

**EFFECTS OF MOBILE TRANSACTIONS ON REVENUE COLLECTION IN
PUBLIC TRANSPORT BUSINESS IN NAIROBI COUNTY**

MASAKI, RAWLINGS OKEBIRO

122978

**A RESEARCH PROJECT SUBMITTED TO THE STRATHMORE UNIVERSITY
BUSINESS SCHOOL IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF BACHELOR OF COMMERCE OF STRATHMORE
UNIVERSITY**

JANUARY, 2024

DECLARATION

I hereby affirm that my work has never before been accepted for credit towards a degree by this university or any other university. Except in the cases where the research project itself appropriately identifies sources, based on my convictions and understanding. This project contains no previously written or published works by other individuals.

Name of Candidate: Masaki Rawlings Okebiro

Signature..... 

Date..... 23/01/2024

Approval

The research proposal of Masaki Rawlings Okebiro was reviewed, evaluated and approved by the

following:

Name of Supervisor: Ms. Juliana Kamau School: Strathmore University Business School

Signature: 

Date: 28/1/2025

ABSTRACT

This research sought to investigate the effects of mobile money transactions on revenue collection in public transport business in Nairobi County by establishing how owners of public transport business can eliminate or minimize theft of the revenue collected through use of cashless or digital money transactions. The study targeted 272 PSV matatu SACCOs in Nairobi County. A standardized questionnaire with closed-ended, structured questions built on a five-point Likert scale was used to collect data and was given to the Nairobi offices of PSV Matatu SACCOs. Inferential statistics like correlation and descriptive statistics like means and standard deviation and linear regression analyses, were used in the data analysis process. Software called the Statistical Package for Social Sciences (SPSS) version 29 and Microsoft Excel was also used to analyze the data. Regression analysis shows that the use of mobile money solutions accounts for 14.2% of the variation in transparency, with transactions using mobile money significantly contributing to improved transparency ($R^2=0.142$ $p<0.001$ $R^2=0.142$, $p < 0.001$ $R^2=0.142$ $p<0.001$). Additionally, the study shows that mobile transactions are moderately effective in reducing theft ($R^2=0.206$ $p<0.001$ $R^2=0.206$ $p<0.001$ $R^2=0.206$ $p<0.001$) and handling costs ($R^2=0.224$ $p<0.001$ $R^2=0.224$, $p<0.001$ $R^2=0.224$, $p<0.001$). The results also confirm that the relationship between these variables is statistically significant and devoid of multicollinearity concerns, affirming the reliability of the findings. Future studies should explore additional factors that may impact the effects of mobile money transactions in public transport. These include technological literacy among the operators, the role of customer trust in digital transactions, and the impact of mobile money on operational costs. Moreover, longitudinal studies could provide insights into how mobile money adoption evolves over time and its long-term effects on the transport businesses.

Key words: Mobile Transaction, Transparency, Reducing Theft, handling cost
vehicle matatu SACCOS, Nairobi City County

TABLE OF CONTENTS

DECLARATION	i
ABSTRACT	ii
LIST OF TABLES	viii
ABBREVIATION AND ACRONYMS	ix
ACKNOWLEDGEMENTS	x
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background to the study	1
1.1.1 Mobile money transactions.....	2
1.1.2 Revenue collection	2
1.2 Problem statement	3
1.3 Objectives of the research.....	4
1.3.1 General objective	4
1.3.2 Specific objects.....	4
1.4 Research questions	4
1.5 Scope of the study.....	5
1.6 Significance of the study	5
1.6.1 Public Transport administration in Nairobi	5
1.6.2 Mobile Money Providers	5
1.6.3 Commuters.....	5
1.6.4 Government of Kenya.....	6
1.6.5 Other researchers	6
CHAPTER TWO	7
LITERATURE REVIEW	7
2.1 Introduction	7
2.2 Theoretical review	7
2.2.1 Theory of Diffusion of Innovation.....	7

2.2.2	Technology Acceptance Model	8
2.3	Empirical review.....	9
2.3.1	Mobile money transactions and revenue theft reduction	9
2.3.2	Mobile money transactions and increased transparency.....	10
2.3.3	Mobile money transactions and reduction of cash handling costs.....	11
2.4	Research gap summary	11
2.5	Conceptual framework.....	14
2.5	Operationalization of study variables	15
2.5.1	Reduced Theft.....	16
2.5.2	Increased Transparency	16
2.5.3	Cash Handling Costs.....	16
2.5.4	Revenue Collection.....	16
CHAPTER THREE		17
RESEARCH METHODOLOGY		17
3.1	Introduction.....	17
3.2	Research design	17
3.3	Population and sampling	17
3.3.1	Population	17
3.3.2	Sampling	17
3.4	Data Collection	18
3.5	Data analysis.....	18
3.6	Research quality	19
3.6.1	Validity	20
3.6.2	Reliability.....	20
3.7	Ethical issues in research.....	20
CHAPTER FOUR.....		21
DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION		21
4.1	Introduction.....	21
4.2	Sample representation.....	21

4.2.1 Demographic Characteristics	22
4.2.2 Gender Distribution	22
4.2.3 Age Distribution.....	23
4.2.3 Length of service with Matatu SACCO.....	24
4.2.4 Method of payment preferred	26
4.3 Descriptive analysis	27
4.3.1. Perceived impact of mobile transactions on revenue collection.....	27
4.3.2. Perceived impact of mobile money transactions on reducing theft	28
4.3.3. Perceived impact of mobile money transactions on increasing transparency.....	29
4.3.4. Perceived impact of mobile money transactions on reduced cash handling costs.	30
4.4. Reliability Analysis.....	31
4.5 Correlational Analysis	32
4.5.1 Correlations between Reduced theft, increased transparency and cash handling cost.	32
4.5.2 Correlations between revenue collection, reduced theft, increased transparency and cash handling cost.	33
4.5.3 Correlations between revenue collection, reduced theft, increased transparency and cash handling cost.	35
4.6 Regression Analysis.....	36
4.6.1 Effect of mobile transaction and reduced theft by public service vehicle matatu .. SACCOs.....	36
4.6.2 Effect of mobile transaction and increased transparency by public service vehicle matatu SACCOs.....	37
4.6.2 Effect of mobile transparency and handling Costs by public service vehicle matatu SACCOs.....	39
4.7 Summary of the findings.....	41
CHAPTER FIVE	42
SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS	42
5.1 Introduction.....	42
5.2 Summary of the findings.....	42
5.2.1 To examine the effect of mobile money transactions on increased transparency of revenue collection in the public transport businesses.	42

5.2.2 To establish the effect of mobile money transactions on theft reduction within the revenue collection process.....	42
5.2.3 To investigate the effect of mobile money transactions on revenue collection in achieving reduced cash handling costs in public transport businesses.....	43
5.3 Conclusions.....	43
5.4 Recommendations.....	44
5.4.1 Public Transport Operators:.....	44
5.4.2 Policy Makers:.....	44
5.4.3 Mobile Payment Providers:.....	44
5.5 Suggestions for further research.....	45
5.6 Limitations of the research.....	45
References.....	46
APPENDICES.....	56
Appendix I: Letter of introduction.....	56
APPENDIX II: Sample Questionnaire.....	57
APPENDIX III: List of licensed SACCOs in Nairobi County.....	60
APPENDIX IV: Supervision schedule.....	67

LIST OF FIGURES

Figure 2.1 Conceptual framework	14
Figure 4.1 Gender of the respondents.	22
Figure 4.2 Age of Respondent.	23

LIST OF TABLES

Table 2.1 Research gap summary	12
Table 2.2 Operationalization of study variables	15
Table 4.1 Response Rate of Questionnaire	21
Table 4.2 Duration of Matatu SACCO service	25
Table 4.3 Method of payment preferred	26
Table 4.4 Revenue Collection.....	27
Table 4.5 Reducing Theft	28
Table 4.6 Increasing Transparency	29
Table 4.7 Cash handling cost	31
Table 4.8 Correlations between reduced theft, increased transparency and cash handling costs.....	32
Table 4.9 Correlations between reduced theft, increased transparency and cash handling cost.	34
Table 4.10 Correlations between variables.....	35
Table 4.11 Regression analysis of mobile transaction and reduced Theft.....	36
Table 4.12 Regression analysis of mobile transaction and reduced Theft.....	37
Table 4.13 Regression analysis of mobile transparency and handling Costs	39

ABBREVIATION AND ACRONYMS

Financial Technology (FinTech)

Kenya National Bureau of Statistics (KNBS)

National Transport and Safety Authority (NTSA)

Public Service Vehicle (PSV)

Savings and Credit Cooperative (SACCO)

ACKNOWLEDGEMENTS

Above all, I want to thank the Almighty God for bringing me this far and for keeping me well enough for me to complete this project on time. I would like to thank my family and close friends for their unwavering support. Finally, I would like to sincerely thank my supervisor for all of his help and advice.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

The Kenya National Bureau of Statistics (KNBS) claims that, (2019) Nairobi has seen significant population growth, but the current population is estimated to be around 4,397,073 million. Dong et al., (2021) shows how public transport is indeed a cornerstone for efficiency and sustainability of modern cities. Nairobi, the capital city of Kenya, has a bustling public transportation system that is vital to the daily commute of millions of residents (Akoko, 2022). Most people in Nairobi use vans and minibuses, which are referred to as "Matatus" and serve as their primary form of motorized public transportation (Salon & Gulyani, 2019). According to the National Transport and Safety Authority (NTSA) regulations of 2014 before applying for a public service vehicle (PSV) permit, for management purposes, every PSV must be a member of a Savings and Credit Cooperative (SACCO).

The rapid use of mobile phones in society has been one of the biggest technological advances in recent decades and their contribution to the growth of both personal and professional activities (Liébana-Cabanillas et al., 2019). In the past, the main form of payment in the public transit industry has been cash (Baç, 2020). Świecka et al, (2021) explains rise of wireless platforms like M-Pesa has provided an alternative that promises greater transparency, efficiency, and revenue optimization. The purpose of this study was to investigate the effects of mobile money transactions on Nairobi's public transport business.

A study done by Gitonga, (2019) notwithstanding the advancements in the payments sector, cash has been the primary method of payment used by Kenyan commuters. Using cash to make payments has drawbacks because of economic inefficiencies such the high expense of distribution, processing, handling, and recycling (McAndrews, 2020). The pandemic (Covid-19) led to a rise in the application of contactless payment technologies that appear to be highlighting the decrease of cash as a payment method (Cronin, 2021). According to Guevara & Auat Cheein (2020) Cashless payments offer several advantages, including lower costs, more effective and efficient administration of operations due to quick, increased information quality, accessibility, and end-user-specific receipts, together with precise and transparent transactions.

For instance, Schachter (2019) most central banks collaborate with mobile money service providers to lower the cost of financial transactions utilizing digital platforms, which encourages the use of these platforms for financial transactions like (M-pesa). In the research of Aron and Muellbauer (2019) With the usage of mobile money, users of mobile phones can safely send and receive money to others, save money, and make payments all without the need for a traditional bank account.

1.1.1 Mobile money transactions

Globally, cashless communities and technology advancement are gaining popularity (Fabris, 2019). Rahman et al., (2021) states that when customers conduct financial transactions without actual currency, it's referred to as a cashless payment. Some nations like India have adopted cashless payment methods far more frequently (Sreenu, 2020). FinTech products like mobile money can assist money adopters in enhancing their financial and business services (Pattanapong Tiwasing et al., 2024).

Markus and Nan (2020) mobile money have gained international recognition due to the swift expansion of the M-Pesa system in Kenya (where "M" stands for mobile and "Pesa" for money) via Safaricom, a Vodafone subsidiary, which was established in 2007. Aron & Muellbauer, (2019) underserved persons can now transfer and pay for goods and services more affordably and save their money in a secure, private location by utilizing mobile money. M-Pesa is the most successful and leading mobile payment service in the country and is acknowledged for encouraging comparable creativity in other countries (Lashitew et al., 2019). In the research of Aron & Muellbauer, (2019) the researcher concluded that the benefits of mobile money's contribution to increased transparency in electronic records are numerous. Transparency in records safeguards consumers' rights, builds corporate confidence, and encourages the development of effective payment networks.

1.1.2 Revenue collection

Muchoki, (2020) revenue collection can be defined as a financial event brought about by the selling of goods or services, increasing the value of the assets involved. The fares that customers pay for public transit are their primary source of revenue for public transport business (Aruho et al., 2021). Additionally, the public transportation industry contributes significantly to the owners' incomes and the employment of many people in both the formal and non-formal industries, including insurance agents. (Muraya, 2019). Whereas the study by Aruho et al., (2021) revenue collection has been a problem as a result the emergence of the

cashless payments this was a reaction to issues with the minibus paratransit, or matatu sector face, including bribery, sudden fare increases, farebox income theft, and disorganized operations.

Clemons et al. (2022) the increasing prevalence of smart device ownership, including smartphones and smart watches, has caused the widespread acceptance of mobile payments as the favored mode of payment in numerous domains. Furthermore, a new mobile payment technique has emerged with the inclusion of bitcoin payments on mobile devices (Zhao & Bacao, 2021). According to Lu and Wung (2021) when examining usage intentions from a technological standpoint most of the study on mobile payments emphasizes on payments employing sound waves, infrared, QR codes, SIM cards, near field communication (NFC) and host card emulation (HCE to collect revenue.

1.2 Problem statement

In the study of Choi et al.(2020) which indicated industry characteristics, such as the number of firms within a specific sector, industry size and industry structure, can either speed up or slow down the adoption of innovations in technology. Large, centralized firms were more likely than decentralized ones to adopt new technology at a faster rate (Echebiri, 2021). large businesses are well-positioned to absorb any related risks that come with innovation and can get the necessary funds to implement new innovations, given their abundance of resources and willingness to engage in new technology (Petricevic & Teece, 2019).

Kenya's public transport sector is expected to generate US\$0.43 billion by 2024. The market is expected to develop at a compound annual growth rate (CAGR) of 5.43%, or US\$0.56 billion, by 2029, when revenue is expected to climb from 2024. (Market Forecast for Public Transport in Kenya, Statista, 2024). Kenya's transportation industry serves as an excellent illustration of a sizable industry overseen by the NTSA under the terms of the road transport act 2013 (Kamau, 2024). Owing to the magnitude of the sector, numerous sections oversee formulating policies pertaining to traffic laws and innovations, ensuring that the sensible policies that are communicated to users are carefully considered.

According to Tinka & Behrens, (2019) revenue collection in public transport (matatu business) faces numerous challenges, such as fare evasion, fraud, outdated payment system and misappropriation. These challenges are occasioned by the cash payments model through which matatu touts(conductors) use for collecting fares (Aruho et al. (2021). A study conducted by Onyango (2022) revealed that touts bribe money to circumvent traffic laws or to keep good

connections with dishonest police officers. As a result, matatu business owners end up losing revenue and thus suffering huge losses daily due to lack of accountability by the touts thus suffering losses which hump business growth and success hence the need to use cashless payments and transactions (Aucamp et al., 2023).

The proposed study aims to explore how the use of mobile money transactions can help public transport business owners eliminate theft and losses associated with cash transactions. Despite the increasing adoption of mobile payment systems, there is limited research available from 2019 to 2024 examining their effectiveness in preventing revenue leakage in the public transport business in Nairobi County. Studies have shown to how Nairobi County's matatu industry's profitability was affected by insecurity (Sanganyi, Duke O, 2021), little attention has been given to its direct impact on minimizing cash handling costs and preventing losses in public transport businesses. Therefore, the aim of this research is to investigate the effects of transactions using mobile money on revenue collection in public transport businesses, with a focus on the public transport business in Nairobi County.

1.3 Objectives of the research

1.3.1 General objective

The study's goal was to determine how mobile money transactions impact the capacity of the public transport sector to collect income.

1.3.2 Specific objects

- i. To examine the effect of mobile money transactions on increased transparency of revenue collection in the public transport businesses.
- ii. To establish the effect of mobile money transactions on theft reduction within the revenue collection process.
- iii. To examine how mobile money transactions affect revenue collection in order to lower cash handling expenses for public transport business.

1.4 Research questions

- i. What impact do mobile money transactions bring on increased transparency of revenue collection in public transport businesses?
- ii. How do mobile money transactions help in reducing theft within the revenue collection process?

- iii. How do mobile money transactions affect revenue collection by reducing cash handling costs in public transport businesses?

1.5 Scope of the study

Nairobi County, Kenya's capital and the main centre for the nation's public transit system, will be the focus of this study. Nairobi's extensive and diverse public transport network, including matatus (minibuses), buses, and boda-bodas (motorcycle taxis), provides a representative environment for analysing how revenue collection is affected by mobile money transactions. The research will explore the effects of mobile money transactions in improve revenue collection within the public transport business. The study will cover a time frame from 2019 to 2024. This time frame is chosen to provide a complete understanding of the development and effects of mobile money use in Nairobi's public transport business, covering both the early stages of acceptance and the later trends. The study will concentrate on the public transport operators (matatu and bus owners) who are major players in Nairobi's public transport system.

1.6 Significance of the study

1.6.1 Public Transport administration in Nairobi

Bus and matatu owners, as well as other operators of public transportation, can profit immensely from this study. The study will emphasize the benefits of adopting mobile money systems, including less need for handling currency, less income leakage, and more efficient operations. Operators can boost sustainability and profitability by implementing these insights into their financial management procedures.

1.6.2 Mobile Money Providers

The larger understanding of technology adoption in the public transportation industry will be enhanced by this study. Through evaluating the benefits and drawbacks of mobile money in this setting, the study can direct upcoming technological advancements and modifications. These results could be used by mobile money service providers to improve their offerings and better meet the demands of the public transportation sector.

1.6.3 Commuters

The study is important because it sheds light on how mobile money encourages financial inclusion by allowing those without bank accounts to engage in digital financial transactions. Given that a sizable section of the populace depends on public transportation, this is especially pertinent. The report will add to the conversation on how to improve financial inclusion

emerging nations by demonstrating how mobile money has expanded access to financial services.

1.6.4 Government of Kenya

This study has the potential to enhance larger anti-corruption initiatives in Kenya by illuminating how mobile money might reduce revenue leakages and corruption in the transport industry. Increased trust between operators, passengers, and regulators might result from a more open and responsible revenue collecting mechanism, which would ultimately promote a more equitable and effective public transportation system.

1.6.5 Other researchers

This research will broaden our understanding of mobile money and its uses across industries. Researchers and students who are interested in the convergence of technology, finance, and public transportation will find it very pertinent. The results of the study might potentially be used as a starting point for additional studies looking into other aspects of mobile money usage in various settings.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In order to gain deeper comprehension of the research objectives and methodology to be employed in the study, this chapter provides an overview literature both theoretical and empirical related to the problem of the field of study by comparing and contrasting the opinions of several writers on effects mobile money transactions on the acquisition of revenue in public transport business and how their research is connected to earlier research and finally summary of the knowledge gap. This chapter comprises a conceptual framework, operationalization variables, literature and study gaps, an empirical review, and a theoretical review.

2.2 Theoretical review

Numerous theories have been proposed as suitable for the investigation of cashless payments and transactions adoption. Much research focusing on the intention to use or adopt cashless transactions and payments has made use of each theory and model. The theories that will be examined in this study include:

2.2.1 Theory of Diffusion of Innovation

Rogers introduced the Diffusion of Innovation model in 1983, is still an extensively utilised model in the study of how users behave when embracing new technical innovations. In the study of Afful Ekow Kelly and Palaniappan (2022) we can see that the application of Diffusion Theory aids in comprehending the variety of user choices that accompany the integration of technology for revenue collecting. According to this idea-diffusion model, the likelihood of obtaining a specific concept is determined by how frequently that idea occurs among the entire population (Benhabib et al., 2021). The acceptance of innovation in businesses is influenced by three elements. These include personal traits like a leader's willingness toward change and internal organizational structure traits like centralization, complexity, interconnection, and the number of employees and organizational slack), as well as the organization's external attributes (system openness) (Amini & Jahanbakhsh Javid, 2023).

Diffusion of Innovation is a theory that describes how an invention gradually diffuses among members of a social system via specific channels (Goh & Sigala, 2020). A study of Goh and Sigala (2020) stated that adoption of innovative technologies can also be expedited if significant other groups endorse and encourage the behaviour referred to as supportive

subjective norms. This implies that among reference groups, cultivating and possessing the appropriate attitudes for accepting and integrating technology should be viewed as beneficial (e.g. operators, passengers, and regulators) who are important and influential to the public transport business.

Raman et al. (2024) categorised people according to their speed and readiness to accept innovations, doing study on adopter types that are essential to Rogers' thesis. These categories include early adopters, laggards, innovators, early majority, and late majority. First to adopt novel concepts, innovators frequently take risks and are willing to try out innovative technologies. Influential opinion leaders who assist in disseminating innovative ideas to a wider audience are considered early adopters. The second-fastest group to adopt innovations about 34% of people are early adopters and they absorb ideas more slowly than early adopters do. Prior to adopting a new idea, they consider the experiences of early adopters. About one-third of the late majority is usually resistant to change and only uses innovations once they are adopted. Finally, laggards are the most resistant.

Mobile money is popular in this century, it is widely accepted by people from all over the globe and this is because of the numerous usages it provides. In the context of this study the matatu SACCOS (Savings and Credit Cooperative) need to embrace mobile money transactions and they can choose to adopt the new method of fare payment to minimize theft of the revenue collected. This theory states that such mobile money should be adopted in stages for it to be effective. The adoption of mobile money transaction into normal operations of revenue collection will require different strategies and commitment at diverse levels for successful elimination of theft of the revenue collected.

2.2.2 Technology Acceptance Model

In 1989, Davis created the model, which was based on the idea that when determining whether to embrace a technology, its simplicity of use and possible advantages should be taken into account. Models like the technology acceptance model (TAM) are among the most popular. For researching information system acceptability, it has been used by numerous writers to describe how mobile money transactions improve revenue collection in the public transportation industry. A study carried out by Granić and Marangunić (2019) the model is a popular idea in the domain of information systems that offers a theoretical framework for comprehending the use of technology. In line with the acceptance of the technology paradigm, attitudes are defined by perceived usefulness and simplicity of use, which forecast people's

assessments of the system's desirability, whether favorable or unfavorable (Natasia et al., 2022). The theory clarifies that users' decisions to accept recent technologies are influenced by a variety of criteria, and they will only do so if the innovation is advantageous, simple to use, and will enhance the way they operate at work (Granić and Marangunić (2019).

As explained by Sagnier et al. (2020) the definition of perceived utility is "the extent to which an individual believes that utilizing a specific system would improve his or her job performance." Perceived utility and perceived usability can be affected by external elements like as user involvement in design, marketing initiatives, system features, sociodemographic traits, training, and so on (Vuković et al., 2019). According to Natasia et al., (2022) Five primary structures make up the TAM construct. Perceived ease of use (PEU) pertains to a measure on how easy it is for a person to comprehend and use a computer. The usage of mobile transactions is simple because the digital nature of mobile money allowed for real-time reporting and more detailed financial data, which improved overall transparency and decision-making. Perceived usefulness (PU) a person's propensity to use an application to make their work easier is known as usefulness. Owners of matatu SACCOs will benefit by monitoring revenue without being afraid of incurring losses. Attitude toward utilizing (AT) feelings that people experience when engaging in behavior can also be used to characterize attitude. Behavioral Intention to Use (B) this refers to a pattern of behavior that keeps using technology. Actual System Use (AU) if someone finds the system user-friendly and conducive to higher productivity, they will find it easy to use and their satisfaction will be reflected in the actual circumstances of usage.

2.3 Empirical review

2.3.1 Mobile money transactions and revenue theft reduction

In the study of Tenderere (2023) done South Africa examined how a cashless fare collection system is an effective tool that will assist combat corruption, theft, and safeguard matatu operators from possible criminals. Ultimately, drivers who have excess cash on hand may find themselves motivated to steal. By eliminating the need for passengers to carry cash and guaranteeing accurate records on the amount of money the matatus collected, the mobile money transactions aim to enhance accountability and safety in the transportation industry, which is particularly advantageous to matatu operators and passengers. Cash fare collection systems not only make it difficult to assess or verify fare earnings, but they also put drivers at risk of being targeted by thieves looking to steal the day's proceeds (Tinka & Behrens, 2019). It was

anticipated that this approach would reduce fare rising at rush hour on Kenyan metropolitan highways, tax evasion, and corruption because the driver would not carry cash.

Conversely, a study conducted by Musukwa (2020) in Livingstone, Zambia, bribery of taxi drivers, minibus drivers, and traffic police officers persists as a social issue in spite of efforts to combat corruption, because of the touts' lack of accountability, matatu business owners wind up losing money every day and experiencing losses that hinder their ability to develop and succeed. In the study of Nzakizwanimana (2021) that was conducted in Rwanda stated that public transport business had several issues with the antiquated manual fare or cash collecting method, including as fraud, corruption, fare evasion, and theft of collected fares. In the study the absence of an established electronic fare payment system, since money is distributed among multiple parties, there are frequently disagreements over fare payment. Additionally, public transport businesses suffer a loss daily due to the difficulty in controlling revenue generation.

2.3.2 Mobile money transactions and increased transparency

Chepkoech (2022) indicated that a cashless approach should improve transparency, reduce inefficiencies and delays, and boost income, an efficient e-payment system must be implemented to mobilize funds effectively. The study also showed that when fewer dollars are exchanged, services become more transparent, and more people are brought into the official, tax-paying economy. The automatic and accurate transaction records that mobile money systems usually offer lessen the possibility of human error or deliberate inconsistencies, which are more frequent when handling cash (Kim, 2020). This will improve public transport businesses in Nairobi that will adopt mobile money because significant improvement in the accuracy of their financial records will be increased as the digital records are more reliable and less prone to tampering.

According to Mogaji and Nguyen (2022) The term "transaction traceability" describes the capacity to monitor and verify transactions from start to finish. Every transaction made with a mobile money system leaves a digital trail, which facilitates payment tracking and helps spot anomalies. Nan et al., (2020) explains the implementation of mobile money increased transaction traceability. This improvement has been linked to the digital nature of mobile money, which automatically records transaction details, making them easy to audit. The owners will benefit from mobile transactions as they will be able to track at what time a transaction was made and the amount this will minimize theft of the revenue collected and increase accountability.

Management reporting is the frequency and level of detail in financial reports produced for management (Caglio et al., 2019). Mobile money systems can automate report generation, providing more frequent and detailed financial reports compared to manual cash handling methods. A study by Ndegwa et al. (2023) found that public transport operators who adopted mobile money reported a 50% increase in the frequency and detail of financial reports. The digital nature of mobile money allowed for real-time reporting and more detailed financial data, which improved overall transparency and making judgments Oriji et al., (2023) mentioned that the digital nature of mobile money allowed for real-time reporting and more detailed financial data, which improved overall transparency and decision-making.

2.3.3 Mobile money transactions and reduction of cash handling costs

Malinga and Maiga (2019) conducted a study in Uganda to investigate the adoption of mobile money by traders in Uganda, due to the rise of mobile money transactions, there is a significant decrease in the cost of "leakage" from middlemen using unsafe transfer techniques or corruption, and in the worst-case scenario, there is a significant decrease in the cost of total loss from theft. Furthermore, according to Hassan (2023) small firms perform better when they accept payments through mobile money, and mobile money services boost sales and company size. This is because transactions may be completed regardless of location, saving time, money, and ensuring flexibility.

According to Lombardi (2020) the study found that businesses spend a lot of money on personnel who handle cash management and cash reconciliation tasks, which has an impact on financial performance. The findings showed that controlled cash handling procedures with the use of technology will deliver return on investment by reducing the risks and cost of handling cash. Handling cash incorrectly might result in significant financial losses. Discrepancies, miscounts, and unaccounted funds also result in hidden expenses that have an impact on profitability. Businesses can decrease hidden expenses associated with human cash processing and streamline operations by automating cash handling activities.

2.4 Research gap summary

Aron and Muellbauer (2019) claims that mobile money transactions have been increasingly adopted in various sectors, including public transport, as a means to reduce cash handling costs, enhance transparency, and reduce theft. Research has shown that mobile money can reduce transaction processing times, increase the accuracy of financial records, and decrease the incidence of theft by minimizing cash handling (Kanobe & Bwalya, 2021). In public transport

systems, these benefits translate into more efficient operations, better revenue management, and improved security for both operators and passengers.

Studies such as those by Tenderere (2023) and Musukwa (2020) have highlighted how the use of mobile money results in notable increases in revenue collection accuracy and a decrease in theft-related situations. Additionally, research by Ndegwa et al. (2023) demonstrated a decrease to theft following the introduction of mobile money systems, indicating enhanced security and trust within the workforce. Despite the expanding corpus of research confirming the benefits of mobile money in various sectors, there remains a limited amount of research specifically focused on its effectiveness in improving revenue collection within the public transport industry. While studies have explored aspects such as operational efficiency and theft reduction, additional thorough investigation is required to that investigates the direct effect of mobile money on this industry's revenue collecting.

Table 2.1 Research gap summary

Author.	Title.	Findings.	Summary of research gaps.
Chepkoech (2022)	Electronic payment methods for long-term revenue generation.	Electronic payment systems make it simple for customers and sellers to complete online purchases. There are numerous advantages to using the electronic payment system for banks, companies, governments, payees, payers, and e-commerce.	The study focused on sustainable revenue collection only but the proposed study investigated the effectiveness of mobile money in improving revenue collection.

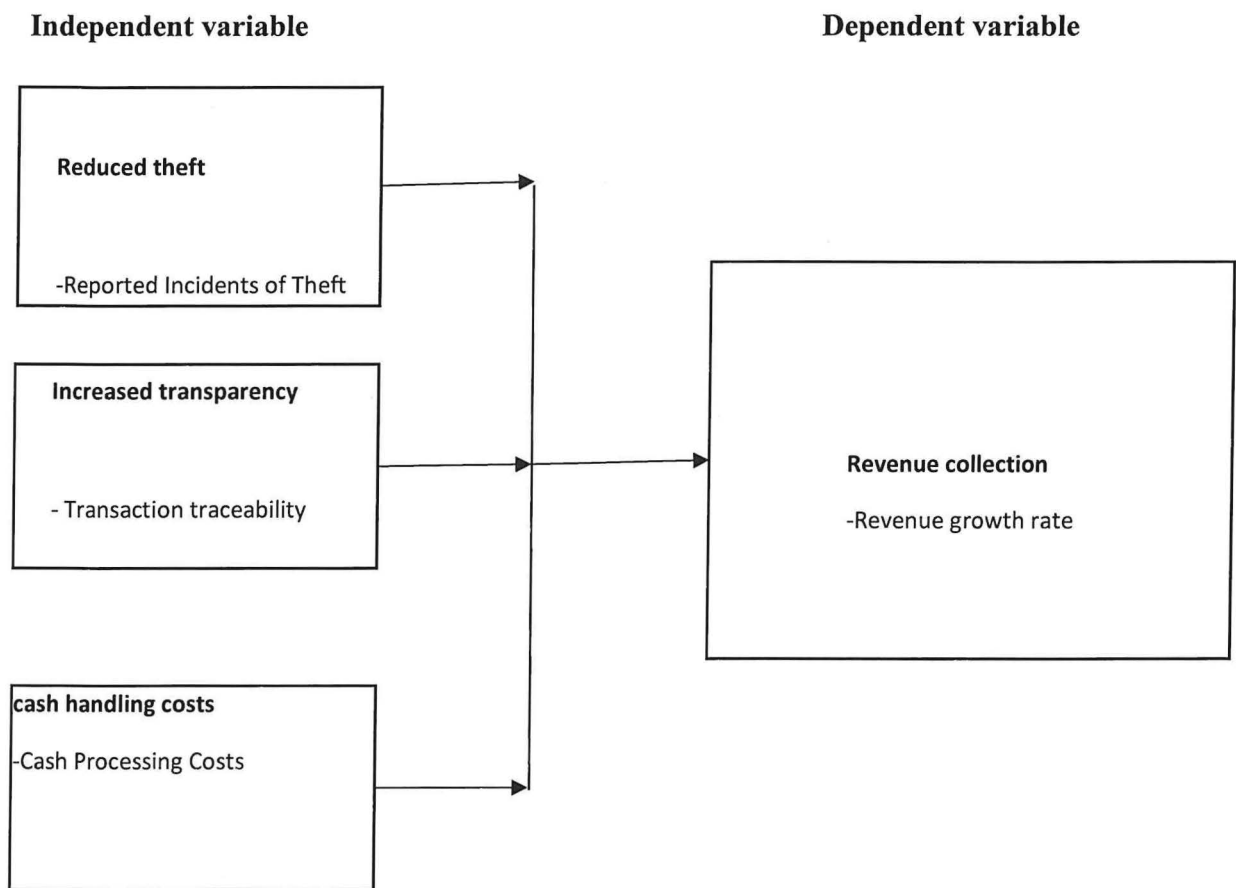
Tenderere (2023)	cashless payment platform for minibus taxis.	The possibility of several technologies to develop systems for collecting fares without currency. The outcomes demonstrated that the mobile phone- based tag-based NFC, SMS services, and USSD systems had the greatest potential.	The study focused on SMS services and USSD systems while the current investigation focused mostly on mobile money.
Behrens and Tinka (2019)	Cashless fare collection in Sub-Saharan African paratransit.	The explanations for why cashless fare collection has worked better for motorcycle taxi businesses that rent out vehicles	The study investigated why cashless fare collection hasn't worked well. The present investigation was on how mobile money can improve revenue collection.
Musukwa (2020)	Constructing corruption from minibus and taxi drivers.	In Livingstone, Zambia, bribing of taxi and minibus drivers as well as traffic police officers persists despite efforts to reduce corruption.	The study focused on corruption of police; the proposed study was on reducing cash handling by initiating mobile money
Nzakizwanimana (2021)	Utilizing an electronic ticketing system to enhance the collection of fares for public transportation in Kigali City.	With the antiquated manual fare or cash collecting method, the public transportation industry faced several challenges, such as fare evasion, fraud, corruption, and theft of collected fares.	The study was carried out in Kigali, Rwanda; however, the current investigation took place in Nairobi, Kenya.

Malinga and Maiga (2019)	A model for mobile money services adoption by traders in Uganda.	Businesses spend a lot of money on personnel who handle cash management and cash reconciliation tasks, which has an impact on financial performance	The previous study illustrated how businesses spend a lot of money on cash management, this study was focus on how mobile money transactions will transform revenue collection in public transport business
--------------------------	--	---	---

2.5 Conceptual framework

In order to understand the dynamics of a scenario being studied, a conceptual framework is a logically constructed, expressed, and scrutinized network of relationships between variables (Maosa, 2020). The following are the variables in the study:

Figure 2.1 Conceptual framework



Source: Researcher (2024)

2.5 Operationalization of study variables

The process of operationalizing the study variables facilitates the reduction of abstract concepts into measurable attributes. Based on the selected indicators, each component was measured. Table 2.2 displays a summary of every indicator and measuring indicator that was employed.

Table 2.2 Operationalization of study variables

Variable	Type of Variable	Indicator	Measurement	Supporting Literature
Reduced Theft	Independent	Reported Incidents of Theft	Using 5-Point Likert Type of Scale	Tenderere (2023)
Increased Transparency	Independent	Transaction Traceability	Using 5-Point Likert Type of Scale	Mogaji and Nguyen (2022)
Operational Efficiency	Independent	Transaction Processing Time	Using 5-Point Likert Type of Scale	Jakhiya et al. (2020)
Cash handling costs	Dependent	Cash collection expenses Cash management expenses Cash storage expenses	Using 5-Point Likert Type of Scale	Hassan (2023)

Source: Researcher (2024)

2.5.1 Reduced Theft

Reduced theft refers to the decrease in financial losses caused by the misappropriation or theft of funds internally by employees. In public transport systems, theft often occurs when fare collections are handled manually, with opportunities for underreporting and mismanagement. By using mobile money transactions, businesses can mitigate internal theft risks, as Digital payment systems offer transaction records in real time that are more difficult to falsify. Research suggests that adopting mobile money significantly reduces the incidence of internal theft, improving overall financial security in the business (Afful Ekow Kelly & Palaniappan, 2022)

2.5.2 Increased Transparency

Increased transparency refers to improving the clarity of financial processes and procedures, making revenue flows more visible and traceable. Mobile money transactions enable public transport operators to track revenue in real-time, providing an audit trail that enhances accountability. This level of transparency minimizes the chances of fraud, corruption, or discrepancies in fare collection, thereby fostering trust among stakeholders, including operators, regulators, and customers. Increased transparency also supports better financial decision-making by providing timely and accurate data (Nan et al., (2020).

2.5.3 Cash Handling Costs

Cash handling costs encompass the expenses associated with managing, transporting, and securing physical cash. This includes costs related to counting, reconciling, and transporting cash to banking facilities, as well as hiring security personnel to safeguard cash.. Mobile money platforms reduce the need for physical cash, streamlining the fare collection process, lowering banking fees, and minimizing the risk of theft during transportation (Aucamp et al., 2023).

2.5.4 Revenue Collection

"Revenue collection" describes the method by which money in this case, fares is raised. are gathered and recorded. Efficient revenue collection is crucial to the financial sustainability of public transport businesses. mobile money, the collection process becomes more streamlined and accurate, as payments are automatically tracked and recorded. This reduces the likelihood of revenue leakage due to manual errors or theft, ensuring that all fares collected are accounted for. Studies show that mobile money platforms can significantly improve the efficiency of revenue collection in public transport systems (Colin Ngigi Wamwea & Moi, 2023).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter provided an explanation of the proposed approach utilised to address the research issues. It highlights the design of the research, samples and population, techniques for gathering data, analysis of the data, research quality (the study's validity, dependability, and objectivity) lastly the research ethics concerns.

3.2 Research design

The goal of the research design was to give the study a suitable framework (Abu-Taieh et al., 2020). A descriptive cross-sectional survey design was used in the study. The rationale for using this design are usually quick, inexpensive, and easy to conduct (Wang & Cheng, 2020). Data from the sample of matatu SACCOs in Nairobi County was gathered using this design at a specific moment in time. The design was to enable the study to better understand the variables and describe their characteristics. A survey using a structured questionnaire was conducted to get data, SPSS version 29 was used for analysis.

3.3 Population and sampling

3.3.1 Population

The study unit of analysis was matatu SACCOs. In the study of Wandere, (2021) defines population as any collection of organizations, individuals, or things with shared traits. The study population was 272 PSV SACCOs registered in Nairobi (NTSA, 2024). The unit of observation was the matatu operators. Matatu operators were selected due to their overall mandate and insight of running the business. This was important as it enables the study to get insights that are important in making a conclusion that can be depended on.

3.3.2 Sampling

According to Mitchell et al. (2021) selection of a subset of the target population to serve as the representative sample for a certain study is known as sampling. Simple random sampling methods were used in the investigation.. It is noteworthy that basic random sampling techniques lessen the likelihood of bias in research results. Furthermore, statistical methods like figuring out the optimal sample size, sampling error, and result accuracy can be used.

(Stratton, 2021). The sampling technique for this study was stratified sampling technique. The sample size is computed by employing Slovin's formula;

$$n = N / (1 + Ne^2)$$

Where:

n = sample size

N = Population size

e = Acceptable margin of error

The sample size $n = 272 / (1 + 272 * (0.05)^2) = 161.905$

= 162

The sample size, therefore, is 162 PSV SACCOs from the L line which operates in this route 14A Strathmore, 14B Deep West, 15 Langata and 16 Highrise.

3.4 Data Collection

The study collected primary data from PSV matatu SACCOs using standardised questionnaires. In order to facilitate study, this questionnaire included both closed-ended and open-ended items. A letter of introduction will be requested from the University prior to beginning data collecting. The National Commission for Science, Technology, and Innovation (NaCoSTI) study permit was attached to this. This official process is meant to facilitate communication with the respondents. Questionnaires were used for data collecting. Getting in touch with the respondents in the beginning involved explaining the purpose of the research.

3.5 Data analysis

The questionnaires underwent a meticulous inspection to guarantee that the responses are accurately determined. Statistical Package for Social Science (SPSS) version 29 and excel was used to provide a quantitative analysis of the data. To guarantee accuracy, the descriptive statistics analysis approach (mean, standard deviation, frequencies, and percentages) was used. For simpler comprehension and interpretation, the data was presented using frequency tables, charts, and figures. To assess the degree of connection between the study's independent and dependent variables, the following regression model will be employed to establish the effects of mobile money transactions in public transportation business. The study's overall model will take the following form:

$$X1 = \beta_0 + \beta_1 Y + e$$

$$X2 = \beta_0 + \beta_2 Y + e$$

$$X3 = \beta_0 + \beta_3 Y + e$$

Where:

Y- Mobile transactions

X1- Reduced theft

X2- Increased transparency

X3- cash handling costs

e – Error term

β_0 - Constant term

The model measures the sensitivity of the dependent variable (Y) to unit changes in the predictor variables X1, X2, and X3 $\beta_i = 1 \dots 3$. To ascertain whether the facts are appropriate for making inferences, several diagnostic tests, such as those for normality test, linearity, homogeneity, and multicollinearity, were carried out prior to the regression analysis (Shatz, 2023). The reason for this is that breaking the assumptions underlying multiple regression analysis can lead to inaccurate connection estimates, regressions with precision coefficients that are too or underly confident, and unreliable significance and confidence tests.

3.6 Research quality

To assess and enhance the complete research process, a pilot study was carried out. Colin Ngigi Wamwea and Moi (2023) observe that this aids in improving sample recruitment tactics, research equipment and protocols, and other research techniques in advance of the primary study. This helped in validating and ensuring the trustworthiness of the research tools. One to ten percent of the actual sample size, drawn from a population similar to the one being studied, was used for pretesting. Piloting with respondents from the primary research is not permitted. Pre-test participants were therefore gathered via matatu route, ideally in Kiambu County. Given the closeness of the two counties, this borders Nairobi County and has traits in common with Nairobi County.

3.6.1 Validity

Hayashi et al. (2020) validity is the extent to which a research tool measures what it is supposed to measure. Research validity and findings are crucial components that demonstrate the calibre of studies conducted in the organizational domain. (Findley et al., 2021). This pilot study aimed to evaluate the research instruments' construct and content validity. A research instrument's content validity was determined by how well it covers the topic under investigation. Feedback from the supervisor was used to confirm this. The questionnaires were handed to the supervisor, who was to review it, make recommendations for areas that need improvement, and implement those suggestions.

3.6.2 Reliability

According to Talom and Tengeh (2019), reliability in research refers to the consistency and stability of the data collected using specific research instruments. Prior to the main research, a pilot study was carried out to pretest the validity and reliability of the data obtained using the questionnaire. This process involves administering the survey to a small group that represents the study's target population. The goal was helping the researcher to identify and rectify any issues related to question clarity, wording, or structure that might affect the reliability of the responses. Caleb Mboko (2023) the instruments are regarded as dependable if their Cronbach's Alpha reliability. Cronbach's alpha is made up of an alpha coefficient with a score between 0.7 and 0.8 and a value between 0 and 1 is considered good internal consistency, a key aspect of reliability, is often assessed by examining the correlations between responses to different questions within a questionnaire (Quintão et al.2020).

3.7 Ethical issues in research

This research ensured an elevated level of transparency, integrity, and quality while conducting this study. Permission was obtained from the target population before issuing questionnaires. Anonymity and confidentiality was to be respected while ensuring voluntary participation from the target population and sample. Participants were protected from all forms of damage because the study aimed to be as impartial and independent as feasible while preserving objectivity.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter presents the findings from the study using tables of frequencies and percentages, and it also includes the results from the quantitative data that was gathered. It also examines the data analysis results in light of the study's goals.

4.2 Sample representation

162 questionnaires were administered to the respondents. 138 filled and returned the questionnaires while 24 failed to return the questionnaires as shown in table 4.1 below

Table 4.1 Response Rate of Questionnaire

Questionnaire Responses	Percentage	Percentage
Returned Questionnaires	138	85.19%
Questionnaires that were not returned	24	14.81%
Total	162	100.00%

Source: Researcher (2024)

A total of 138 out of the 162 questionnaires, representing 85.19%, were appropriately filled out and returned. The high response rate can be attributed to a brief introduction given before distributing the questionnaires, which emphasized the importance of the respondents' participation. This introduction helped the respondents understand the significance of their responses and how their input would contribute to the research. Additionally, confidentiality was guaranteed to the respondents, ensuring that their personal information and responses would be kept private and used solely for the purposes of this study. This assurance of confidentiality likely encouraged more respondents to participate and return the questionnaires.

The high response rate is indicative of the effectiveness of the strategies employed to encourage participation. It reflects the respondents' willingness to contribute to the research and their trust in the confidentiality measures put in place. This level of participation is crucial for the

reliability and validity of the research findings, as it ensures a more representative sample and reduces the potential for bias.

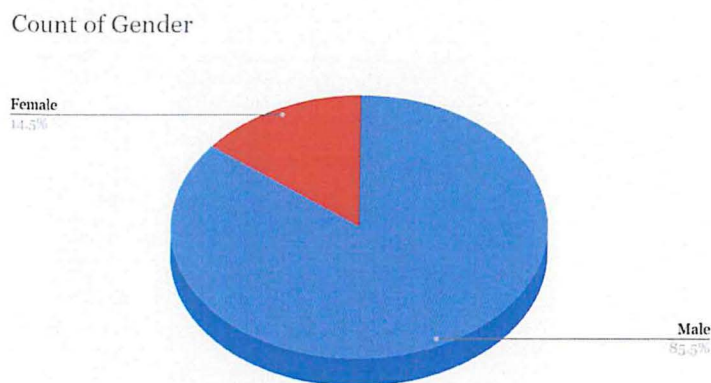
4.2.1 Demographic Characteristics

The respondents' demographic and professional attributes were categorized according to their, gender, age, and length of service with Matatu SACCO, payment method and role in the matatu business. Each category's results are shown and discussed.

4.2.2 Gender Distribution

The findings of the respondents' gender breakdown are presented in Figure 4.1.

Figure 4.1 Gender of the respondents.



Source: Researcher (2024)

Based on Table 4.1, the majority of respondents—85.5%—are men, while only 14.5% are women. Despite their smaller number, the female employees were primarily conductors. Historically, PSV (Public Service Vehicle) activities in Kenya have been predominantly reserved for men. This trend reflects the significant level of gender imbalance in the PSV industry, as it is still largely perceived as a male-dominated field. However, the 14.5% of respondents who are women indicate that there is a gradual shift occurring within the industry. Women are beginning to enter the PSV sector, and this change is anticipated to continue in the future. The presence of women in the industry, although currently limited, suggests a potential for increased gender diversity over time.

The high percentage of male respondents highlights the traditional gender roles that have been prevalent in the PSV industry. Nevertheless, the participation of women, even in smaller

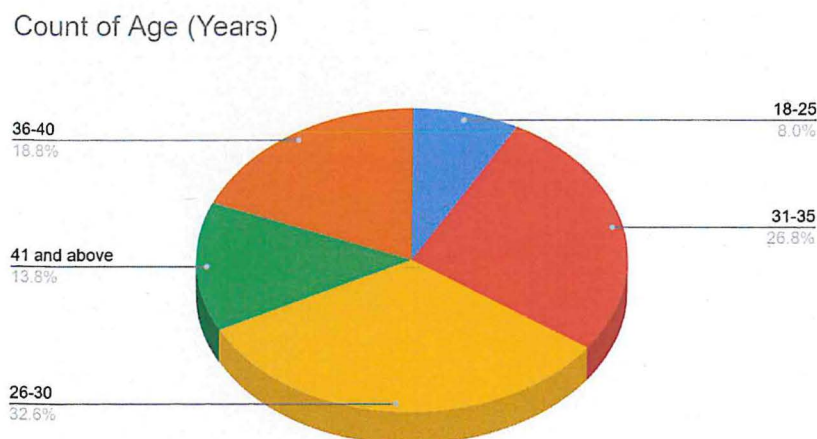
numbers, is a positive sign of progress towards gender inclusivity. As societal perceptions evolve and more women join the industry, it is expected that the gender imbalance will gradually diminish, leading to a more balanced representation of both men and women in the PSV sector. In addition to being a step towards gender equality, women's involvement into the PSV business provides a variety of viewpoints and abilities to the profession. A more welcoming workplace and better services may result from this variety. It takes consistent work to dispel prejudices, offer equal opportunities, and foster a positive work atmosphere for all employees in order to attract more women to the PSV sector.

In conclusion, while the PSV industry in Kenya has traditionally been male-dominated, the increasing participation of women is a promising development. It reflects a broader societal shift towards gender equality and inclusivity. As more women enter the industry, it is expected that the gender imbalance will gradually reduce, leading to a more diverse and representative workforce.

4.2.3 Age Distribution

Figure 4.2 displays the age distribution of the respondents.

Figure 4.2 Age of Respondent.



Source: Researcher (2024)

According to the survey, respondents' ages ranged greatly. Specifically, 8.0% of respondents were in the 18–25 age range, 32.6% were in the 26–30 age range, 26.8% were in the 31–35 age range, 18.8% were in the 36–40 age range, and 13.8% were older than 41. This categorization

into age groups highlights the varied demographic of the respondents, with the majority falling within the 26-30 and 31-35 age brackets. The age distribution of the respondents is significant as it provides insights into the perspectives and experiences of different age groups within the study. The largest age group, 26-30, represents a segment of the population that is likely to be in the early stages of their careers, bringing fresh perspectives and a willingness to adapt to new trends and technologies. The second largest group, 31-35, may represent individuals who have gained more experience and stability in their careers, offering a blend of innovation and practical knowledge.

The presence of respondents aged 36-40 and those 41 years and above indicates the inclusion of more experienced individuals who can provide valuable insights based on their extensive experience in the field. This diversity in age groups ensures a comprehensive understanding of the subject matter, as it encompasses a wide range of viewpoints and experiences. Furthermore, the inclusion of younger respondents, aged 18-25, is crucial as it represents the voices of the emerging workforce. These individuals are likely to be more adaptable to new technologies and innovative practices, which can be beneficial for the industry. On the other hand, the older age groups bring a wealth of knowledge and experience that can provide stability and guidance within the industry.

The age distribution also reflects the potential for mentorship and knowledge transfer within the industry. Younger respondents can benefit from the experience and wisdom of their older counterparts, while older respondents can gain fresh perspectives and innovative ideas from the younger generation. This dynamic interaction between different age groups can foster a collaborative and progressive work environment. In conclusion, the age distribution of the respondents reflects a balanced representation of different age groups, with a notable concentration in the 26-30 and 31-35 age brackets. This diversity, which incorporates the opinions of both younger and more seasoned people, is essential for obtaining a comprehensive understanding of the research issue. A thorough grasp of the sector is facilitated by the many age groups, emphasising the role that experience and innovation play in advancing development.

4.2.3 Length of service with Matatu SACCO

The finding on the time of service with matatu SACCO of respondents are presented in Table 4.2.

Table 2.2 Duration of Matatu SACCO service

Category	Frequency	Percentage
1- 5 Years	29	21.0%
6 - 10 Years	49	35.5%
11 - 15 Years	40	29.0%
Above 15 years	20	14.5%
Total	138	100%

Source: Researcher (2024)

According to the study, 21% of Matatu operators have been in business for 1-5 years, 35.5% have been in business for 6-10 years, 29% have been in business for 11-15 years, and 14.5% have been in business for more than fifteen years. This data indicates that Matatu SACCOs have been in business for a respectable amount of time, with the majority of respondents having between 6-10 years and 11-15 years of experience. The length of service among Matatu operators is a crucial factor in understanding the stability and experience within the industry. Operators with 6-10 years and 11-15 years of experience make up the largest groups, suggesting that a significant portion of the workforce has substantial experience in the field. This level of experience is likely to contribute to the overall efficiency and reliability of the Matatu SACCOs.

Operators with 1-5 years of experience represent a smaller, yet important, segment of the workforce. These individuals are relatively new to the industry and may bring fresh perspectives and innovative ideas. Their presence indicates that the Matatu SACCOs are attracting new entrants, which is essential for the industry's growth and sustainability. On the other hand, operators with more than 15 years of experience, although fewer in number, bring a wealth of knowledge and expertise to the industry. Their long-term commitment to the Matatu SACCOs highlights the potential for career longevity and the value of retaining experienced personnel.

The data also suggests that the Matatu SACCOs have a balanced mix of both new and seasoned operators. This balance is beneficial for the industry as it allows for the integration of new ideas and practices while maintaining a strong foundation of experience and knowledge. The presence of experienced operators can provide mentorship and guidance to newer entrants,

fostering a collaborative and supportive work environment. In summary, a balanced range of expertise levels among Matatu operators is reflected in the length of service data. The bulk of responders are in the 6–10 and 11–15 year age ranges, suggesting a steady and seasoned workforce. The presence of both newer and more seasoned operators suggests a dynamic industry with opportunities for growth and development. The combination of fresh perspectives and extensive experience is likely to contribute to the continued success and evolution of the Matatu SACCOs.

4.2.4 Method of payment preferred

The finding of the method of payment that the respondents preferred is presented in Table 4.3.

Table 4.3 Method of payment preferred

	Method of payment	frequency	percentage
1	Mobile money(M-pesa)	76	55.07%
2	Cash	37	26.81%
3	Mobile money & Cash	25	18.12%
Total		138	100%

Source: Researcher (2024)

According to the study, 55.07% of Matatu operators prefer mobile money, specifically M-Pesa. This suggests a strong adoption of digital payment systems in the public transport sector, likely driven by their convenience, security, and growing accessibility. The preference for mobile money indicates that many operators find it easier and safer to handle transactions electronically, reducing the risks associated with carrying large amounts of cash. On the other hand, 26.81% of respondents prefer cash as their method of payment. This preference may reflect factors such as familiarity with cash transactions, lack of access to mobile money services, or a preference for tangible currency. Cash transactions are straightforward and do not require technological infrastructure, which might be a reason for its continued use among some operators.

Additionally, 18.12% of respondents prefer a combination of mobile money and cash. This indicates flexibility among Matatu operators who alternate between the two payment methods based on the convenience of funds. The ability to use both methods allows operators to adapt to different situations and preferences of their customers, ensuring smooth and efficient transactions. The data highlights the growing trend towards digital payments in the Matatu industry, while also acknowledging the continued relevance of cash transactions. The combination of both methods reflects a transitional phase where operators are gradually embracing digital solutions while still relying on traditional cash payments. In conclusion, the preferred method of payment among Matatu operators shows a significant inclination towards mobile money, with a substantial portion still using cash or a combination of both. This trend underscores the importance of providing diverse payment options to accommodate the varying preferences and needs of operators and their customers.

4.3 Descriptive analysis

The descriptive statistics were discussed in each objective. The two main metrics utilized in the study were the mean score and standard deviation. The five Likert scale scores were represented by the mean scores, which varied from 1 to 5. With a score of 4.5–5.00 highly agree, near to 3 moderate/neutral, close to 4 agree, 2–2.6 disagree, and 0–1.00 strongly disagree

4.3.1. Perceived impact of mobile transactions on revenue collection

The study sought to investigate the effects of mobile money transactions on revenue collection by public service vehicle matatu SACCOs in Nairobi. The finding is presented in Table 4.4.

Table 4.4 Revenue Collection

		Mean	SD
1	Mobile transactions have increased the consistency of daily revenue collection.	3.87	0.85
2	Mobile transaction transactions have made it easier for public transport stakeholders to track daily revenue.	4.08	0.77
3	Mobile transactions have significantly streamlined the revenue collection process in public transport.	4.20	0.84
Average		4.05	0.82

Source: Researcher (2024)

From Table 4.4, The stakeholders of public service matatu vehicles agreed with a mean score of 4.08 that mobile money transactions have made it easier to track daily revenue, and the respondents fairly agreed with a mean score of 3.87 that mobile transactions have increased the consistency of daily revenue collection. Additionally, the respondents agreed with a mean score of 4.20 that mobile transactions have significantly streamlined the revenue collection process in public transportation with an average mean of 4.05, it is reasonable to conclude that mobile money transactions have an impact on Nairobi's public service vehicle matatu SACCOs' ability to collect revenue. The data points' average separation from the mean is indicated by the average standard deviation of 0.82. A low standard deviation, such as 0.82, indicates that there is comparatively little fluctuation in the data and that the data points are frequently close to the mean of 4.05. The findings highlight the benefits of adopting mobile money transactions in the public transport sector. Increased consistency in daily revenue collection ensures a more reliable and predictable cash flow for operators. The ease of tracking daily revenue through mobile transactions allows stakeholders to monitor financial performance more effectively, leading to better financial management and decision-making. Moreover, the streamlining of the revenue collection process through mobile transactions reduces the administrative burden on operators and minimizes the risk of revenue leakage. This efficiency can lead to cost savings and improved profitability for matatu SACCOs.

4.3.2. Perceived impact of mobile money transactions on reducing theft

The study sought to establish the effects of mobile money transactions on reducing theft by public service vehicle matatu SACCOs in Nairobi. The finding is presented in table 4.5.

Table 4.5 Reducing Theft

		Mean	SD
1	Mobile money has improved the accuracy of revenue collection	3.98	0.89
2	Mobile money has enhanced the overall security of financial transactions in the business.	4.03	0.80
3	Mobile money offers better protection against fraudulent activities compared to cash.	4.10	0.85
Average		4.03	0.85

Source: Researcher (2024)

From table 4.5, Although the respondents largely agreed that mobile money has increased revenue collection accuracy (mean of 3.98), they also agreed that mobile money has improved the overall security of business financial transactions (mean of 4.03). However, they also agreed that mobile money provides better protection against fraudulent activities than cash (mean of 4.10). The standard deviation tells us how much the data varies or spreads out from the mean (Mishra et al., 2019). In this case, a standard deviation of 0.85 indicates that most data points lie within 0.85 units of the mean (4.03). The variability (0.85) suggests that most ratings are close to 4.03, but there is some moderate variation. Most ratings would fall between 3.18 and 4.88.

Moreover, the better protection against fraudulent activities offered by mobile money compared to cash is a significant advantage. Digital transactions can be tracked and verified more easily, making it harder for fraudulent activities to go unnoticed. This increased security can lead to higher levels of trust and confidence among operators and their customers. The adoption of mobile money also brings additional benefits such as convenience and efficiency. Operators can conduct transactions quickly and easily, without the need for physical cash handling. This reduces the time spent on financial transactions and allows operators to focus more on their core activities. Furthermore, mobile money provides a digital record of transactions, which can be useful for financial reporting and auditing purposes.

4.3.3. Perceived impact of mobile money transactions on increasing transparency

The study sought to establish the effects of mobile money transactions on increasing transparency by public service vehicle matatu SACCOs in Nairobi. The finding is presented in table 4.6.

Table 4.6 Increasing Transparency

		Mean	SD
1	Mobile money provides a clear record of all transactions,enhancing transparency.	4.12	0.72
2	The use of mobile money reduces opportunities for financial misreporting.	3.88	0.75

3	Mobile money improves the accuracy of fare collection data, leading to better business decisions.	4.05	0.78
Average		4.02	0.75

Source: Researcher (2024)

From Table 4.6, While respondents generally agreed that using mobile money reduces the likelihood of financial misreporting (mean of 3.88), they also agreed that it improves the accuracy of fare collection data, which leads to better business decisions (mean of 4.05). The respondents also agreed that mobile money provides a clear record of all transactions, enhancing transparency (mean of 4.12). Thus, the participants acknowledged the impact of mobile money transactions on revenue collection. The average standard deviation of 0.75, which was less than one, indicates that responses are consistent because values are near the mean.

The findings highlight the benefits of adopting mobile money in the public transport sector. The clear record of all transactions provided by mobile money enhances transparency, making it easier for operators to track and verify financial activities. This transparency reduces the likelihood of financial misreporting and ensures that all transactions are accurately recorded. Moreover, the improved accuracy of fare collection data through mobile money enables operators to make better business decisions. Accurate data allows for more effective financial planning, budgeting, and resource allocation, ultimately leading to improved operational efficiency and profitability. The use of mobile money also reduces opportunities for financial misreporting, as digital transactions can be easily tracked and audited. This reduces the risk of fraudulent activities and ensures that all revenue is accounted for. The increased transparency and accuracy provided by mobile money contribute to a more trustworthy and reliable financial system within the public transport sector.

4.3.4. Perceived impact of mobile money transactions on reduced cash handling costs

The study sought to establish the effects of mobile money transactions on reduced cash handling costs by public service vehicle matatu SACCOs in Nairobi. The finding is presented in table 4.7.

Table 4.7 Cash handling cost

		Mean	SD
1	The use of mobile money has reduced cash collection expenses	4.05	0.87
2	Mobile money transactions has reduced cash management expenses	3.97	0.75
3	The transition to mobile money has simplified cash reconciliation.	4.13	0.83
Average		4.05	0.82

Source: Researcher (2024)

From Table 4.7, The respondents concur that using mobile money has decreased cash collection costs (mean of 4.05), that the lack of charging infrastructure has raised electric car operating costs, forcing PSV Matatu SACCOs to stick with oil-powered vehicles, that mobile money transactions have decreased cash management costs (mean of 3.97), and that switching to mobile money has made cash reconciliation easier (mean of 4.13). The average standard deviation of 0.82 indicates the average distance between the data points and the mean. A low standard deviation, like 0.82, suggests that the data points are often near the mean of 4.05 and that there is relatively little variation in the data. The findings highlight the benefits of adopting mobile money in the public transport sector. The reduction in cash collection expenses suggests that operators can save on costs associated with handling physical cash, such as transportation and security. Mobile money transactions also reduce cash management expenses, as digital transactions are easier to manage and track compared to cash. Moreover, the transition to mobile money has simplified cash reconciliation, making it easier for operators to balance their accounts and ensure accuracy in their financial records. This simplification can lead to time savings and reduced administrative burden, allowing operators to focus more on their core activities. The scarcity of charging systems has increased operational expenses of electric cars, making PSV matatu SACCOs remain with oil-powered vehicles. However, the adoption of mobile money can still provide significant cost savings and efficiency improvements in cash handling.

4.4. Reliability Analysis

Reliability in research refers to the consistency and stability of the data collected using specific research instruments Talom and Tengeh (2019). In this study, the reliability of the measurement instrument was assessed using Cronbach's Alpha.

Reliability Statistics

Cronbach's Alpha N of Items

.728	4
------	---

The analysis yielded a Cronbach's Alpha value of 0.728 for the four items in the scale, which indicates a moderate level of internal consistency. According to conventional thresholds, a Cronbach's Alpha value of 0.7 or higher is generally considered acceptable for establishing reliability. This value suggests that the items in the scale are measuring the same underlying construct and are consistent with each other. A Cronbach's Alpha value of 0.728 is slightly above the threshold of 0.7, indicating that the scale has a good level of reliability. This means that the responses to the items are relatively consistent and reliable, providing confidence in the results obtained from the scale. Although slightly lower values can still be considered adequate depending on the context of the research and the number of items in the scale, a value of 0.728 is generally regarded as satisfactory.

The reliability analysis concludes that the Cronbach's Alpha score of 0.728 indicates that the scale utilised in the study has a moderate to good level of internal consistency. This implies that the scale's items are trustworthy and may be used to confidently measure the desired construct.

4.5 Correlational Analysis

4.5.1 Correlations between Reduced theft, increased transparency and cash handling cost.

The Spearman's rho correlation matrix shows the relationships between three variables: Overall score for reduced theft, overall score for increased transparency, and overall score for handling costs. The correlation results are presented in Table 4.8.

Table 4.8 Correlations between reduced theft, increased transparency and cash handling costs.

			Overall Score for Reduced Theft	Overall Score for Increased Transparency	Overall Score for Handling Costs
Spearman's rho	Overall Score for Reduced Theft	Correlation Coefficient	1.000	.290**	.319**
		Sig. (2-tailed)	.	<.001	<.001
		N	138	138	138
	Overall Score for Increased Transparency	Correlation Coefficient	.290**	1.000	.460**
		Sig. (2-tailed)	<.001	.	<.001
		N	138	138	138
	Overall Score for Handling Costs	Correlation Coefficient	.319**	.460**	1.000
		Sig. (2-tailed)	<.001	<.001	.
		N	138	138	138

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

Source: Researcher (2024)

Here's a detailed interpretation of the results: Overall score for reduced theft vs. overall score for increased transparency correlation coefficient: 0.290, indicating weak positive correlation significance (p-value): < 0.001 significance level of less than 0.01. Overall score for reduced theft vs. overall score for handling costs correlation coefficient: 0.319 weak to a moderate positive correlation Significance (p-value): less than 0.001 indicates statistical significance less than 0.01. Overall score for increased transparency vs. overall score for handling costs correlation coefficient: 0.460, suggesting a moderate positive correlation. Significance (p-value): < 0.001, showing statistical significance at the 0.01 level. The findings illustrate considerable relations in quantitative terms with respect to theft reduction and increased transparency with a value of 0.290, Theft reduction and handling cost at 0.319 and transparency improvement and handling Cost at 0.460. While these correlations are significant statistically, they still remain relatively low making it clear that the degree of multicollinearity with respect to the variables is not very high. With none of the correlation coefficients crossing the benchmark of 0.7, the results are indicative of the fact that multicollinearity among the dependent variables is unlikely to be a potential issue among these variables. These moderate correlations imply relations among the variables but the relationships are not sufficiently strong to make high levels of redundancy among the variables further freeing up their interactions for inclusion in the analysis.

4.5.2 Correlations between revenue collection, reduced theft, increased transparency and cash handling cost.

Correlation matrix shows the relationships between variables: Revenue collection, reduced theft, increased transparency and cash handling cost. The correlation results are presented in Table 4.9.

Table 4.9 Correlations between reduced theft, increased transparency and cash handling cost.

		Correlations			
		Overall Score for Perceived Impact on Revenue Collection	Overall Score for Reduced Theft	Overall Score for Increased Transparency	Overall Score for Handling Costs
Overall Score for Perceived Impact on Revenue Collection	Pearson Correlation	1	.453**	.377**	.473**
	Sig. (2-tailed)		<.001	<.001	<.001
	N	138	138	138	138
Overall Score for Reduced Theft	Pearson Correlation	.453**	1	.320**	.359**
	Sig. (2-tailed)	<.001		<.001	<.001
	N	138	138	138	138
Overall Score for Increased Transparency	Pearson Correlation	.377**	.320**	1	.449**
	Sig. (2-tailed)	<.001	<.001		<.001
	N	138	138	138	138
Overall Score for Handling Costs	Pearson Correlation	.473**	.359**	.449**	1
	Sig. (2-tailed)	<.001	<.001	<.001	
	N	138	138	138	138

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

Source: Researcher (2024)

The correlation analysis shows that there is a positive relationship between the variables, statistically significant at 0.01 levels. More precisely, the overall score for perceived impact on revenue collection is moderately positively correlated with the overall score for reduced theft ($r = 0.453$, $p < 0.001$) and overall score for handling costs ($r = 0.473$, $p < 0.001$), while it is weakly to moderately correlated with the overall score for increased transparency ($r = 0.377$, $p < 0.001$). It is also weakly positively related to the overall score for more transparency with a correlation of $r = 0.320$ at $p < 0.001$ and overall score for handling costs with a correlation of $r = 0.359$ at $p < 0.001$. Finally, the overall score for more transparency is found to be moderately positively related to the overall score for handling Costs, with a value of $r = 0.449$ at $p < 0.001$.

These findings do show meaningful relationships among these variables; however, none of the correlation coefficients have reached 0.7 and above, the level normally considered to imply multicollinearity. While these relationships provided some degree of shared variance, these variables remain distinct from one another, boding well for avoiding redundancy. Hence, the findings confirm that the variable is appropriate for further analyses that can allow these variables to give a contribution to knowledge concerning the objectives of this study.

4.5.3 Correlations between revenue collection, reduced theft, increased transparency and cash handling cost.

The Spearman's rho correlation matrix provides a detailed overview of the relationships among the variables under study. Here's a more refined interpretation and conclusion. The correlation results are presented in Table 4.10.

Table 4.10 Correlations between variables

		Correlations				
			Overall Score for Perceived Impact on Revenue Collection	Overall Score for Reduced Theft	Overall Score for Increased Transparency	Overall Score for Handling Costs
Spearman's rho	Overall Score for Perceived Impact on Revenue Collection	Correlation Coefficient	1.000	.406**	.378**	.422**
		Sig. (2-tailed)	.	<.001	<.001	<.001
		N	138	138	138	138
	Overall Score for Reduced Theft	Correlation Coefficient	.406**	1.000	.290**	.319**
		Sig. (2-tailed)	<.001	.	<.001	<.001
		N	138	138	138	138
	Overall Score for Increased Transparency	Correlation Coefficient	.378**	.290**	1.000	.460**
		Sig. (2-tailed)	<.001	<.001	.	<.001
		N	138	138	138	138
	Overall Score for Handling Costs	Correlation Coefficient	.422**	.319**	.460**	1.000
		Sig. (2-tailed)	<.001	<.001	<.001	.
		N	138	138	138	138

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

The spearman's rho correlation analysis gives the subsequent significant positive relations between the variables, hence showing the association between them. the overall score for perceived impact on revenue collection showed a moderate correlation with the overall score for reduced theft: $r = 0.406$, $p < 0.001$, and overall score for handling costs: $r = 0.422$, $p < 0.001$, though showing a low to moderate correlation with the overall score for increased transparency, $r = 0.378$, $p < 0.001$. similarly, the overall score for reduced theft only weakly correlates with both the overall score for increased transparency and the overall score for handling costs, at $r = 0.290$, $p < 0.001$ and $r = 0.319$, $p < 0.001$, respectively. finally, the overall score for increased transparency is moderately related to the overall score for handling costs at $r = 0.460$, $p < 0.001$.

This interpretation of the results suggests that while the associations between the variables are positive and statistically significant, each variable maintains distinctiveness. the coefficients of none of them exceed the 0.7 threshold associated with multicollinearity concerns. that means

that though related, they are not redundant, hence less likely to suffer from problems of multicollinearity. this justifies that the use of these variables for further analysis is merited because their inclusion contributes uniquely to an understanding of the research objectives.

4.6 Regression Analysis

4.6.1 Effect of mobile transaction and reduced theft by public service vehicle matatu

SACCOs

Table 4.11 Regression analysis of mobile transaction and reduced Theft

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.453 ^a	.205	.199	.582

a. Predictors: (Constant), Overall Score for Perceived Impact on Revenue Collection

ANOVA^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.871	1	11.871	35.053	<.001 ^b
	Residual	46.059	136	.339		
	Total	57.930	137			

a. Dependent Variable: Overall Score for Reduced Theft

b. Predictors: (Constant), Overall Score for Perceived Impact on Revenue Collection

Coefficients^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.112	.329		6.427	<.001
	Overall Score for Perceived Impact on Revenue Collection	.475	.080	.453	5.921	<.001

a. Dependent Variable: Overall Score for Reduced Theft

Source: Researcher (2024)

Reduced theft by PSV Matatu SACCOs= 2.112 + 0.475X1

Where X1 is perceived impact on revenue collection. This equation predicts the overall score for reduced theft based on the value of the overall score for perceived impact on revenue collection.

From the coefficients table, the relationship between the independent variable and dependent variable is brought out below as the overall score for reduced theft. This is a constant equal to 2.112 and signifies that at the point when the independent variable is 0, the predicted value of the dependent variable will be this number. The standard error for the intercept is 0.329, while the t-statistic is 6.427, meaning that the intercept is significantly different from 0, with a p-value of less than 0.001.

The unstandardized coefficient for the independent variable is 0.475, meaning that with every 1-unit increase in the "overall score for perceived impact on revenue collection," it is expected that the "overall score for reduced theft" increases by 0.475 units. The standard error for this coefficient is 0.080, while the standardized coefficient, Beta, is 0.453, indicating a moderate positive effect on the dependent variable in standard deviation units. This gives a t-statistic of 5.921, which is rather large and suggests that the independent variable is indeed significantly related to the dependent variable. The p-value for this coefficient is less than 0.001, hence this relationship is statistically significant.

From these findings, the researcher can safely sum up that, indeed, overall score for reduced Theft could be considered significantly reliant on an increase in overall score for perceived impact on revenue collection. That the both intercept and independent variable's coefficient have satisfactory statistical significance means the independent variable holds much credence over dependence.

4.6.2 Effect of mobile transaction and increased transparency by public service vehicle matatu SACCOs

Table 4.12 Regression analysis of mobile transaction and reduced Theft

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.377 ^a	.142	.136	.491

a. Predictors: (Constant), Overall Score for Perceived Impact on Revenue Collection

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.435	1	5.435	22.566	<.001 ^b
	Residual	32.758	136	.241		
	Total	38.193	137			

a. Dependent Variable: Overall Score for Increased Transparency

b. Predictors: (Constant), Overall Score for Perceived Impact on Revenue Collection

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.713	.277		9.786	<.001
	Overall Score for Perceived Impact on Revenue Collection	.322	.068	.377	4.750	<.001

a. Dependent Variable: Overall Score for Increased Transparency

The summary of the model gives an insight into the relationship between the predictor variable and the dependent variable. The correlation coefficient is $R = 0.377$, which signifies a fair positive relationship between the overall score for perceived impact on revenue collection and overall score for increased transparency, with increased perceived impact on revenue collection translating to increased tendencies toward transparency. R Square, or 0.142, is the proportion of the variation in the dependent variable by the predictor accounted for, which means 14.2%. The Adjusted R Square takes into consideration the number of predictors within the model in order to avoid issues such as overfitting, and is 0.136. The standard error of the estimate is a measure of the average deviation of the observed value from the regression line, and this amounts to 0.491, depicting a reasonable accuracy level.

ANOVA confirms that the model is significant overall. In the case of the dependent variable, the regression sum of squares (5.435) represents the variation that can be explained by the predictor, while the residual sum of squares (32.758) represents the variation that cannot be explained. This model is significant with a p-value of less than .001 and an F-statistic of 22.566. This indicates that a substantial portion of the variance in the transparency scores can be explained by the predictor overall score for perceived impact on revenue collection. The coefficients table gives further information on the regression equation and the effect of the predictor. The constant, $B = 2.713$, is the intercept and gives the value of transparency at the baseline value of the predictor. The unstandardized coefficient for the predictor is 0.322,

indicating that with every one-unit increase in perceived impact on revenue collection, transparency increases by 0.322 units. The standardized coefficient, Beta, is 0.377, further confirming that the predictor has a moderate positive effect on transparency. The constant and the predictor were statistically significant, having $t=9.786$ and $t=4.750$, respectively, with $p<.001$. The summary of the regression equation is:

$$\text{Overall Score for Increased Transparency} = 2.713 + 0.322 \times \text{Overall Score for Perceived Impact on Revenue Collection}$$

This model indicates that there is a positive and statistically significant relationship between the predictor and the dependent variable. The moderate R Square value signifies that although the model explains part of the variance in transparency scores, more factors would add to strengthening this model further in explaining additional variations.

4.6.2 Effect of mobile transparency and handling Costs by public service vehicle matatu SACCOs

Table 4.13 Regression analysis of mobile transparency and handling Costs

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.473 ^a	.224	.218	.484

a. Predictors: (Constant), Overall Score for Perceived Impact on Revenue Collection

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.203	1	9.203	39.254	<.001 ^b
	Residual	31.886	136	.234		
	Total	41.089	137			

a. Dependent Variable: Overall Score for Handling Costs

b. Predictors: (Constant), Overall Score for Perceived Impact on Revenue Collection

Coefficients^a

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	2.357	.273		8.618	<.001
	Overall Score for Perceived Impact on Revenue Collection	.418	.067	.473	6.265	<.001

a. Dependent Variable: Overall Score for Handling Costs

From the model summary, the regression analysis has shown the relation between the predictor variable, overall score for perceived impact on revenue collection, and the dependent variable, overall score for handling costs. from the correlation coefficient, $r = 0.473$, it is observed that there is a moderate positive relationship; hence, with increased perceived impact on revenue collection, the handling costs also tend to increase. the r square is 0.224, which states that the variation of handling costs explained by the predictor is 22.4%. this suggests that a good deal of variability is captured by this model, although there is still considerable variability not accounted for. adjusted r square: the adjusted r square is 0.218, which considers the number of predictors within this model to ensure the number is reasonable and a true reflection of the explanation of variation in the dependent variable. the standard error of the estimate, 0.484, is the average distance between the observed and regression line showing a moderate fit of the model to the data.

Overall significance of the regression model is tested from the Anova table. the regression sum of squares, 9.203, shows the variation in the dependent variable explained by the predictor. the residual sum of squares accounts for the unexplained variation and was 31.886. the total sum of squares is the cumulative amount of variation from the dependent variable, or 41.089. the f -statistic, 39.254, is large because the regression mean square is large compared to residual mean square. this means that the model accounts for an important share of the variability. the p -value (<.001) confirms that the model is statistically significant, providing strong evidence that the predictor-overall score for perceived impact on revenue collection-meaningfully affects the dependent variable, overall score for handling costs.

The coefficients table gives further detail on the individual contribution of the predictor to the dependent variable. the constant of $b = 2.357$ reflects the intercept of the regression equation, so if the predictor variable is zero, the predicted handling costs are 2.357. the coefficient of determination for the predictor is $b = 0.418$; this is to say every time the magnitude on revenue collection increases one unit, the handling costs increase 0.418 units. the standardized

coefficient is $\beta = 0.473$, which indicates a moderate positive effect. the t-statistics for the constant ($t = 8.618$) and the predictor ($t = 6.265$) are statistically significant with p-values ($<.001$), which means that both terms contribute meaningfully to the model. In all, the regression model shows that perceived impact on revenue collection significantly positively affects handling costs. the regression model explains a moderate portion of variance in handling costs, and the predictor was a valuable contributor to this explanatory power. the equation for the overall model is given as follows:

Overall score for handling costs = $2.357 + 0.418(\text{overall score for perceived impact on revenue collection})$. This regression equation again points to the fact that the predictor variable significantly positively affects handling costs in a meaningful way.

4.7 Summary of the findings

Results of the data collection, including correlation, regression analysis, and descriptive statistics, were provided in this chapter. Every variable's means and standard deviations are also provided. The study's findings and outcomes have been shown in tables and described appropriately.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary of the study's findings, conclusions, and recommendations. Consistent with the study's goals, the summarized findings provide information about how mobile money transactions impact revenue collection in the public transit sector. The chapter also identifies gaps in the literature and recommends areas for future study.

5.2 Summary of the findings

The findings are discussed in this section. Comparing and contrasting studies with earlier findings is part of the findings discussion. The discussion was conducted in accordance with the objectives of the study.

5.2.1 To examine the effect of mobile money transactions on increased transparency of revenue collection in the public transport businesses.

The study aimed to examine how mobile money transactions influence the transparency of revenue collection within the public transport sector. The regression analysis revealed that mobile money transactions have a moderate positive impact on transparency. Specifically, the equation derived from the model shows that for every 1-unit increase in the perceived impact on revenue collection, transparency increases by 0.322 units. This relationship was statistically significant, with a p-value of less than 0.001, indicating that the relationship is not due to random chance. According to the R-squared value of 0.142, mobile money transactions account for 14.2% of the volatility in the transparency score overall. This means that while mobile money contributes to increased transparency, there are other factors at play. These findings align with the theoretical expectation that mobile money systems can make revenue collection processes more transparent by reducing human intervention and enabling real-time tracking.

5.2.2 To establish the effect of mobile money transactions on theft reduction within the revenue collection process.

The second goal was to evaluate how mobile money transactions affect the process of revenue collection by reducing theft. The regression model showed a strong correlation between fewer thefts and mobile money transactions. Specifically, for each 1-unit increase in the perceived impact of mobile money transactions on revenue collection, the reduction in theft increased by 0.475 units. The p-value of less than 0.001 confirms the statistical significance of this relationship. The R-squared value of 0.224 shows that the model explains about 22.4% of the

variation in theft reduction. This result suggests that mobile money systems can significantly reduce opportunities for theft by automating and digitizing transactions, thereby minimizing human handling of cash. These findings support the findings of previous studies that have highlighted mobile money's role in curbing theft in public transport systems Tenderere (2023).

5.2.3 To investigate the effect of mobile money transactions on revenue collection in achieving reduced cash handling costs in public transport businesses.

The study aimed to evaluate the effect of mobile money transactions on reducing cash handling costs in public transport businesses. A moderately significant correlation between the perceived impact of mobile money transactions on revenue collection and handling costs was found by the regression analysis. The model indicates that handling costs are decreased by 0.418 units for every unit increase in the perceived impact. Because of the statistical significance of the association (p -value < 0.001), mobile money transactions are a good indicator of lower cash handling expenses. The R-squared value of 0.224 shows that mobile money transactions account for 22.4% of the variance in cash handling costs, highlighting their substantial but not exclusive role in reducing such costs.

5.3 Conclusions

In conclusion, the study confirms that mobile money transactions have a significant impact on various aspects of revenue collection in public transport businesses. First, mobile money enhances transparency by making transactions traceable, reducing the risk of fraud, and increasing accountability. Second, by minimizing cash handling and thereby limiting opportunities for embezzlement, it plays a critical role in reducing theft within the revenue collection process. Third, the adoption of mobile money reduces cash handling costs, contributing to operational efficiency in public transport businesses.

The findings also highlight the importance of integrating mobile money systems within public transport businesses to drive these benefits. However, the study also notes that while mobile money transactions account for a portion of the variation in these outcomes, other factors also play significant roles. Future research could explore these other variables to provide a more complete picture of the factors influencing revenue collection in the public transport sector. By aligning with and extending existing literature, this study contributes to the growing body of knowledge on the effectiveness of mobile money transactions in improving transparency, reducing theft, and minimizing costs in public transport businesses.

5.4 Recommendations

5.4.1 Public Transport Operators:

It is imperative for operators to embrace and implement mobile payment systems to streamline revenue collection. Operators should invest in the necessary infrastructure, such as mobile payment terminals and software, to facilitate smooth and efficient transactions. They should also train their staff on how to use and troubleshoot these systems to ensure a seamless experience for passengers. Moreover, operators can benefit from the increased transparency and accountability that mobile transactions provide, as it reduces the risk of revenue leakage associated with cash transactions. By adopting mobile payment systems, public transport operators can enhance operational efficiency, improve customer satisfaction, and ultimately increase revenue.

5.4.2 Policy Makers:

They should develop and enforce regulations that support the use of mobile payment systems and ensure consumer protection. This includes setting standards for data security and privacy to protect users' financial information. Policy makers can also provide incentives for public transport operators and passengers to adopt mobile transactions, such as tax breaks, subsidies, or grants for purchasing necessary equipment. In addition, they ought to launch public awareness initiatives to clear up any misunderstandings and inform the public about the advantages of mobile payments. By fostering a supportive policy environment, policy makers can drive the adoption of mobile transactions and enhance the efficiency and transparency of revenue collection in the public transport sector.

5.4.3 Mobile Payment Providers:

They must ensure that their systems are reliable, user-friendly, and secure. This involves continuous investment in technology and infrastructure to handle high volumes of transactions without disruptions. Mobile payment providers should work closely with public transport operators to integrate their systems seamlessly and provide ongoing support and maintenance. Additionally, they can offer customized solutions tailored to the unique needs of the public transport sector. Providers should place a high priority on user education and support, providing users with clear instructions and customer care to help them with any problems they may run into. By delivering a robust and efficient mobile payment solution, providers can facilitate the widespread adoption of mobile transactions and contribute to improved revenue collection in

the public transport business. These targeted efforts by public transport operators, policy makers, and mobile payment providers can collectively enhance the effectiveness and adoption of mobile transactions, leading to more efficient and transparent revenue collection in Nairobi County's public transport sector.

5.5 Suggestions for further research

The study focused only on the matatu industry in Nairobi County. Conducting a comparative analysis of different mobile payment systems used in the public transport sectors of various cities or countries can provide valuable insights. This research can highlight best practices, identify common challenges, and propose solutions that can be adapted for Nairobi County. There is also a need to explore the effect of mobile money transactions on revenue collection across different regions and transportation modes and also conduct studies to assess the long-term effects of mobile payment adoption on the financial sustainability of public transport businesses.

Examining the existing policy and regulatory framework governing mobile transactions in the public transport sector can provide insights into its adequacy and areas for improvement. This research can suggest policy changes or new regulations to support the growth and efficiency of mobile payment systems.

5.6 Limitations of the research

One of the study's shortcomings is that it was designed with three variables in mind: lowering theft, increasing transparency, and lowering the cost of managing currency. The literature analysis revealed additional elements, such as government policy and technology features, that could impact revenue collection in the public transportation industry. Also the research was confined to Nairobi County, limiting the generalizability of findings to other regions or countries. The respondents' refusal to participate, even if they had previously consented, had a significant impact on the response rate. Despite the researcher's assurances regarding study secrecy, a sizable portion of respondents expressed strong skepticism about the research.

References

- Abu-Taieh, E., Hadid, I. H. A., & Mouatasim, A. E. (2020). *Cyberspace*. In Google Books. BoD – Books on Demand.
https://books.google.co.ke/books?hl=en&lr=&id=eqf8DwAAQBAJ&oi=fnd&pg=PA27&dq=Research+design+meaning&ots=cLOZ1Wf7Lb&sig=GlrU_OduPBDy9PO2EX9bBIOZsXM&redir_esc=y#v=onepage&q&f=false
- Adaba, G. B., Ayoung, D. A., & Abbott, P. (2019). Exploring the contribution of mobile money to well-being from a capability perspective. *The Electronic Journal of Information Systems in Developing Countries*, 85(4). <https://doi.org/10.1002/isd2.12079>
- Afful Ekow Kelly, & Palaniappan, S. (2022). Factors influencing mobile money transaction service adoption in Ghana, using a Technology Acceptable Model and Diffusion Theory. *Research Square (Research Square)*. <https://doi.org/10.21203/rs.3.rs-1517263/v1>
- Akoko, J. A. (2022). New infrastructures in enhancing mobility in the city of Nairobi. *Zeszyty Naukowe. Organizacja I Zarządzanie / Politechnika Śląska*, z. 155, 9–16.
<https://doi.org/10.29119/1641-3466.2022.155.1>
- Álvez, M., Lluberas, R., & Ponce, J. (2020). The Cost of Using Cash and Checks in Uruguay. *Journal of Central Banking Theory and Practice*, 9(2), 109–129. <https://doi.org/10.2478/jcbtp-2020-0016>
- Alyoussef, I. Y. (2021). Factors Influencing Students' Acceptance of M-Learning in Higher Education: An Application and Extension of the UTAUT Model. *Electronics*, 10(24), 3171.
<https://doi.org/10.3390/electronics10243171>
- Amini, M., & Jahanbakhsh Javid, N. (2023, January 1). A Multi-Perspective Framework Established on Diffusion of Innovation (DOI) Theory and Technology, Organization and Environment (TOE) Framework Toward Supply Chain Management System Based on Cloud Computing Technology for Small and Medium Enterprises. *Papers.ssrn.com*.
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4340207
- Aron, J., & Muellbauer, J. (2019). "The Economics of Mobile Money: harnessing the transformative power of technology to benefit the global poor." <https://oms-www.files.svdcn.com/production/downloads/May-19-OMS-Policy-Paper-Mobile-Money-Aron-Muellbauer.pdf>
- Aruho, A. T., Behrens, R., Mitullah, W., & Kamau, A. (2021). A case study of matatu cashless fare collection initiatives in nairobi. *Repository.up.ac.za*.
<https://repository.up.ac.za/handle/2263/82383>

- Atombo, C., & Dzigbordi Wemegah, T. (2021). Indicators for commuter's satisfaction and usage of high occupancy public bus transport service in Ghana. *Transportation Research Interdisciplinary Perspectives*, 11, 100458. <https://doi.org/10.1016/j.trip.2021.100458>
- Aucamp, A., Govender, S., & Pearton, M. (2023). The future of automated fare collection systems : a perspective from the eThekweni municipality. *Repository.up.ac.za*. <https://repository.up.ac.za/handle/2263/92553>
- Ayub, S. (2022, September 24). All Nairobi matatu routes and stages: Get the full list. *Tuko.co.ke - Kenya News*. <https://www.tuko.co.ke/291159-all-nairobi-matatu-routes-stages.html>
- Baç, U. (2020). An Integrated SWARA-WASPAS Group Decision Making Framework to Evaluate Smart Card Systems for Public Transportation. *Mathematics*, 8(10), 1723. <https://doi.org/10.3390/math8101723>
- Badorf, F., Wagner, S. M., Hoberg, K., & Papier, F. (2019). How Supplier Economies of Scale Drive Supplier Selection Decisions. *Journal of Supply Chain Management*, 55(3). <https://doi.org/10.1111/jscm.12203>
- Benhabib, J., Perla, J., & Tonetti, C. (2021). Reconciling Models of Diffusion and Innovation: A Theory of the Productivity Distribution and Technology Frontier. *Econometrica*, 89(5), 2261–2301. <https://doi.org/10.3982/ecta15020>
- bezerra, j. m., Fliveira, Francisca, s., Fontoura, volmar Morais, Santos, f. s., lívia, s., neto, s., marcela, gomes, a., & silva, c. a. (2017). History of breastfeeding in children and adolescents with Diabetes Mellitus type 1. *Ufma.br*. <https://doi.org/2230-9926>
- Caglio, A., Melloni, G., & Perego, P. (2019). Informational Content and Assurance of Textual Disclosures: Evidence on Integrated Reporting. *European Accounting Review*, 29(1), 55–83. <https://doi.org/10.1080/09638180.2019.1677486>
- Chan, J. Y.-L., Leow, S. M. H., Bea, K. T., Cheng, W. K., Phoong, S. W., Hong, Z.-W., & Chen, Y.-L. (2022). Mitigating the Multicollinearity Problem and Its Machine Learning Approach: A Review. *Mathematics*, 10(8), 1283. <https://doi.org/10.3390/math10081283>
- Chaudhary, A. a., riaz, a., nazir, n., azad, m., & anwar, m. w. (2022). the cost leadership strategy and its impact on future performance of non-financial firms; a case study of pakistan. *Competitive Social Science Research Journal*, 3(2), 561–579. <https://cssrjournal.com/index.php/cssrjournal/article/view/381>
- Chen, J. V., Ha, Q. A., Widjaja, A. E., & Lien, N. T. (2023). To switch or not to switch Investigating users' switching behaviours of fitness wearable devices. *International Journal of Mobile communications*, 21(1), 95. <https://doi.org/10.1504/ijmc.2023.127385>

- chepkoech, n. (2022). effect of e-payment systems on sustainable revenue collection in nairobi city county government. *International Academic Journal of Economics and Finance*, 3(7), 238–253. https://iajournals.org/articles/iajef_v3_i7_238_253.pdf
- Choi, D., Chung, C. Y., Seyha, T., & Young, J. (2020). Factors Affecting Organizations' Resistance to the Adoption of Blockchain Technology in Supply Networks. *Sustainability*, 12(21), 8882. MDPI.
- Chumba, G. (2019). effect of revenue collection on service delivery: a case of nairobi county. <https://ikesra.kra.go.ke/server/api/core/bitstreams/0875293e-8ed1-452c-89a5-7c580bb9f580/content>
- Clemons, E. K., Waran, R. V., Hermes, S., Schreieck, M., & Krcmar, H. (2022). Computing and Social Welfare. *Electronic Markets*. <https://doi.org/10.1007/s12525-021-00512-0>
- Colin Ngigi Wamwea, & Moi, E. (2023). Influence of Transport Sector Reforms on Performance of Public Transport Sector, A Case Study of Nairobi City County. *International Journal of Public Administration and Management Research*, 8(5), 17–29. <https://journals.rcmss.com/index.php/ijpamr/article/view/765>
- Cronin, D. (2021). Whither Cash in Payments? *Quarterly Bulletin Articles*, 64–87. <https://ideas.repec.org/a/cbi/qtbart/y2021m01p64-87.html>
- Cuyppers, I., Hennart, J.-F., Silverman, B., & Ertug, G. (2020). Transaction Cost Theory: Past Progress, Current Challenges, and Suggestions for the Future. *Academy of Management Annals*, 15(1). <https://doi.org/10.5465/annals.2019.0051>
- Dessaint, O., Olivier, J., Otto, C. A., & Thesmar, D. (2020). CAPM-Based Company (Mis)valuations. *The Review of Financial Studies*, 34(1). <https://doi.org/10.1093/rfs/hhaa049>
- Dong, H., Ma, S., Jia, N., & Tian, J. (2021). Understanding public transport satisfaction in post COVID-19 pandemic. *Transport Policy*, 101, 81–88. <https://doi.org/10.1016/j.tranpol.2020.12.004>
- Echebiri, C. K. (2021). Employee-Driven Innovation : An empowerment-based view. In *brage.inn.no*. <https://brage.inn.no/inn-xmlui/handle/11250/2775446>
- Fabris, N. (2019). Cashless Society – The Future of Money or a Utopia? *Journal of Central Banking Theory and Practice*, 8(1), 53–66. <https://doi.org/10.2478/jcbtp-2019-0003>
- Findley, M. G., Kikuta, K., & Denly, M. (2021). External Validity. *Annual Review of Political Science*, 24(1), 365–393. <https://doi.org/10.1146/annurev-polisci-041719-102556>
- Gitonga, I. (2019). Assessing the factors influencing the use of Mpesa: a case of paratransit service providers in Nairobi. <https://core.ac.uk/download/pdf/389661132.pdf>

- Goh, E., & Sigala, M. (2020). Integrating Information & Communication Technologies (ICT) into classroom instruction: teaching tips for hospitality educators from a diffusion of innovation approach. *Journal of Teaching in Travel & Tourism*, 20(2), 156–165.
<https://doi.org/10.1080/15313220.2020.1740636>
- Granić, A., & Marangunić, N. (2019). Technology acceptance model in educational context: A systematic literature review. *British Journal of Educational Technology*, 50(5), 2572–2593. Wiley. <https://doi.org/10.1111/bjet.12864>
- Guevara, L., & Auat Cheein, F. (2020). The Role of 5G Technologies: Challenges in Smart Cities and Intelligent Transportation Systems. *Sustainability*, 12(16), 6469.
<https://doi.org/10.3390/su12166469>
- Hassan, R. (2023). Does Mobile Money Adoption Increase Informal Business Performance in Zambia? *Journal of the Knowledge Economy*. <https://doi.org/10.1007/s13132-023-01205-z>
- Jumba J, & M, W. J. (2019). Effect of Cashless Payments on the Financial Performance of Supermarkets in Nairobi County. *International Journal of Academic Research in Business and Social Sciences*, 9(3), 1372–1397.
<https://hrmars.com/index.php/IJARBSS/article/view/5803/Effect-of-Cashless-Payments-on-the-Financial-Performance-of-Supermarkets-in-Nairobi-County>
- Kaasinen, E., Schmalfuß, F., Öztürk, C., Aromaa, S., Boubekur, M., Heilala, J., Heikkilä, P., Kuula, T., Liinasuo, M., Mach, S., Mehta, R., Petäjä, E., & Walter, T. (2020). Empowering and engaging industrial workers with Operator 4.0 solutions. *Computers & Industrial Engineering*, 139(105678), 105678. <https://doi.org/10.1016/j.cie.2019.01.052>
- Kamau, S. (2024). NTSA Kenya registered saccos. *Scribd*.
<https://www.scribd.com/document/395799537/NTSA-Kenya-registered-saccos>
- Kanobe, F., & Bwalya, K. J. (2021). Snags in mobile money in developing economies. *The Electronic Journal of Information Systems in Developing Countries*.
<https://doi.org/10.1002/isd2.12181>
- Karani, G. (2020). Universal Design Awareness among Urban Planners and Its Impact on Public Transport Systems in Nairobi, Kenya. *Uonbi.ac.ke*.
<http://uonjournals.uonbi.ac.ke/ojs/index.php/ahr/article/view/325>
- Kim, K. (2020). The role of mobile money in improving the financial inclusion of Nairobi's urban poor. *African Journal of Science, Technology, Innovation and Development*, 12(7), 855–865.
<https://doi.org/10.1080/20421338.2020.1733281>

- Kimani, R. G. (2019). Effect of Creativity on Entrepreneurial Performance of Public Transport Saccos in Ongata Rongai, Kajiado County in Kenya. Uonbi.ac.ke.
<http://erepository.uonbi.ac.ke/handle/11295/154939>
- KINYANJUI, M. (2022, November 21). City Hall starts five day verification process for matatu. The Star; The Star. <https://www.the-star.co.ke/counties/nairobi/2022-11-21-city-hall-starts-five-day-verification-process-for-matatu/>
- KNBS. (2019, November 4). 2019 Kenya Population and Housing Census Results. Kenya National Bureau of Statistics. <https://www.knbs.or.ke/2019-kenya-population-and-housing-census-results/>
- Kuo, Y.-H., Leung, J. M. Y., & Yan, Y. (2022). Public Transport for Smart cities: Recent Innovations and Future Challenges. *European Journal of Operational Research*, 306(3).
<https://doi.org/10.1016/j.ejor.2022.06.057>
- Kyriazos, T., & Poga, M. (2023). Dealing with Multicollinearity in Factor Analysis: The Problem, Detections, and Solutions. *Open Journal of Statistics*, 13(3), 404–424.
<https://doi.org/10.4236/ojs.2023.133020>
- Lashitew, A. A., van Tulder, R., & Liasse, Y. (2019). Mobile phones for financial inclusion: What explains the diffusion of mobile money innovations? *Research Policy*, 48(5), 1201–1215.
<https://doi.org/10.1016/j.respol.2018.12.010>
- Liébana-Cabanillas, F., Molinillo, S., & Ruiz-Montañez, M. (2019). To use or not to use, that is the question: Analysis of the determining factors for using NFC mobile payment systems in public transportation. *Technological Forecasting and Social Change*, 139, 266–276.
<https://doi.org/10.1016/j.techfore.2018.11.012>
- Lombardi, A. (2020, September 17). How to Reduce the Risk and Costs of Handling Cash (Updated 2020). *Cashtechcurrency.com*; CashTech Currency Products.
<https://www.cashtechcurrency.com/blog/how-to-reduce-the-risk-and-costs-of-handling-cash>
- Lu, H.-P., & Wung, Y.-S. (2021). Applying Transaction Cost Theory and Push-Pull-Mooring Model to Investigate Mobile Payment Switching Behaviors with Well-Established Traditional Financial Infrastructure. *Journal of Theoretical and Applied Electronic Commerce Research*, 16(2), 1–21. <https://doi.org/10.4067/s0718-18762021000200102>
- Malinga, R. B., & Maiga, G. (2019). A model for mobile money services adoption by traders in Uganda. *The Electronic Journal of Information Systems in Developing Countries*.
<https://doi.org/10.1002/isd2.12117>

- Maosa, A. O. (2020). The Contribution of Saccos in Enhancing Household Livelihoods Among Members in Bungoma County, Western Kenya. Uonbi.ac.ke.
<http://erepository.uonbi.ac.ke/handle/11295/154465>
- Markus, M. L., & Nan, W. (Vince). (2020, July 14). Theorizing the connections between digital innovations and societal transformation: learning from the case of M-Pesa in Kenya. Wwww.elgaronline.com; Edward Elgar Publishing.
<https://www.elgaronline.com/edcollchap/edcoll/9781788119979/9781788119979.00013.xml>
- McAndrews, J. J. (2020). The case for cash. *Latin American Journal of Central Banking*, 1(1-4), 100004. <https://doi.org/10.1016/j.latcb.2020.100004>
- Mishra, P., Pandey, C. M., Singh, U., Sahu, C., Keshri, A., & Gupta, A. (2019). Descriptive Statistics and Normality Tests for Statistical Data. *Annals of Cardiac Anaesthesia*, 22(1), 67–72.
https://doi.org/10.4103/aca.ACA_157_18
- Mitchell, S., Potash, E., Barocas, S., D'Amour, A., & Lum, K. (2021). Algorithmic Fairness: Choices, Assumptions, and Definitions. *Annual Review of Statistics and Its Application*, 8(1), 141–163. <https://doi.org/10.1146/annurev-statistics-042720-125902>
- Mobarak, A. M. A., Dakrory, M. I., Elstouhy, M. M., Ghonim, M. A., & Khashan, M. A. (2022). Drivers of Mobile Payment Services Adoption: A Behavioral Reasoning Theory Perspective. *International Journal of Human–Computer Interaction*, 1–14.
<https://doi.org/10.1080/10447318.2022.2144122>
- Mogaji, E., & Nguyen, N. P. (2022). The dark side of mobile money: Perspectives from an emerging economy. *Technological Forecasting and Social Change*, 185, 122045.
<https://doi.org/10.1016/j.techfore.2022.122045>
- Moghavvemi, S., Mei, T. X., Phoong, S. W., & Phoong, S. Y. (2020). Drivers and barriers of mobile payment adoption: Malaysian merchants' perspective. *Journal of Retailing and Consumer Services*, 59, 102364. <https://doi.org/10.1016/j.jretconser.2020.102364>
- Muchoki, M. (2020). Effect of internal control systems on efficient revenue collection at the National Transport and Safety Authority. Erepository.uonbi.ac.ke.
<http://erepository.uonbi.ac.ke/handle/11295/154073>
- muraya, l. (2019). determinants of tax compliance by public transport savings and credit cooperative societies in kenya: a case of public transport saving and credit cooperatives in nyeri county lilian wakarima muraya a research project submitted to the department of economics, accounting and finance administration in partial fulfilment of the requirements for the award of post graduate diploma tax administration of jomo.

<https://ikesra.kra.go.ke/server/api/core/bitstreams/b1708223-1b25-4eb7-9ccd-aaf3fd99c155/content>

- Musodik, A., Sari, A., & Fitriani, I. N. (2021). Investment decision by using Capital Asset Method Pricing Model (CAPM) (Case studies on five automotive companies listed in stock exchange). *Asian Management and Business Review*, 1(2), 165–175.
<https://doi.org/10.20885/ambr.vol1.iss2.art8>
- Musukwa, S. (2020). constructing corruption from minibus and taxi drivers' verbal accounts in the city of livingstone. <https://dspace.unza.zm/server/api/core/bitstreams/9ddd9925-9f29-4d7a-af9c-6f184a1abef9/content>
- Nan, W. (Vince), Zhu, X. (Christina), & Lynne Markus, M. (2020). What we know and don't know about the socioeconomic impacts of mobile money in Sub-Saharan Africa: A systematic literature review. *The Electronic Journal of Information Systems in Developing Countries*, 87(2). <https://doi.org/10.1002/isd2.12155>
- Natasia, S. R., Wiranti, Y. T., & Parastika, A. (2022). Acceptance analysis of NUADU as e-learning platform using the Technology Acceptance Model (TAM) approach. *Procedia Computer Science*, 197, 512–520. <https://doi.org/10.1016/j.procs.2021.12.168>
- Nzakizwanimana, M. (2021). Effectiveness of electronic ticketing system in improving fare revenue collection of Public Transport in Kigali City. Case study: Kigali Bus Services Ltd. *Dr.ur.ac.rw*. <https://dr.ur.ac.rw/handle/123456789/1441>
- Onyango, G. (2022). The art of bribery! Analysis of police corruption at traffic checkpoints and roadblocks in Kenya. *International Review of Sociology*, 32(2), 311–331.
<https://doi.org/10.1080/03906701.2022.2038845>
- Orijji, O., Shonibare, M. A., Daraojimba, R. E., Abitoye, O., & Daraojimba, c. (2023). financial technology evolution in africa: a comprehensive review of legal frameworks and implications for ai-driven financial services. *International Journal of Management & Entrepreneurship Research*, 5(12), 929–951. <https://doi.org/10.51594/ijmer.v5i12.627>
- Paiva, S., Ahad, M., Tripathi, G., Feroz, N., & Casalino, G. (2021). Enabling Technologies for Urban Smart Mobility: Recent Trends, Opportunities and Challenges. *Sensors*, 21(6), 2143.
<https://doi.org/10.3390/s21062143>
- Pattanapong Tiwasing, John Agyekum Addae, Francis Zana Naab, & Gilbert Zana Naab. (2024). Do mobile money services enhance business performance? An empirical analysis of Kenyan businesses. *The International Journal of Entrepreneurship and Innovation*.
<https://doi.org/10.1177/14657503241230946>

- Petricevic, O., & Teece, D. J. (2019). The Structural Reshaping of globalization: Implications for Strategic sectors, Profiting from innovation, and the Multinational Enterprise. *Journal of International Business Studies*, 50(1), 1487–1512. springer. <https://doi.org/10.1057/s41267-019-00269-x>
- Public Transportation - Kenya | Statista Market Forecast. (2024). Statista; Statista. <https://www.statista.com/outlook/mmo/shared-mobility/public-transportation/kenya#:~:text=Kenya%27s%20Public%20Transportation%20market%20is%20expected%20to%20generate>
- Rahman, M., Ismail, I., & Bahri, S. (2021). Analysing consumer adoption of cashless payment in Malaysia. *Digital Business*, 1(1), 100004. <https://doi.org/10.1016/j.digbus.2021.100004>
- Raman, R., Mandal, S., Das, P., Kaur, T., Sanjanasri, J. P., & Prema Nedungadi. (2024). Exploring University Students' Adoption of ChatGPT Using the Diffusion of Innovation Theory and Sentiment Analysis With Gender Dimension. *Human Behavior and Emerging Technologies*, 2024(1). <https://doi.org/10.1155/2024/3085910>
- Ramayanti, R., Rachmawati, N. A., Azhar, Z., & Nik Azman, N. H. (2023). Exploring intention and actual use in digital payments: A systematic review and roadmap for future research. *Computers in Human Behavior Reports*, 13, 100348. <https://doi.org/10.1016/j.chbr.2023.100348>
- Sagnier, C., Loup-Escande, E., Lourdeaux, D., Thouvenin, I., & Valléry, G. (2020). User Acceptance of Virtual Reality: An Extended Technology Acceptance Model. *International Journal of Human–Computer Interaction*, 36(11), 1–15. <https://doi.org/10.1080/10447318.2019.1708612>
- Salon, D., & Gulyani, S. (2019). Commuting in Urban Kenya: Unpacking Travel Demand in Large and Small Kenyan Cities. *Sustainability*, 11(14), 3823. <https://doi.org/10.3390/su11143823>
- Sanganyi, Duke O. (2021). Effects Of Insecurity On The Profitability Of Matatu Industry In Nairobi County. *Kcau.ac.ke*. <http://repository.kca.ac.ke/handle/123456789/637>
- Sawe, B., & cheluget, j. (2020). technology operational efficiency and service delivery in the public sector: national transport and safety authority in kenya. *the Strategic Journal of Business & Change Management*, 7(4). <https://doi.org/10.61426/sjbcm.v7i4.1819>
- Schachter, K. (2019). The Digitalization of Development: Understanding the Role of Technology and Innovation in Development through a Case Study of Kenya and M-Pesa. *CMC Senior Theses*. https://scholarship.claremont.edu/cmc_theses/2062/

- Sharmeen, F., Drost, D., & Meurs, H. (2020). A business model perspective to understand intra-firm transitions: From traditional to flexible public transport services. *Research in Transportation Economics*, 83, 100959. <https://doi.org/10.1016/j.retrec.2020.100959>
- Shatz, I. (2023). Assumption-checking rather than (just) testing: The importance of visualization and effect size in statistical diagnostics. *Behavior Research Methods*, 56. <https://doi.org/10.3758/s13428-023-02072-x>
- Siedlecki, S. L. (2020). Understanding Descriptive Research Designs and Methods. *Clinical Nurse Specialist*, 34(1), 8–12. Research gate. <https://doi.org/10.1097/NUR.0000000000000493>
- Sreenu, N. (2020). Cashless Payment Policy and Its Effects on Economic Growth of India. *ACM Transactions on Management Information Systems*, 11(3), 1–10. <https://doi.org/10.1145/3391402>
- Ståhlberg, T. (2024). COLLECTIVE ACTION DILEMMAS IN PUBLIC TRANSPORT REFORMS: A qualitative study of government officials and bus companies willingness and attitudes in Nairobi, Kenya and Kigali, Rwanda. *Ub.gu.se*. <https://hdl.handle.net/2077/82094>
- Stratton, S. J. (2021). Population research: Convenience Sampling Strategies. *Prehospital and Disaster Medicine*, 36(4), 373–374. Cambridge. <https://doi.org/10.1017/S1049023X21000649>
- Świecka, B., Terefenko, P., & Paprotny, D. (2021). Transaction factors' influence on the choice of payment by Polish consumers. *Journal of Retailing and Consumer Services*, 58, 102264. <https://doi.org/10.1016/j.jretconser.2020.102264>
- Tembe, A., Nakamura, F., Tanaka, S., Ariyoshi, R., & Miura, S. (2019). The demand for public buses in sub-Saharan African cities: Case studies from Maputo and Nairobi. *IATSS Research*, 43(2), 122–130. <https://doi.org/10.1016/j.iatssr.2018.10.003>
- Tenderere, K. (2023, March). A cashless payment platform for minibus taxis. *Sun.ac.za*. <https://scholar.sun.ac.za/items/86b44ba5-6254-4593-846c-3f0e99c53706>
- Tinka, A. A., & Behrens, R. (2019). Cashless Fare Collection in Sub-Saharan African Paratransit: A Review of Experiences. *Repository.up.ac.za*. <https://repository.up.ac.za/handle/2263/74251>
- Tonuchi, J. E. (2020, September 2). How to Improve Mobile Money Service Usage and Adoption by Nigerians in the Era of COVID-19. *Papers.ssrn.com*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3685255
- Vuković, M., Pivac, S., & Kuidid, D. (2019). Technology Acceptance Model for the Internet Banking Acceptance in Split. *Business Systems Research Journal*, 10(2), 124–140. <https://doi.org/10.2478/bsrj-2019-022>

- Wang, X., & Cheng, Z. (2020). Cross-sectional studies: Strengths, weaknesses, and Recommendations. *Chest*, 158(1), 65–71. Pubmed.
<https://doi.org/10.1016/j.chest.2020.03.012>
- Yoon, C., & Lim, D. (2021). Customers' Intentions to Switch to Internet-Only Banks: Perspective of the Push-Pull-Mooring Model. *Sustainability*, 13(14), 8062.
<https://doi.org/10.3390/su13148062>
- Zhao, Y., & Bacao, F. (2021). How Does the Pandemic Facilitate Mobile Payment? An Investigation on Users' Perspective under the COVID-19 Pandemic. *International Journal of Environmental Research and Public Health*, 18(3), 1016.
<https://doi.org/10.3390/ijerph18031016>

APPENDICES

Appendix I: Letter of introduction



PO Box 59857-00200,

Ole Sangale Road, Madaraka Estate. Nairobi, Kenya.

Dear Sir/Madam,

RE: DATA COLLECTION FOR RESEARCH

I am writing to you to formally ask that you please give me permission to work on my undergraduate research project through the utilization of both open-ended and closed-ended questions, on the effectiveness of mobile money transactions in improving revenue collection in public transport business within Nairobi County.

I am a student at Strathmore University pursuing a Bachelor of Commerce degree.

I am requesting your permission to utilize the data you have provided in order to conduct this study through this letter. Please provide an honest and unbiased response to the following questions. To preserve neutrality, the information gathered will be handled with strict confidentiality.

Any help provided will be much appreciated.

Yours sincerely,

Rawlings Masaki.

APPENDIX II: Sample Questionnaire

SECTION A: DEMOGRAPHIC INFORMATION

1. Gender

Male []

Female []

2. Age

18-25 []

26-30 []

31-35 []

36-40 []

41 and above []

4. Number of years working for Matatu Saccos

1 – 5 Years []

6 – 10 Years []

11- 15 Years []

Above 15 years []

5. Which payment method do you currently use? (check all that apply)

Mobile money e.g., M-pesa []

Cash []

6. What is your role in the matatu business? (check all that apply)

Driver []

Tout []

SECTION B: Perceived impact of mobile transactions on revenue collection

Kindly check (√) the cells corresponding to the most appropriate response on a 5-point Likert scale (1=Strongly Disagree) (2 =Disagree) (3 Fairly agree) (4=Agree) (5=Strongly Agree) to complete the table:

	Statement	1	2	3	4	5
1	Mobile transactions have increased the consistency of daily revenue collection.					
2	Mobile transaction systems have made it easier for public transport stakeholders to track daily revenue.					
3	Mobile transactions have significantly streamlined the revenue collection process in public transport.					

SECTION C: Perceived impact of mobile money transactions on reducing theft

Kindly check (√) the cells corresponding to the most appropriate response on a 5-point Likert scale (1=Strongly Disagree) (2 =Disagree) (3 Fairly agree) (4=Agree) (5=Strongly Agree) to complete the table:

No.	Statement	1	2	3	4	5
1.	Mobile money has improved the accuracy of revenue collection					
2.	Mobile money has enhanced the overall security of financial transactions in the business.					
3.	Mobile money offers better protection against fraudulent activities compared to cash.					

Section D: Perceived impact of mobile money transactions on increasing transparency

Kindly check (√) the cells corresponding to the most appropriate response on a 5-point Likert scale (1=Strongly Disagree) (2 =Disagree) (3 Fairly agree) (4=Agree) (5=Strongly Agree) to complete the table:

No.	Statement	1	2	3	4	5
1.	Mobile money provides a clear record of all transactions enhancing transparency.					
2.	The use of mobile money reduces opportunities for financial misreporting.					
3.	Mobile money improves the accuracy of fare collection data, leading to better business decisions.					

Section E: Perceived impact of mobile money transactions on reduced cash handling costs

Kindly check (√) the cells corresponding to the most appropriate response on a 5-point Likert scale (1=Strongly Disagree) (2 =Disagree) (3 Fairly agree) (4=Agree) (5=Strongly Agree) to complete the table:

No.	Statement	1	2	3	4	5
1.	The use of mobile money has reduced cash collection expenses.					
2.	Mobile money transactions have reduced cash management expenses.					
3.	The transition to mobile money has simplified cash reconciliation.					

APPENDIX III: List of licensed SACCOs in Nairobi County

1. Banana Hill Matatu Sacco
2. Blueline Safaris Shuttle
3. Bureti Express Sacco Ltd
4. Buruburu 58 Travellers
5. Cbet Sacco
6. City Hopper Limited/Fanaka
7. City Star Shuttle Limited
8. City Travellers Savings
9. Classic Luxury Shuttle
10. Alsops Travellers Service Ltd
11. Arriva Coach Ltd
12. Baba Dogo 25 Travellers
13. Dandora Usafiri
14. Dix-Hult Matatu Owner Sacco
15. Eastern Bypass Travellers Company Limited
16. Eastlands Eagles Limited
17. Eastleigh Commuter Services Limited
18. Eastleigh Route Sacco
19. Easy Coach Ltd
20. Ecosa Travellers Sacco
21. Egesa Shuttle Sacco
22. Embassava Cooperative Savings and Credit Society Ltd
23. Ajawaab Trans Savings and Credit Co-operative Society Limited

24. Estates Connection Limited
25. Express Connections Ltd
26. Fig Komba
27. Forward Travellers Sacco Ltd
28. Fourty Four Sacco
29. Freestyle Connection Ltd
30. Ganaki Multi Purpose Coop Society
31. Garissa Coach Limited
32. Classic Pelican Sacco Limited
33. 2TS Savings and Credit Cooperative Society Limited
34. Comlines Sacco Limited
35. Cosy Travellers Ltd
36. Nkikan Sacco Society Limited
37. Nucleaur Investments Ltd
38. Nyamakimaline Services Limited
39. Obamana Travellers Sacco
40. Orokise Sacco Ltd
41. Peja Travellers Limited
42. Prime Transcity Limited
43. Raasasi Investment Limited
44. Rembo Shuttle Savings and Credit Sacco Ltd
45. Rivernile Travellers Ltd
46. Rog Travellers Sacco
47. Rongaline Sacco

48. Royal Swift Express Ltd
49. Rukagina 44 Sacco
50. Runa Travellers Sacco
51. Rwaken Investments Limited
52. Sabrin Bus Services Limited
53. Safari Luxury Shuttles Limited
54. Sasaline Classic Shuttle Limited
55. Satima Sacco Society Ltd
56. Simba Transport Services East Africa Ltd
57. Sisibo Luxury Shuttle Limited
58. Sony Trading Company Limited
59. South B Matatu Owners Sacco Society Ltd
60. St. Mary's Transport Sacco Society
61. Stahito Commuter Services Co. Limited
62. Starbus Company (K) Ltd
63. Super Highway 45 Sacco Society Ltd
64. Super Metro Limited
65. Supreme Shuttle Limited
66. Crown Bus Service Ltd
67. Dabumatt Commuter
68. Daima Connections Ltd
69. Dakika Matatu Owners
70. Sken Savings and Credit Co-operative Society Limited
71. 12C Transport Sacco Ltd

72. 2B Travellers Sacco Ltd
73. 2K-NN Savings and Credit Co-operative Society Limited
74. Ngorika Line Travellers Company Limited
75. NKR Route 105 Multipurpose Cooperative Society Limited
76. 2KW Savings and Credit Co-operative Society Ltd
77. 8B Sacco Savings and Credit Cooperative Society Ltd
78. Akilla Transporters Company Limited
79. Aldana Travellers Sacco
80. Githurai 45 Sacco
81. Hannover Commercial Enterprises Ltd
82. Highrise Kibera Sacco
83. Himosha Travellers Sacco
84. Huruma 46 Savings and Credit Co-op Society
85. Huruma Mini-Bus Sacco Ltd
86. Impact Shuttle Limited
87. Indima (NMS) Sacco
88. Inter Counties Travellers Sacco
89. Inter County Express Ltd
90. Jesmat Travellers Co-operative
91. Kadana Travellers Investments Company Limited
92. Kangemi Matatu Owners
93. Kani Transport Sacco
94. Kariobangi Matatu Owners
95. Kawangware Matatu Savings and Credit Co-operative Society Limited

96. Kayo-Line Group Company
97. Kenya Bus Management Limited
98. Kibera Matatu Owners
99. Kigumo Travellers Co-operative Savings & Credit Society Limited
100. Kijabe Line Sacco
101. Killeton Commuters
102. Kinathi Savings and Credit Co-operative Society Limited
103. Kiragi Travellers Savings and Credit Co-operative Society Limited
104. Lankana Sacco Society Limited
105. Latema 22 Travellers Sacco
106. Lopha Multipurpose Co-operative Society
107. Lucky Baba Dogo Travellers Sacco Ltd
108. Lucky Transporters Company
109. Machakos Public Transporters Sacco Society Ltd
110. Madiwa Matatu Owners Sacco
111. Marimba Investment Limited
112. Matunda(Fruits) Bus Services
113. Maveroo Shuttle Limited
114. Menya Services Sacco Limited
115. Meru Nissan Operators Cooperative Savings and Credit Society Limited
116. Metrotrans East Africa Limited
117. MNK Sacco Society Ltd
118. Molo Classic Sacco Society Ltd
119. Molo Group Services Savings and Credit Co-operative Society Ltd

120. Mololine Services Limited
121. Moonlight Coach Company Ltd
122. Moyale Raha Transporters Company Limited
123. Muna Supreme Shuttle
124. Mwamba Travellers Sacco
125. Mwiki PSV Sacco
126. Mwingi Travellers
127. Naroka Travellers Sacco
128. Nagiru 145 Sacco
129. T.W.N Travellers Sacco Ltd
130. Teachers Transporters and Agency Limited
131. Telaviv Transporters Limited
132. The Guardian Coach Co. Ltd
133. Thika Road Transporters Sacco Ltd
134. Transafaris Sacco Ltd
135. Transline Classic Ltd
136. Trinity Transporters and Logistics Limited
137. Umoinner Sacco Ltd
138. Umoja Innercore Tena Matatu Owners Sacco Ltd
139. Unified International Limited
140. Walokana
141. Wamasa Travellers Limited
142. West Madaraka Route 14 Cooperative Sacco
143. Zuri Genesis Company Limited

144. Nawaku Sacco
145. Nawasuku Sacco
146. Nazigi Sacco
147. Nairobi Friends Travellers Society
148. Nairobi Kiru Line Services Ltd
149. Nairobi Prestige Bus Shuttle Ltd
150. Nairobi-Western-Classic
151. Nakaski Transport Savings Credit Sacco Ltd
152. Nakathi Travellers Sacco Limited
153. Nakimu Classic Travellers Sacco
154. Nakinduka Matatu Sacco
155. Nakisa Sacco Society Ltd
156. Nakwe Travellers Sacco Society Ltd
157. Nangos Matatu Sacco
158. Narok Line Service
159. Neema Travellers Agency Ltd
160. New Classic Travellers Sacco Limited
161. Ngong Travellers Sacco
162. Njoro Line Services Limited

APPENDIX IV: Supervision schedule

Strathmore University Business School

Management research project I

student: Masaki, Rawlings Okebiro

Reg. no. 122978

Course: Bachelor of Commerce





Strathmore
UNIVERSITY
BUSINESS SCHOOL

			Signature	
Session	Date	Tasks achieved	Student	Supervisor
1	21/06/2024	Confirm topics and begin the three chapters draft.	<i>Rawlings Okebiro</i>	
2	5/07/2024	1st draft proposal three chapters include the references and appendices	<i>Rawlings Okebiro</i>	
3	12/07/2024	Submit updated proposals after feedback	<i>Rawlings Okebiro</i>	
4	19/07/2024	2nd draft proposal three chapters include the references and appendices	<i>Rawlings Okebiro</i>	
5	26/07/2024	Submit updated proposals after feedback.	<i>Rawlings Okebiro</i>	

6	02/08/2024	compiled draft proposal three chapters include the references and appendices	<i>David</i>	
7	16/08/2024	meeting before submission. Turn-it-in report generated. Max 20%	<i>David</i>	
8	10/08/2024	Reviewing the draft proposal with the supervisor.	<i>David</i>	
9	16/08/2024	Preparation for final submission.	<i>David</i>	
10	30/08/2024	proposal submission – two hard copies and soft copy sent on email. Supervision schedule and Turn-it-in report attached	<i>David</i>	
11	10/09/2024	Proposal defense	<i>David</i>	
12	20/10/2024	Start of chapter four	<i>David</i>	
13	25/11/2024	Submission of chapter 4 & 5	<i>David</i>	
14	19/12/2024	Correction of chapter 4 & 5	<i>David</i>	

OK

15	13/01/2025	Final dissertation submission		
----	------------	-------------------------------	---	---

EFFECTS OF MOBILE TRANSACTIONS ON REVENUE COLLECTION IN PUBLIC TRANSPORT BUSINESS.pdf

ORIGINALITY REPORT

19%

SIMILARITY INDEX

17%

INTERNET SOURCES

6%

PUBLICATIONS

9%

STUDENT PAPERS

MATCH ALL SOURCES (ONLY SELECTED SOURCE PRINTED)

7%

★ su-plus.strathmore.edu

Internet Source

Exclude quotes On

Exclude matches < 8 words

Exclude bibliography On