with subordinate employees to ensure there is effective participation of the whole team in the revenue automation process	79	3.3291	1.20598
The county government ensures that supervisor staff have the capacity to make decisions at the unit level to improve efficiency in the revenue automation process	79	3.3291	1.10618
The county executive has provided strict ethical requirements that all employees are expected to abide with.	79	3.1392	1.33718
The county government routinely monitors the revenue automation process to ensure there is transparency in the utilization of county revenue	79	3.4937	1.20760

The respondents to a moderate extent noted that the county government routinely monitors the revenue automation process to ensure there is transparency in the utilization of county revenue (mean = 3.4937). Further, to a moderate extent (mean = 3.4304) the county executive has developed a transparency charter which mandates our employees to be accountable for their actions in the revenue automation process. Results indicated to a moderate extent the county government ensures that supervisor staff have the capacity to make decisions at the unit level to improve efficiency in the revenue automation process (mean = 3.3291).

*“The respondents noted that despite the governance of the county supporting automation process, there was non-inclusivity in decision making and consideration of staff opinions thus limiting their motivation towards the implementation process. Further there is need for revenue systems to not be subjected to political tenures or regime change which impacts the process implementation and distorts previously accepted systems by the public. Overall, there was insufficient financial*

*resources, technological infrastructure, and skilled personnel being provided by the leadership thus impacting the successful implementation of an automated revenue system. More so lack of capacity to manage and support the system has resulted in delays, errors, and sub optimal performance. There has also been lack of vision from the management leading to so much confusion and resistance amongst staff.”*

#### **4.4.4 Human Resource Factors**

The analysis showed that 44% of the respondents had attended atleast 4-6 training/workshops on revenue automation while 47% had attended none within the last financial year.

**Table 4.5 Human Resource Factors**

	N	Mean	Std. Deviation
The county government regularly undertakes the training of employees to reinforce their skills and competencies necessary in the implementation of automated revenue systems	79	2.6835	1.18261
The county government recruitment drive is focused on acquiring personnel with the technical expertise and knowledge to support the effective implementation of automated revenue systems	79	2.6962	1.32389
The county government conducts regular seminars/workshops to create awareness among employees on the technical aspects of an automated revenue system	79	2.7595	1.29313
The county government supports the continuous professional development of our staff to equip them with more relevant technical skills need for an automated environment	79	2.5949	1.11538
The county government provides a competitive package that ensures there is high employee retention which fosters knowledge management required in implementation of automated revenue systems	79	2.4810	1.16422
The county government has recruited adequate personnel to ensure maximum human resource capacity to support implementation of automated revenue systems	79	2.5063	1.30947

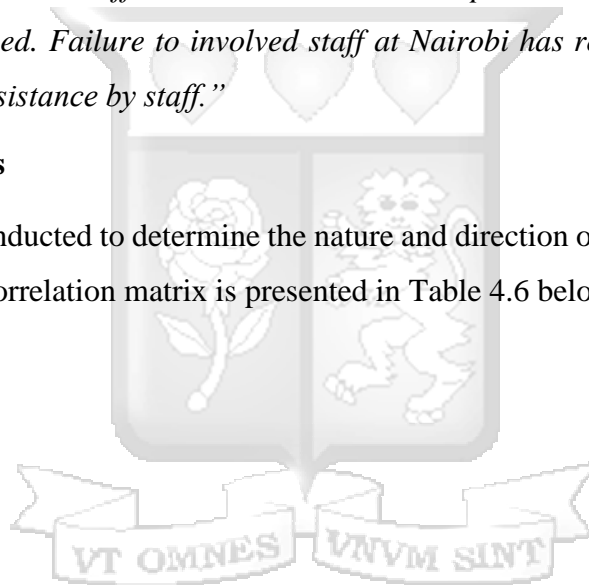
The findings show that to a moderate extent the county government recruitment drive is focused on acquiring personnel with the technical expertise and knowledge to support the effective

implementation of automated revenue systems (mean = 2.6962). The respondents noted to a moderate extent (mean = 2.7595) the county government conducts regular seminars/workshops to create awareness among employees on the technical aspects of an automated revenue system. The results showed to a small extent (mean = 2.481) the county government provides a competitive package that ensures there is high employee retention which fosters knowledge management required in implementation of automated revenue systems.

*“The analysis further showed there was insufficient training and a lack of necessary skills has led to frustration and errors in using the automated revenue system. Further, resistance from employees who are unwilling or hesitant to adapt to the new system has impeded implementation. The respondents noted that the staff must be involved in conceptualization and implementation of the system for it to succeed. Failure to involved staff at Nairobi has resulted in implementation challenges and almost resistance by staff.”*

#### **4.5 Correlation Analysis**

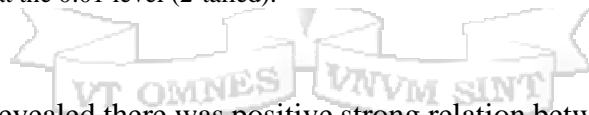
Correlation tests were conducted to determine the nature and direction of relationship between the research variables. The correlation matrix is presented in Table 4.6 below.



**Table 4.6 Correlation Results**

			Revenue Automation	Policy Factors	Governance Factors	Human Resource Factors
Spearman's rho	Revenue Automation	Correlation Coefficient	1.000			
		Sig. (2-tailed)	.			
		N	79			
Policy Factors	Policy Factors	Correlation Coefficient	.655**	1.000		
		Sig. (2-tailed)	.000	.		
		N	79	79		
Governance Factors	Governance Factors	Correlation Coefficient	.607**	.685**	1.000	
		Sig. (2-tailed)	.000	.000	.	
		N	79	79	79	
Human Resource Factors	Human Resource Factors	Correlation Coefficient	.521**	.565**	.762**	1.000
		Sig. (2-tailed)	.000	.000	.000	.
		N	79	79	79	79

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



The correlation analysis revealed there was positive strong relation between policy factors and the implementation of revenue automation process in Nairobi County ( $r = .655^{**}$ ,  $(N = 79)$ ,  $\text{Sig} = .000 < .05$ ). The findings further confirmed a positive and strong relation between governance factors and the implementation of revenue automation process in Nairobi County ( $r = .607^{**}$ ,  $(N = 79)$ ,  $\text{Sig} = .000 < .05$ ). Lastly, findings established the existence of moderate positive relation between human resource factors and the implementation of revenue automation process in Nairobi County ( $r = .521^{**}$ ,  $(N = 79)$ ,  $\text{Sig} = .000 < .05$ ).

**4.6 Diagnostic Analysis**

The research tested for linear regression assumptions using normality, collinearity and heteroscedasticity tests.

### 4.6.1 Normality Test

The normality test was conducted to ensure the data being applied in the study was from normal distribution. The normality was tested using the normal p-p plot and findings showed the observations fitted along the normality curve which was an indicator of normal distribution within the research data.

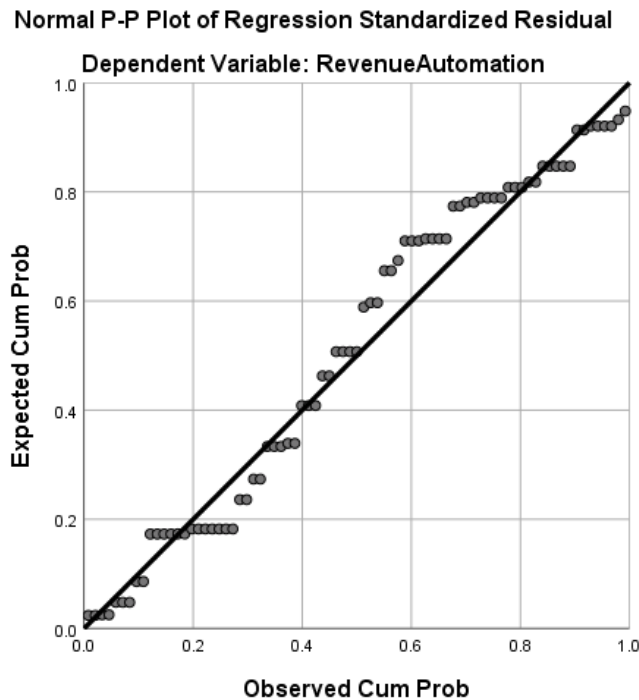


Figure 4.4 Normality Plot

### 4.6.2 Collinearity Test

Multicollinearity was conducted to determine if there are any errors occasioned by high relationship between the predictor variables. The study utilized variance inflation factor to check for collinearity problems.

Table 4.7 Multicollinearity Result

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Policy Factors	.470	2.129
	Governance Factors	.261	3.835
	Human Resource Factors	.397	2.516

a. Dependent Variable: Revenue Automation

The findings above showed VIF values less than 10, it was concluded that multicollinearity did not exist in this study. Thus, the variables can be adopted in the regression analysis to determine the predictive power of the independent variables.

#### 4.6.3 Heteroscedasticity Test

The research applied the Breusch Pagan test to ascertain if the variance of the errors varies across observations. The findings are shown in the table below.

**Table 4.8 Heteroscedasticity Test**

Chi-Square	df	Sig.
1.351	1	.245

a. Dependent variable: Revenue Automation

b. Tests the null hypothesis that the variance of the errors does not depend on the values of the independent variables.

c. Predicted values from design: Intercept + Policy Factors + Governance Factors + Human Resource Factors

The chi-square value in this study was small, 1.351 with a significance of .245 > .05 thus revealing that heteroscedasticity was not an issue of concern in the research model.

#### 4.7 Regression Analysis

The research estimated a multiple linear regression to determine the magnitude of effect of the selected variables on the implementation of revenue automation process in Nairobi County. The findings are shown below;

**Table 4.9 Regression Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.791 <sup>a</sup>	.626	.611	.53140

a. Predictors: (Constant), Human Resource Factors, Policy Factors, Governance Factors

The overall model had a r-square value of .626; which implied holding all other factors constant governance, human resource and policy factors lead to positive change (62.6%) in the implementation of revenue automation process in Nairobi County.

**Table 4.10 ANOVA Summary**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35.481	3	11.827	41.883	.000 <sup>b</sup>
	Residual	21.179	75	.282		
	Total	56.660	78			

a. Dependent Variable: Revenue Automation

b. Predictors: (Constant), Human Resource Factors, Policy Factors, Governance Factors

The statistical significance of the model was tested using ANOVA analysis and the results showed a f-value = 41.883, sig = .000 < .05 thus signifying there was statistical significance in the model selected. Thus, we can confirm that governance, human resource and policy factors have a positive and significant relationship with the implementation of revenue automation process in Nairobi County.

**Table 4.11 Regression Coefficient Summary**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.510	.228		2.236	.028
Policy Factors	.575	.095	.623	6.045	.000
Governance Factors	.022	.119	.025	.183	.856
Human Resource Factors	.189	.092	.232	2.067	.042

a. Dependent Variable: Revenue Automation

$$Y = .510 + .575X_1 + .022X_2 + .189X_3 + .228$$

The research applied the unstandardized coefficients are able to show the predictive power of a unit change of the predictor variables on the dependent variable in the model. Regarding the first objective, the findings showed a  $\beta_1 = .575$ , sig = .000 < .05 indicating there was positive and significant effect of policy factors on the implementation of revenue automation process in Nairobi

County. Changing policy factors by a single unit will lead to .575 improvement in implementation of revenue automation process in Nairobi County. On the second objective the results showed  $\beta_2 = .022$ ,  $\text{sig} = .856 > .05$  indicating there was positive and insignificant effect of governance factors on the implementation of revenue automation process in Nairobi County. Lastly, the analysis revealed  $\beta_3 = .189$ ,  $\text{sig} = .042 < .05$  indicating there was positive and significant effect of human resource factors on the implementation of revenue automation process in Nairobi County. Changing human resource factors by a single unit will lead to .189 improvement in implementation of revenue automation process in Nairobi County.



## CHAPTER FIVE

### DISCUSSION, CONCLUSION AND RECOMMENDATION

#### 5.1 Introduction

This chapter provides the final observations that were made during the execution of the research. It will comprise a summary of the study, detailing its objectives, methods and approach to analysis, a discussion of findings that can be drawn from the research, and the conclusions that were made from the findings. These will be aligned as they appear in the research questions and objectives.

#### 5.2 Summary

Automation systems are important tools through which the efficiency of tax administration can be enhanced, with research linking automated revenue management systems with reduced reporting cost, tax clearance time and effectiveness of revenue collection. Automated revenue management simplifies the tax proves, performs customs declarations, accounting, transit and other suspense procedures, generation of trade data, as well as assist in tracking of taxpayers. Despite this, effective implementation of automated revenue systems is a complicated procedure that requires numerous resources, effort, and cooperation to work successfully. These factors differ across regions and are also highly influenced by access to the ICT systems, human expertise and the structure of tax administration.

In recent years, Nairobi County has been struggling to successfully integrate an automated revenue management system, resulting in irregular income and increased revenue leakages. Only 14 out of a possible 136 revenue streams are currently automated, leaving the county's income generation to be disoriented. Understanding the factors influence the implementation of automated revenue systems is important to identifying the existing barriers and proposing sustainable solutions to the tax administration challenge experienced in the county. Therefore, this study carried out analysis into the factors influencing the implementation of revenue automation process of Nairobi County, Kenya, with specific focus on policy, governance and human resource factors.

The study was guided by a pragmatism paradigm and adopted a descriptive research design informed by the diffusion of innovations and the Institutional theories. As per these theories, technologies are adopted for their ability to provide value and simplify tasks, and that effectively adopted technologies will improve organizational and task performance. Moreover, given the

connected nature of organizations, structures, rules, norms, and routines will influence the type of technology adopted. The target population was all the 94 employees within Nairobi County Government Revenue Administration Department and was able to obtain 79 responses (84% response rate). Most of the respondents were male (61%), had post graduate degrees, and had worked in the revenue department for between 3 and 5 years, signifying their experience with different automated tax systems and high likelihood of understanding the factors that influenced the systems' implementation. Of the respondents, only 41% agreed that the county takes them through frequent automated systems training.

### **5.3 Discussion**

This section presents a discussion of the study's results and will be presented in relation to the literature reviewed in the second chapter of the study. The study was on the factors influencing successful implementation of revenue automation process in Nairobi County, Kenya and it applied descriptive and inferential analysis on the collected data. Regression results findings were that the variables under investigation explain 62.6% of successful implementation of revenue process automation in Nairobi County. This implies that addressing weaknesses within these dimensions would have a significant impact on successful implementation of the revenue automation process at the local authority of Nairobi County. Specifically, the study findings highlight the importance of focusing on policy and human resource factors on successful revenue process automation. Moreover, improving the quality of governance would strengthen policy and resource factors hence improve the efficiency within which automation systems can be incorporated into local governments' revenue management process.

The finding that policies, human resources and governance factors have a significant impact on revenue automation concur with the assertions of the institutional theory that rules, norms, and routines play a significant role in guiding public policy. The finding that governance factors have insignificant direct effects on revenue process automation in Nairobi County is also predicted by the institutional theory which emphasizes the importance of ethical leadership in governance. The theory predicts that ethical leaders are more likely to act in the best interests of the organization follow formal and legal aspects of governance. In this sense, the findings also agree with assertions of the DOI theory that factors such as previous efforts at IT integration, HR's IT competency, and compatibility of existing technologies, internal structures, policies, and resources

will influence the degree of automation adopted by an organization. The theory also highlights the influence of leadership styles on the adoption of new technologies and predicts that early adapters are motivated by the need for improvement, meaning that visionary leadership is essential for the adoption of automated technologies. The discussion on the specific variables will be presented in line with the study objectives below.

### **5.3.1 Policy Factors and Implementation of Revenue Automation Process**

The study's first objective was to carry out an assessment of the effect of Policy Factors on the implementation of revenue automation process in Nairobi County and regression results were that policy factors have a positive and significant effect on the implementation of revenue automation process in Nairobi County. As an external factor, the DIO predicts that certain policies and programs are essential for the adoption of new technologies, and that technologies such as automated processes will be adopted faster in an environment with friendly policies, access to infrastructure, external knowledge, as well as the removal of regulatory bottlenecks. The institutional theory also predicts that policies mandating adoption of new technologies would expediate automation of the revenue process. Moreover, Ndirangu (2022) revealed that a reduction in bureaucracies, institutional incentives, and an increase in regulator pressure can result in more companies adapting new technologies.

Policies are important instruments that direct how organizations behave and are central to mitigating or avoiding any of the negative impacts accompanying automation such as discrimination, privacy, and consumer rights (Kock, 2021). From the descriptive analysis, the respondents were in agreement that the county has designed and pursues more than 4 policies centred towards supporting revenue automation annually within the county. These policies aim to govern personal data collection, use, and storage, as well as ethical use of automated systems. Alassim et al. (2017) add that policies calling for transparency and accountability during use of automated systems in decision making are instrumental to the acceptance of automated technologies. Despite the value of policies, many of the respondents ascertained that most of the policies developed are poorly implemented and there are minimal enforcement efforts towards the same.

The county representatives to some extent revealed that to some extent the county ensures that there is alignment between automated revenue systems and national and devolved governments

by-laws on effective management of public revenue. This finding was reported by Samsor (2021) who confirmed that cooperation between stakeholders, coordination and information sharing are essential components of e-Government implementation. More findings were that the county works closely with strategic partners and users to ensure there is seamless integration of the automated revenue systems. Alignment of e-government policies together with cooperation between agencies and public representatives was shown by Qader and Kheder (2016) to have a significant effect on user's awareness, trust and acceptance of e-government technologies. The researchers added that alignment with the national development framework as well as coordination are also key to ensuring government officials acquire the necessary skills to effectively.

Further agreement was that the county continuously reviews the internal policy on revenue automation to ensure there are minimal collisions with government regulations. This observation is synonymous with those made in Indonesia by Wulandari and Salomo (2021) who ascertained that the national policies have been updated several times to ensure they keep up to pace with new components of technology and address emerging user concerns. Moreover, there was agreement that the county government has streamlined internal policies to support effective implementation process. Policies surrounding data privacy and information sharing, for instance were reported by Lallmahomed, Lallmahomed and Lallmahomed (2017) to increase in scope as more revenue streams get automated and the researchers ascertained due to the complicated nature of information accessible through mobile devices, regular updating of policies is necessary for public acceptance and trust in the systems. The study confirmed that policies on information sharing between agencies are essential to addressing a wide variety of taxpayers' demand.

Finally, respondents agreed that the directives from the executive branch have significantly eased the implementation process of the automated systems and ensured an inclusive automation process that works for all. Executive directives were shown to promote ethical use of AI, promote inclusivity and reduce displacement of unskilled labourers in the study by Namuhisa (2020) whose analysis conceded that mHealth directives from the ministry of health were essential to promoting skills acquisition, budgeting for skills acquisition and the provision of gender-sensitive regulatory impact assessments needed to build digital skills and ensure unprepared workers are not left behind and upskilled to cope with the needs of automated systems.

### 5.3.2 Governance Factors and Implementation of Revenue Automation Process

The study's second objective was on the effect of governance factors on the implementation of revenue automation process in Nairobi County and regression results indicated a positive and insignificant effect of governance factors on the implementation of revenue automation process in Nairobi County. Governance factors are also external determinants of successful implementation of revenue automation and according to the diffusion of innovations, factors such as demand for transparency and increased managerial accountability are important governance drivers for new technology adoption within the public sector. This finding is also supported by the Institutional theory which emphasizes the role of ethical leadership in enforcing transparency laws and demanding increased efficiency in public policy, which can increase the rate of adoption of new technologies. With automated systems being associated with streamlined revenue processes, Kathure (2018) conceded that national governments can pressure local governments to adopt automated systems and accelerate their diffusion.

From the descriptive analysis, 53% of the respondents indicated that the county leaders are highly involved in the revenue automation process, indicating their willingness to play a role in governing the use of automation and directing it towards a human-centric perspective of service delivery; 42% noted there was moderate involvement by the leadership. Further analysis indicated that 56% of the country leadership were moderate involved while 38% considered the leaders to be highly involved in designing and implementing new revenue automation plans, there was further evidence that the management supports the involvement of staff, implying that the leaders understand that involving staff in the revenue automation process is central to successful implementation of the system. The role of leaders in determining the type of decision making, the degree of collaboration between departments, and their management approach were all highlighted in the study by Kamal et al. (2015) which evaluated technology adoption drivers in the UK.

According to Defitri et al. (2020), the managements' orientation towards accountability is a significant determinant of successful e-government implementation in public service delivery. The study made observations that managements have to monitor the systems regularly and generate reports to confirm the transparency of its data and in this study, respondents agreed that the county government routinely monitors the revenue automation process to ensure there is transparency in the utilization of county revenue. The respondents in the current study further revealed that the

county executive branch developed a transparency charter which mandates that staff be held accountable for their actions in the revenue automation process.

There was moderate agreement that the county executive has provided strict ethical requirements that all employees are expected to abide with, a factor which according to Hutahaeon et al. (2023) influences e-government implementation. Hutahaeon et al. (2023) findings were that government executives can play a key role in future development of AI by ensuring they embed transparency principles in their guidelines for its acquisition, and by imposing standards on contractors and other parties involved in the revenue automation process. In the study, good governance that promotes trust and continuity were shown to be critical elements of successful e-government participation. These observations were also made in South Africa by Apleni and Smuts (2020) who revealed that legal policies, standards and guidelines for e-government service implementation are instrumental to civil servants' awareness and acceptance of emerging technologies.

The influence of governance roles on staff preparedness was highlighted in the study as there was agreement that county government officials ensure supervisor staff have the capacity to make decisions at the unit level. Proper frameworks for staff improvements were highlighted in the research by Defitri et al. (2020) which revealed that with the pace of development of digital technologies, successful implementation will be reliant on a change in organizational culture, norms and practices to ensure staff are prepared for the different case use options. This can be achieved through effective goal setting and participation of the whole team in the revenue automation process. The role of the management in setting up the culture, planning and goal setting was highlighted by Sulistiawaty et al. (2021) to be a determinant of the continued use of online government portals. From these findings, the degree of involvement of county government employees in governance is an important determinant of a county's preparedness and continued use of e-government technologies.

### **5.3.3 Human Resource Factors and Implementation of Revenue Automation Process**

The study's third objective was on the effect of human resource factors on the implementation of revenue automation process in Nairobi County and regression results indicated a positive and significant effect of human resource factors on the implementation of revenue automation process in Nairobi County. Automated technologies are complex systems that require requisite technical skills and competencies to successfully adopt and integrate, and human resources are internal

factors that are essential for successful integration of automated technologies as per the DOI. These findings are also in agreement with assertions of the institutional theory that organizations need to transform their human resources and equip them with the skills needed to navigate the modern environment. It also asserts that companies should empower and satisfy their human resources and upskilling them is a means to ensure they are competent enough and can use new technologies to improve their efficiency.

Abuya et al. (2020) also found a higher degree of automation in environments where public officers have the skills necessary to use automated systems and recognized the influence of strategic IT training policies and programs. Sony and Mekoth (2022, in their study confirmed that quality human resources are an indispensable asset that is essential to the continued usage of new technologies. In the current study, there was agreement among respondents that the county government conducts regular seminars/workshops to create awareness and improve employees' skills and techniques needed for successful implementation of the automated revenue system. As a factor of organizational policies and the role of county executives, ensuring employees of all cadres can use automated systems is important to its implementation as it improves their confidence and acceptance of the new system Söderström, Johansson and Toll (2021). In the study, perceived competence influenced employees' attitude and their acceptance of new technologies by the Swedish local government. Mosweu and Bwalya (2018) revealed that training programs are facilitating conditions when it comes to implementing new processes and performance measurement metrics.

The value of an IT capable human resource on e-government implementation was demonstrated in the study by Kathure (2017) where experienced HR professionals were key to successful e-GP implementation. However, in the current study, there was moderate agreement that the county government recruitment drive is focused on acquiring personnel with the technical expertise and knowledge to support effective implementation of automated revenue systems, implying that the government's main agenda is not to acquire staff with knowledge of the revenue automation process. Moreover, it may reflect the market whereby such skills are not easily accessible. There was also minimal agreement that the county government has recruited adequate personnel to ensure maximum human resource capacity to support the implementation of automated revenue systems. This inability to ensure personnel possess the necessary IT skills and competencies may

reflect the counties' struggles as with every new system comes the need to develop competencies unique to the system.

Similar challenges were identified in Tanzania where (Kisoka, 2020) conceded that the inability of the National Examinations Council of Tanzania to not equip its employees with latest skills and provide up to date technologies and training methods were impacting the speed of e-government implementation. In South Africa, inadequate financial and human resources, low leadership support and low (ICT) literacy and infrastructure were all highlighted as the main impediments to successful e-government implementation. In the research by Gupta et al (2017), poor infrastructure investment and lack of technical skills were the main barriers to effective e-government implementation in developing economies. Aside from the staff, the research by Alassim et al. (2017) also conceded that most government officials lack the technical understanding of automated technologies and often fail to provide adequate support, a clear vision and plan, as well as the policies required to sustain e-government implementation.

Automated technologies are rapidly expanding and it is essential that local governments be prepared to use these tools once they become available. This means investment into better recruitment and selection processes, technology infrastructure, clearer vision and plans, as well as in human resource technical competency development-at all levels of management as well as subordinate level. According to the DOI, an IT competent human resource is the most critical determinant of IT systems successful implementation and adoption.

## 5.4 Conclusion

The study's general objective was to carry out an assessment of the factors influencing the implementation of revenue automation process of Nairobi County, Kenya. Following the analysis and discussion, the following conclusions can be drawn from the study. The study concludes that the variables under investigation have significant positive effects on the implementation of revenue automation process of Nairobi County, Kenya. These findings are in line with assertions of the DOI which states that a supportive environment where people have the requisite competencies for IT implementation is essential to adoption of and sustained use of new technologies. They also confirm the emphasis of the institutional theory that ethical leadership demands more transparency

and accountability in the delivery of public services and these factors can provided by adopting new technologies.

The findings lead to the conclusion that all three factors complement each other, with the institutional policies and human resource factors having the most significant influences on the implementation of the county's revenue automation process. Regarding the first objective, the study concludes that policy factors revolving around bureaucracies, laws, regulations and directives have a positive and significant effect on the implementation of revenue automation process the county. As the variable with the most significant effect, the findings imply that increasing the quality of the policies would have a significant effect on counties' ability to successfully automate their revenue processes.

Conclusion on the second objectives were that while governance factors have a positive effect on successful automation of the revenue process, the effect is insignificant. Using automated systems requires one to have the requisite skills, competencies and well-motivated and in with the rapid advancement and use of automated technologies, organizations have to develop training programs aimed at improving employees' skills and expertise. This study's third objective was to evaluate the influence of human resource factors on the implementation of revenue automation process and conclusions were that human resource factors have a significant effect on the implementation of the revenue automation process. Efforts to improve employee's IT skills through competency training, recruitment and selection as well as effective remuneration were all shown to predict user acceptance and eventual implementation of the automated systems.

## **5.5 Recommendations**

### **5.5.1 Policy Recommendations**

Recommendations are for continued sensitisation of all categories of users to increase awareness of the automated streams to taxpayers, adequate allocation of financial resources to ensure local governments have the capacity to properly integrate automated systems, reduced political interference in county matters, robust engagements with stakeholders on the system to point out any weakness and suggestions for improvement. It is also essential that county committees regularly assess, evaluate and monitor the impact of proposed solutions and ensure they align with the national and county governments. They should also ensure proper procedure is followed when implementing the systems to ensure no phase is skipped, and that stakeholder opinions are taken

into account during and after the systems' implementation. The study further calls for the county government to work closely with and collaborate with other institutions such as the KRA which has seen significant successes in its automation and was successful at revenue collection prior to the introduction of the Nairobi Revenue System.

### **5.5.2 Practical Recommendations**

The study recommends that the county government should provide clear policies and directives that can guide a seamless implementation of the automation process. Further laying down a clear systematic approach with collaborative guidelines will help ensure there is coordination across the county in executing the automation process. The study further suggests that the county government should routinely review their internal policies to ensure they are consistent with changing dynamics in the market thus promoting the automation process. The county should further ensure there is user engagement to support the adoption of the automated processes as well as ensure streamlined adoption of the automated processes.

Findings from the third objective were that human resource factors have a significant and positive influence on the implementation of revenue automation. Recommendations are that the county government to enhance the skills development among the employees which will be critical in the implementation of automate processes. The county government should further collaborate with experts in the technology industry to enhance the development of automated systems that meet the needs of the devolved unit. The research also recommends the county government to provide recognition of employees who exhibit proficiency in technical skills to help foster their retention rates which can support better implementation and utilization of the automated revenue systems.

### **5.6 Limitations of the Study**

The study limited itself to an analysis of three main factors that are associated with automation. However, the analysis also uncovered other factors such as the technology used and the financial capability of the institution can impact its ability to successfully adapt automated technologies. The study further limited itself to analysing data from county employees while the leaders who formulate and execute polices can also provide important insights into the relationship between the factors under investigation. The study was also limited to the DOI and the institutional theory and a descriptive approach. Another limitation of the study was the focus on Nairobi County

Government and the leadership and governance approach in the county may differ from other regions.

### **5.7 Area for Further Research**

The factors under investigation explain most of the factors that influence successful implementation of revenue automation process. However, explain only 62.6 percent of the positive change in the implementation of revenue automation process in Nairobi County. This study calls for further analysis into other factors that may influence revenue process automation not evaluated in the current study, especially from the taxpayer's perspective. Moreover, this study did not explore technology-side and financial-size factors which influence revenue automation such as the technology's appropriateness or its compatibility with existing systems, and the institution's ability to afford implementing the new systems. Understanding how these factors influence the automated systems' integration could be key to improving its successful implementation in the revenue process.



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## APPENDICES

### Appendix I: Questionnaire for Revenue Administration Department

Hello,

I'm Flavian Bwire currently a student at Strathmore Business School and I'm seeking your help in filling the attached questionnaire. The aim of the questionnaire is to obtain information that was used in achieving the objectives of this research. At no point will any personally identifying information be required from you and the data collected was securely stored and only used for the stated academic goals.

The study sought to conduct an *assessment of the factors influencing the implementation of revenue automation process of Nairobi County, Kenya*. Kindly provide your honest responses to the attached questions.

Thank you for taking the opportunity to assist with this work. Asante.

#### Part A: Demographic Information

**1. Kindly indicate your gender identity?**

Male ( )

Female ( )

**2. What is your highest education qualification?**

College level ( )

Undergraduate degree ( )

Postgraduate degree ( )

**3. How long have you worked within the revenue administration department?**

Less than 2 years ( )

3-5 years ( )

6-9 years ( )

Over 10 years ( )

**4. To what degree would you characterize the implementation of revenue automation within the county?**

Very low ( )

- To a small extent ( )
- To a moderate extent ( )
- To a great extent ( )
- To a very great extent ( )

**5. How routinely do officials/personnel in the revenue administration undertake training on automation of revenue services?**

- Not often at all ( )
- Sometimes ( )
- Often ( )
- Very often ( )

**PART B: ASSESSMENT OF THE FACTORS INFLUENCING THE IMPLEMENTATION OF REVENUE AUTOMATION PROCESS OF NAIROBI COUNTY, KENYA**

In the below sections kindly provide your level of agreement/perception on the following statements using the following key;

5 = very strong extent, 4 = strong extent, 3= moderate extent, 2= small extent and 1= not at all (no extent at all).

	<b>Revenue Automation</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>1.</b>	The county has significantly improved the level of financial allocation to support the automation the revenue systems					
<b>2.</b>	The county has achieved full automation of revenue systems across					
<b>3.</b>	There is widespread acceptability and usage of automated revenue systems among the public/users					
<b>4.</b>	The county has enacted a policy to guide the integration of automated revenue systems across all units					
<b>5.</b>	There is widespread user satisfaction with automated revenue system due to ease of use					
<b>6.</b>	There is minimal level of complaints by users since introduction of automated revenue systems					

**With your experience within the revenue administration department, what are your thoughts on the implementation of automated revenue system?**

.....  
 .....  
 .....  
**What are the main benefits that have accrued from the implementation of automated revenue system in the county?**

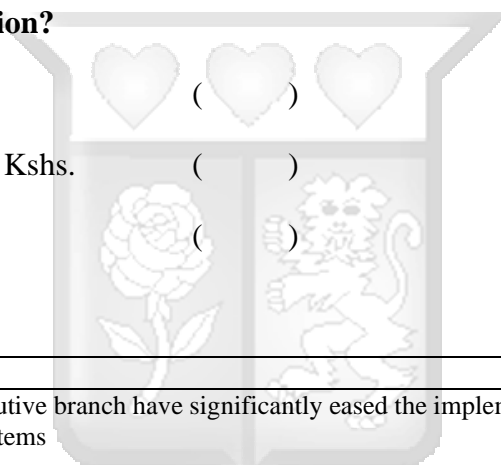
.....  
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**In the last financial year how much allocation has been allocated by the county government to support revenue automation?**

Less than 10million Kshs.

10 million Kshs. - 50 million Kshs.

Over 50 million Kshs.



	<b>Policy Factors</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>1.</b>	The directives from the executive branch have significantly eased the implementation process of the automated systems					
<b>2.</b>	The county leadership has provided a systematic framework and guidelines to manage the implementation of the automated revenue systems					
<b>3.</b>	The county ensures the automated revenue systems is aligned to the national and devolved governments by-laws on management of public revenue					
<b>4.</b>	The county continuously reviews the internal policy on revenue automation to ensure there are minimal collisions with government regulations					
<b>5.</b>	The county works closely with our users and strategic partners to ensure there is seamless integration of the automated revenue systems					
<b>6.</b>	The county ensures there is involvement of all parties to address any gaps in the systems and minimize external pressure					
<b>7.</b>	The county government has streamlined its internal policies to support effective implementation process					

**With your experience, how would you characterize the influence (positive/negative) of policy factors to the implementation process for the automated revenue system?**

.....

.....

.....

**Within the year how many policies have been designed focussed on revenue automation within the county?**

Less than 3 ( )

4-6 policies ( )

7-10 policies ( )

Over 11 policies ( )

**How many of the designed policies have been fully implemented?**

None ( )

A few of them ( )

All of them ( )

	<b>Governance Factors</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>1.</b>	The county government has mandated all employees to adhere to the formulated code of conduct to ensure they support the attainment of county objectives in the revenue automation process					
<b>2.</b>	The county executive has developed a transparency charter which mandates our employees to be accountable for their actions in the revenue automation process					
<b>3.</b>	The executive management engages with subordinate employees to ensure there is effective participation of the whole team in the revenue automation process					
<b>4.</b>	The county government ensures that supervisor staff have the capacity to make decisions at the unit level to improve efficiency in the revenue automation process					
<b>5.</b>	The county executive has provided strict ethical requirements that all employees are expected to abide with.					
<b>6.</b>	The county government routinely monitors the revenue automation process to ensure there is transparency in the utilization of county revenue					

**Based on your experience, how would you characterize the influence (positive/negative) of governance factors to the implementation process for the automated revenue system?**

.....

.....

.....

**How would you characterize the involvement of the county leadership in the revenue automation process?**

Rarely involved ( )

Moderately involved ( )

Highly involved ( )

**To what extent has the management supported employees in designing and implementing new revenue automation plans?**

Rarely involved ( )

Moderately involved ( )

Highly involved ( )

	<b>Human Resource Factors</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>1.</b>	The county government regularly undertakes the training of employees to reinforce their skills and competencies necessary in the implementation of automated revenue systems					
<b>2.</b>	The county government recruitment drive is focussed on acquiring personnel with the technical expertise and knowledge to support the effective implementation of automated revenue systems					
<b>3.</b>	The county government conducts regular seminars/workshops to create awareness among employees on the technical aspects of an automated revenue system					
<b>4.</b>	The county government supports the continuous professional development of our staff to equip them with more relevant technical skills need for an automated environment					
<b>5.</b>	The county government provides a competitive package that ensures there is high employee retention which fosters knowledge management required in implementation of automated revenue systems					
<b>6.</b>	The county government has recruited adequate personnel to ensure maximum human resource capacity to support implementation of automated revenue systems					

**How many training/workshops were conducted for employees within the last year on revenue automation systems?**

None ( )

Less than 3 ( )

4-6 times ( )

Over 7 times ( )

**With your experience, how would you characterize the influence (positive/negative) of human factors to the implementation process for the automated revenue system?**

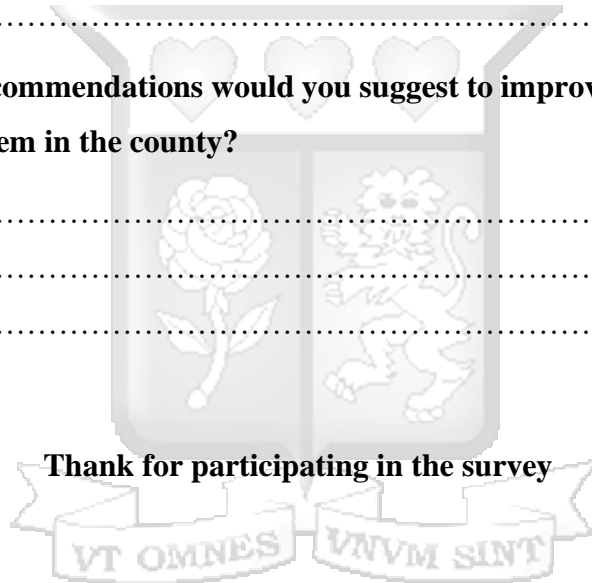
.....  
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**What other factors would you characterize as an impediment/challenge to the implementation process for the automated revenue system?**

.....  
.....  
.....

**Going forward what recommendations would you suggest to improve the implementation of automated revenue system in the county?**

.....  
.....  
.....



## Appendix II: Summary of Research Gaps

Author(s)	Topic	Methodology	Findings	Research Gaps
Wulandari and Salomo (2021)	Evaluation of Policies and Success Factors of E-Government Parking Tax Implementation in Capital Region of Jakarta	Post-positivism method applying statistical analysis	Poor policy development and lack of integration has impacted the effectiveness of e-government applications	The study provided conceptual gaps having evaluated E-Government Parking Tax Implementation while the current explores the automation of various government processes
Kamal, Bigdeli, Themistocleous and Morabito (2015)	Investigating factors influencing local government decision makers while adopting integration technologies (IntTech)	The study used descriptive research design with regression model adopted in analysis	The risk-taking mindset of the managers alongside resource and finance capacity influence managers' decisions to adopt IntTech	This study provided contextual gaps as it sought after the firm context factors influencing top management's decisions to adopt IntTech in local governments LGAs while the current focussed on a multitude of factors
Othman and Razali (2018)	Whole of government critical success factors towards integrated e-government services: A preliminary review	The study applied content analysis method	The study grouped critical success factors into technical and non-technical aspects such as interoperability, collaboration and coordination, security and trust and budgets	The study has methodological gaps as it used a literature review while the current collected and analyze primary data in analysis
Lallmahomed, Lallmahomed and Lallmahomed (2017)	Factors influencing the adoption of e-Government services in Mauritius	The study applied structural equation modeling in hypothesis testing	Performance expectancy, perceived value predicts e-Government adoption.	This study presented conceptual gaps focused on e-filing implementation which is just one of the many revenue processes that this study sought to examine

Otieno and Omwenga (2016)	Citizen-centric critical success factors for the implementation of e-government: A case study of Kenya Huduma Centres.	This research was based on a descriptive research design	The respondents opined that there was no significant impact of ICT policies and regulations on successful implementation and access of e-government services	This study was a case study that focused on taxpayers at one Huduma (service) centre, presenting a methodological gap.
Abu-Shanab and Shehabat (2018)	The influence of knowledge management practices on e-government success: A proposed framework tested	Structural equation modelling technique was used to test the model	Governments need to encourage KM practices and make available the needed infrastructure for such environment.	This study has a conceptual gap having evaluated knowledge management practices which is a function of human resources
Söderström, Johansson and Toll (2021)	Automation as Migration? Identifying Factors Influencing Adoption of RPA in Local Government	Push-Pull-Mooring (PPM) framework	Resource effectiveness, organizational willingness and attitude towards change, ownership of technologies and IT competence act as drivers for RPA adoption	The study focused on adoption of Robotic Process Automation a conceptual gap. The current specifies automation of the entire revenue administration process
Mosweu and Bwalya (2018)	A multivariate analysis of the determinants for adoption and use of the Document Workflow Management System in Botswana's public sector	Multivariate analysis	Performance expectance and facilitating conditions significantly influence systems' use	This was a case study, hence a method gap while the current targeted a revenue authorities in the county government. Further, the study restricted itself to determinants for adoption and use of the Document Workflow Management Systems

Alassim, Alfayad and Abbott-Halpin (2017)	Understanding factors influencing e-government implementation in Saudi Arabia from an organizational perspective	Data were analyzed using the grounded theory coding process.	The country was struggling to implement e-government due to poor implementation of policies and guidelines for e-gov implementation	This study is based in Saudi Arabia which has a different culture, regulations and attitude towards technology compared to Kenya's which this study sought to explore
Amegavi, Bawole and Buabeng (2018)	The dynamics of e-government enactment in a developing country public sector organisation: evidence from Ghana	Phenomenological analysis	Inadequate financial and human resources, low leadership support and low (ICT) literacy and infrastructure all have negative impacts on the effective implementation of computer-based programs	This study used purposive sampling and in-depth interviews in data collection while the current study majorly relied on statistical analysis. This presented a method gap.
Kisoka (2020)	Factors affecting the use of E-Government services in Tanzania: a case study of NECTA	Qualitative and quantitative methods of data analysis	Cultivating awareness, ICT skills as well as supplying updated technologies would improve successful e-government implementation service delivery	This study examined automation at the National Examinations Council; the current studied automation at revenue authority offices. This was a contextual gap
Kathure (2017)	Antecedents of Effective Electronic Government Procurement Implementation in Kiambu County Government, Kenya	Linear Regressions	e-GP plans, change management, and e-GP policies all predict effective e-GP implementation	These findings are from Kiambu County government which is smaller and has a lower market base than Nairobi. The study further presents a geographical gap

## Appendix III: Ethical Review Approval



22<sup>nd</sup> April 2024

**Flavian Bwire**

136280

flavian.ojiambo@strathmore.edu

Dear Flavian,

**RE: An Assessment of the Factors Influencing the Implementation of Revenue Automation Process of Nairobi County, Kenya**

This is to inform you that the Office of Graduate Studies on 20<sup>th</sup> April 2024 received your request for intervention/assistance following your referral by the Strathmore University Institutional Scientific and Ethics Review Committee (SU-ISERC) to our Office due to the fact that you stated that you had already collected and/or analysed its data prior to seeking Ethical clearance. The ethics approval process is ONLY done before any collection of primary or secondary data.

This is a letter for you to proceed with the next steps of your academic requirements.

Please be advised, that in future, all research proposals should be submitted to the SU-ISERC through the RHInnO Ethics platform: <https://strathmoreuniversity.rhinno.net/login>






**Disclaimer:** 1) *This is not in any way an ethical approval letter.* 2) *Should there be any legal implications/actions emanating from the research in terms of any ethical violations, you will be personally liable.*

Yours sincerely, \*

Dr. Bernard Shibwabo

**Director of Graduate Studies**

# Appendix IV: NACOSTI Research Permit

 <b>REPUBLIC OF KENYA</b>	 <b>NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY &amp; INNOVATION</b>
Ref No: <b>991373</b>	Date of Issue: <b>19/April/2024</b>
<b>RESEARCH LICENSE</b>	
	
<b>This is to Certify that Mr., Flavian Bwire Ojiambo of Strathmore University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: AN ASSESSMENT OF THE FACTORS INFLUENCING THE IMPLEMENTATION OF REVENUE AUTOMATION PROCESS OF NAIROBI COUNTY, KENYA, for the period ending : 19/April/2025.</b>	
License No: <b>NACOSTI/P/24/34908</b>	
<b>991373</b> Applicant Identification Number	Director General <b>NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY &amp; INNOVATION</b>
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