

**EFFECT OF MODERN TECHNOLOGY ON PERFORMANCE OF TAXI
BUSINESSES IN NAIROBI CITY COUNTY, KENYA**

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DECLARATION

This project is my original work and has not been submitted for an award of a degree in this or any other University.

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This project has been presented and submitted for examination with our approval as the University Supervisor.

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DEDICATION

I dedicate this project to my husband for his continuous encouragement, and our children for the sacrifices they had to make during my study.

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First and foremost, I would like to thank Almighty God for granting me His protection, guidance, wisdom and strength throughout this project.

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ABBREVIATIONS AND ACRONYMS

DOI:	Diffusion of Innovation
GPS:	Global Positioning System
SPSS:	Statistical Package for Social Sciences
TAM:	Technology Acceptance Model

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ABSTRACT

The emergence of new public transport companies especially in the taxis industry have come to revolutionize the public transport industry by providing convenience and affordability previously not enjoyed. The main purpose of the study was to determine the effect of Modern Technology on Performance of Taxi Businesses in Nairobi City County, Kenya. The study was anchored on two theories: the technology Acceptance Model and the diffusion of innovation theory. The study adopted descriptive research design to establish the effect of modern technology on performance. The target population of the study was 34 top management staff of taxi companies operating within Nairobi City County. The study carried out census since the population of the study was small. The study relied on primary data that was collected by use of primary data. The collected data was coded into SPSS Version 23.0 for analysis and presentation. The study found out that coefficient of adjusted R squared of 0.611 which translates to 61.1%, this shows that performance of taxi businesses can be explained by accessibility to customers, diverse payments and flexibility of taxi businesses. The study concludes that that all taxi businesses companies had adopted tract and trace technology and global positioning system technology. All of the taxi company engaged in mobile phone technology all the time. Taxi companies had a database for their customers increased repeat purchases, respondents agreed that social networking (WhatsApp, Facebook, twitter, Instagram) platforms increased the number of customers and use of technology allowed taxi businesses customers to download applications that aided in hailing a cab. Taxi businesses staff agreed that customers paid only the figure detailed on the car meter and customers paid on cash basis. Clients paid using M-PESA, credit cards and Jambo Pay frequently as a mode of payment. Customers were picked at a location of their choice hence enhancing the customer numbers, taxis operated at all hours of the day and night leading to satisfied customers and taxi businesses company allowed drivers to open/close the system at their discretion. The study recommends that all taxi businesses companies ought to adopt more than one form of technology. The taxi company ought to engage in mobile phone technology all the time. E-Hailing ought to affect the performance of taxi business and use of social media platforms to access customers ought to influence company performance. Taxi businesses ought to allow customers to pay directly to the company using mobile payment options. Taxi businesses customers ought to pay only the figure detailed on the car meter and customers should pay on cash basis. Customers ought to be picked at a location of their choice hence enhancing the customer numbers, taxis ought to operate at all hours of the day and night leading to satisfied customers. Taxi Businesses Company ought to allow drivers to open/close the system at their discretion.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Changes in the business environment brought about by advancements in information technology and communication and globalization has called on businesses to constantly rethink their strategies if they are to remain competitive. The introduction of technological systems and applications has been readily adopted by organizations to increase efficiency and effectiveness in running organizational operations. According to Asil1 and Naralan (2016) usage of information technology in business units and enterprises play a key role towards achieving the success in operations and performance. Technology is effective whenever it is incorporated into the business model and the organizational structure. Technology creates innovative processes and systems that can give a firm competitive edge over other competition in the market (Neuby, 2016).

Performance is a measure or extent to which an organization has achieved its strategies and the objectives it had set. It involves using the available resources; some are in limited supply to achieve the set objectives. According to Ong'onge and Awino (2015) performance can be measured in financial and non-financial terms; the financial terms considers aspects to do with returns, outputs, profitability margins and income, while non-financial terms considers items like employee behavior, their competencies, attitudes and experiences. Majority of the people think that profitability is the only underlying factor when it comes to performance. However, determination and evaluation of performance can be achieved through the types of organizations and the adopted philosophies. Performance also entails determination of the value and mission statements of the organization on the basis of the changing business environment (Hervas-Oliver et al., 2014).

The transport sector especially the taxi business has not been spared by these changes. The emergence of new public transport companies especially in the taxis industry have come to revolutionize the public transport industry by providing convenience and affordability previously not enjoyed. The emergence of these new companies has come to push customers to adopt new methods of accessing public transportation that are classier yet affordable. The government has been encouraging investors in the public transport industry by offering incentives for instance; shorter registration process, tax rebates and overall better judicial administration. The quest to bring in new ideas and modes of public service delivery in this industry has therefore led to new firms springing up to challenge already existing firms in the market who enjoyed a larger market share (Industrial and Commercial Development Corporation, 2012).

The study was anchored on two theories: the technology Acceptance Model (TAM) and the diffusion of innovation (DOI) theory. For technology adoption it covers perceptions on user adoption and concerns that users have. The diffusion of innovation theory discusses five features of innovations and how they affect information technology diffusion; relative advantage that entails the extent with which a new technology brings in improvements to the current system(Rogers, 1995), compatibility that encompasses the consistency in application by its users, the complexity in terms of easy usage and ability to learn, trial and error ability that involves trying any innovation before commercial usage by a firm and finally observability that is basically the extent with which results from the new technology are visible (Rogers, 1962). Innovation diffusion theory further suggests that there are several individual diffusion factors that affect diffusion (Rogers, 2004). Innovation adopters are therefore classified into five different categories depending on innovation uptake speed: there is the innovator, early adopter followed by early majority, the late majority and lastly the innovation laggards.

Currently, mobile phone applications are being applied in airline booking services, shopping, financial services and most recently taxis booking services. The adoption of Mobile Taxi Booking (MTB) applications whereby one can order a taxi via their smart-phones, tablets or even personal computers is taking root and is currently being utilized in various markets (Ha &Stoel, 2017).The MTB applications enable taxi drivers to increase potential incomes if they can be able to partake more customer bookings as they are able to reduce on operating costs. This new system is also convenient in that there are fewer misunderstandings between the driver and the dispatcher with regards to booking messages. This system serves to give customers an exhilarating experience hence increase on their satisfaction that in turn translates to loyalty (Neuby, 2016).

1.1.1 The Concept of Modern Technology

Modern technology involves application of both computer software and hardware into business operations with the aim of improving the level of efficiency and effectiveness in completion of tasks. It acts as catalysts to innovation which results into products and services that are new, novel and untested (Beley & Bhatarkar, 2013). All the computing aspects working in the sector are grouped together to form the concept of technologies. Similarly, Mpofu and Watkins-Mathys (2011) noted that modern technology includes aspects such as database management, telecommunications, storing devices like hardware and software plus other tools for processing and delivering information to the other parties. In business units, technology is used to help the management in controlling all organizational activities, their processes and the people. In large business units with a variety of projects, the function of overseeing all coordination and resource allocation can be a daunting task without available technologies that ease up the work.

Thus, the usage of technology is often used to assist the work processes in an organization (Laudon (2011)).

Some of the benefits that accrue to an organization through the adoption of modern technologies include: cost reduction, strategic alliances, innovation and creativity and growth (Mpofu & Watkins-Mathys, 2011). At the same time, technologies enhance the communication process leading to improved decision-making by the leadership. These benefits could easily be achieved and relied upon by the small and medium-sized enterprises (SMEs) to increase performance and sustainability of operations. Modern technologies could also be used to enhance the stakeholder partnership and relationships with others in the same sector or in the market place (Beley & Bhatarkar, 2013). Through social platforms, taxi businesses are able to inform their clients and the general public on pertinent information about their companies. The companies use Facebook, Twitter, Whatsapp, Instagram and web pages. Frequent customers receive text messages informing them of the latest offers and changes in operations.

Adoption of modern information technology is dependent on organisations for their survival as they grow and adjust as per market conditions for (Rannisto, 2013). Many modern companies who are in search of business solutions tend to invest in information technology and innovation. The information technology is used to improve decision making process and enhance quality of service delivery as well as firm productivity in general (Porter & Tanner, 2012). IT and innovation are also used as a tool to deliver on the organizational vision and mission in a simpler and effective manner. Thus, the leadership in an organization must invest in current information technologies, linking it to the work processes that improve their performance (Hacker & Saxton, 2007).

The transport sector and specifically the taxi businesses have adopted the use of different technologies which have improved their operations and functionality. Some of these technologies include using mobile phones to call a taxi and make payments, using track and trace technologies in monitoring the taxi, passenger and driver movements. Furthermore, the taxis use smart cars which are small-sized cars that maneuver faster in congested areas and help the customer to reach their destination in time and GPS systems that tracks passengers, goods and helps in managing the business entity.

1.1.2 Organizational Performance

Organization performance is a measure used to ascertain how well the resources of an organization have been utilized in creation of wealth for the shareholders. Corvellec (2017) mentions that financial performance looks at organizational performance in monetary terms against a set target or policies.

Performance determines the extent which an organization is competitive (Niculescu, 1999). Noye (2002) defined performance as the ability of the firm to meet the established goals and objectives within a stated timeframe. Răzvan-Dorin (2013) concluded that performance is not simply an achievement of a result but rather an outcome of comparison between the result and the targeted goal.

Performance defines the ability of a firm to produce and distribute their products and services effectively at reasonable prices. It also refers to the ability of a firm to meet consumer demands and expectations regarding goods or services. Some firms ensure performance in terms of market share dominated and volume of sales.

Organizational performance is a function of effectiveness and efficiency since the firm must produce the right goods and services using as little resources as possible (Răzvan-Dorin, 2013). Firms typically try to perform financially, marketwise and shareholder-wise. First, the firms try to perform well financially by realizing good returns on their investment. Secondly, firms try to perform well in terms of the market by trying to gain as much market share. The firms do this by producing goods and services that are in demand and then offering them at reasonable prices as well as offer efficient client services aimed at improving performance.

1.1.3The Taxi Businesses in Kenya

The Kenyan taxi industry has not been well acknowledged. ICDC (2012) study revealed that the Nairobi human population was roughly 3.2 Million. The report further deduced that the day population was 4. 5 Million People. It was further established that the taxi mode of travelling only met 2% of the total daily travelling needs of the identified day population. The total amount of taxi trips per day were estimated at 95,080 with a prediction to expand to 165,600 trips in the year 2025. According to the report, the Kenya taxi industry has undergone tremendous evolution from the customary one car one-man business model to the current company taxi business model. In the 1970's, the report further established that taxi services were mainly a preserve for the high-end members of the society as evidenced by the used top of the art vehicles. Those days were predominantly dominated by Kenatco Taxis Limited that operated as the only taxi company.

On the contrary, low income and middle-income groups used public transportation as the preferred mode of transportation. However, the trend begun to change as companies soon realized the essence to primarily concentrate on their core operations in the late 1990s. Few companies emerged to take advantage of up-and-coming businesses hence undertook to

compete with the monopolistic Kenatco. As more and more firms were incorporated after the new millennium, the Corporate Taxi Association was formed in the year 2004. The association reports that the number of taxi vehicles is 2,000 belonging to a total of 30 companies, the association further estimates an annual taxi industry turnover of Kshs 2.7 Billion (ICDC 2010).

1.2 Research Problem

The business world of today has been influenced to a great extent by developments in information, communication and technology (ICT). These developments in ICT have resulted into increased innovation among firms. Technology has revolutionized the way business is conducted on a global scale. Olatunji (2015) argues that application of technology in business operations leads to business competitiveness, enabling businesses to compete on similar grounds with large well-established organizations. Application of technology and innovation has been found to avail businesses with valuable information that if well utilized could lead to better performance. It also leads to increased knowledge, improved relationship with customers and reduction in the production costs which all lead to improved performance (Moshi, 2018).

Taxi business is an old trade spanning several years, but in the recent days, the sector has grappled with usage of technology aimed at improving effectiveness and efficiency. Technology is used to track cars which enhance the safety of passengers and drivers; ease in making payments using mobile money applications and swiping card and downloaded applications to request for a ride. This study assessed how technologies influenced performance in the context of taxi businesses.

In China, Chen (2018) mentions that taxi drivers used ICT-mediated applications and mobile processes to control and run their taxi business entities. Lee, Park and Lee (2018) revealed that

technological applications have enabled taxi users to share the ride and share the cost. These studies were done in developed countries covering the taxi business and the background is in a different context from the Kenyan one.

Regionally, Gyódi (2017) investigated on Uber vs Licensed Taxi Drivers: A War between Technological Standards, the study looked at the rivalry of the taxi firms and failing to consider technology impact on performance. Daidj (2018) on uberization (or uberification) of the economy, the study looked at availability of internet services, social networking platforms and the connecting platforms in linking the customers to the drivers. These studies looked at technology in the taxi business but fails in mentioning its link to performance.

Locally, Ndungu (2013) investigated on the strategies that Kenatco taxis company to gain competitive advantage. The study showed that Kenatco taxis face competition from other taxi companies in terms of pricing, technology use and product differentiation in terms of service routes. This is a case study of Kenatco taxis only and its findings may not apply to other taxi companies. Hussein (2016) looked at the quality service practices that influence satisfaction among the users of taxis within the Nairobi County. The study noted that good practices led to taxi users becoming loyal to one company for all their transport needs. The study looked at ways to improve customer satisfaction but fails to look at the company and its goal of performance improvement.

These studies have looked at the introduction of technology in business units and the taxi sector, but none have looked at its effect to taxi company performance. Thus, this study filled this gap by assessing the the effect of Modern Technology on Performance of Taxi Businesses in Nairobi City County, Kenya.

1.3 Research Objectives

To determine the effect of Modern Technology on Performance of Taxi Businesses in Nairobi City County, Kenya.

1.4 Value of the Study

The study would be of importance to policy makers, government regulators, investors and managers of firms in the transport sector and the academic fraternity. This study would be of great insight to both managers in the taxi businesses as well as drivers since would reveal the specific effect of technology on their performance. The management would therefore be furnished with imperative information that they can use to further develop appropriate strategies for their sustained competitive advantage in the future. They would therefore be better placed to formulate adequate and market driven approaches to enhance their performance.

This study would also inform the Government of Kenya through the Ministries of transport and infrastructure and the Ministry of Information on policy formulation and implementation. This would help in evaluating the effectiveness of the existing policies and at the same time guide the formulation and implementation of new policies. The study would also be of great value to researchers and scholars as it would act as source of reference and suggest areas for further research especially where market dynamics are concerned. For the scholars, the study would provide insight and knowledge on the emerging field of mobile booking taxi services which is still at its infancy stage here in Kenya. The study would therefore add to the existing body of literature on Kenyan public transportation sector at large.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter covers the theoretical foundation of the study. The section discussed the two main theories, the technology acceptance model and diffusion of innovation. It had another section on the forms of technology and the linkage that technology has on organizational performance and the last section is on summary of knowledge gap.

2.2 Theoretical Foundation

A theoretical framework is used to link the objectives with the theories. Theories provide strong base for the study. The TAM and Diffusion of Innovation Theory were used to underpin the study.

2.2.1 Technology Acceptance Model

This model was formulated and modeled by Davis, Bagozzi and Warshaw (1989). The model concerns itself with prediction of the extent to which information system is to be accepted and applied in day to day operations in an organizational context. It was modelled to extent the application of the Theory of Reasoned Action (TRA) which had been applied for some time in the field of information systems (Brown & Venkatesh, 2005). The Model focuses on predicting the ability to accept a tool and to bring out the identifications that need to be brought in the system for it to be readily accepted by targeted users.

This model holds that the extent of accepting information system among users is to a large extent determined by two key factors: the extent to which the perceive the system to be useful

in their day today lifestyles and the extent of perceived ease of using the system (Venkatesh, et al 2003).

TAM identifies these two factors as key in determining one's desire and ability to adopt a given form of technology. The intention to apply and use a given technology links the actual behavior of use of a given form of technology. The perceived usefulness is viewed as having a direct relationship with perceived ease of use in influencing the adoption of information system in organizational operations (Venkatesh et al., 2003).

This theory has been used in the past to guide researchers and scholars on the ICT usage behavior (Bagozzi, 2007), and causes that lead to higher chances of ICT adoption in organizations. The theory delves deeper into the predictions and perceptions held by system users which later determines their willingness to use a given information system. Under TAM, focus is put on the perceived usefulness which describes the degree that an individual system user believes that applying a particular system brings in efficiency hence improved performance. This also applies in the case of perceived ease of use.

Chau and Hu (2001) argued that TAM viewed these two key factors as having paramount influence on a dependent construct commonly known as intention to use which determines the ultimate usage behavior. Venkatesh et al. (2003) provided a detailed explanation of TAM as having been designed to avail a prediction on the level of information technology acceptance and utilization in the places of work. This model holds that the most fundamental variable influencing information, communication and technology adoption in collection of revenue and the purpose in which the system was deployed as parameters of perceived usefulness and perceived ease of use.

The perceptions held on the level of information system usefulness in an organization describes the feelings of users as to the contributions made by the system in making the work more effective hence resulting in improved outcomes or performance. Perceived Ease of Use examined the effort made by users to apply a given information system in their day to day operations (Chuttur, 2009). They are both influenced by external variables.

Davis and Venkatesh (2000) shared that the perceived usefulness of an innovation includes aspects like expected output, quality of service delivery, relevance of the innovation to the work assignments, how easy it is to demonstrate and expected results (Venkatesh & Davis, 2000). This study examined how technology is acceptable by the taxi business as perceived through ease of usage and its usefulness in operation ability by the customers and taxi business firms.

2.2.2 Diffusion of Innovation Theory

This theory was formulated by Rogers (1962). According to the theory, there are varying five categories of adoption of new technologies. There are the innovators, early adopters; early majority, late majority and laggards. In essence, innovation adoption success would depend on early adopters since they have considerable influence over innovation adoption. The key to a smooth diffusion process is to improve on stakeholder awareness of new technologies among the intended innovation users.

DOI theory noted that there are three main influencers that lead to adoption of technologies in firms, they include the perceptions held by people about the innovation characteristics, the characteristics and behavior of the adopter and other contextual factors. Social systems are used to communicate about innovations made using specific channels for a given period of time

(Rogers, 1995). People have inherent characteristics and dispositions that differentiate the degree to which they willingly accept and adopt innovations, those who accept innovations form a normal distribution segment (Rogers, 2004).

In current organizations, the innovation process is complex and diverse as one organization and its people are different from another. In essence, there may not be a normal distribution table having the same number of sections. Currently, organizations may have people in support or oppose innovations, creativity and new ideas. This study adopts this model in trying to expand on the adoption and usage of technologies in the different companies running the taxi businesses. The taxi business has embraced technology due its ease in usage and accessibility.

2.3 Forms of Technology

2.3.1 Mobile Phone Technology

Mobile technology has reshaped our entire society, its communication models and ensuing global economies. In our current world, the number of cell phones, the tablets and smart phones have by now outnumbered the production, distribution and usage of desktop computers. Mobile phones are one of the key elements that has made the world to become a global village. Communication eases information flow despite the distance and space, payments are made in a timely manner and the traditional format of waiting for hours, days or weeks has ended. Communication and payment channels have increased the number and value of transactions being handled on a daily basis by millions of entrepreneurs across the globe (Lee, Moon, Kim & Mun, 2015).

The mobile and cell phone devices have become powerful and sophisticated in handling digital applications as directed by the users, according to Wang, Xiang and Fesenmaier (2014). This

has led to building businesses access in all sectors of the economy including health, manufacturing and micro and small trading ventures. The mobile phones enable users and customers to conduct business using online platforms as well as have online transactions and paying for the purchases is fast, easy and secure. High economic growth rate and development of ventures in the first-world countries is attributed to entry and usage of cell phones, smart phones and tablets for communication purposes, commerce and trade.

Many people use mobile devices for e-mailing, conducting e-commerce transactions and access to applications, because the devices are convenient to carry and walk around with them (Lee, et al., 2015). Mobile phones help people to communicate through texts, download applications for user functionality like GPRS and listening to music. Mutsune (2015) looked at a study on model of enhancing financial inclusion among Kenyans.

The study noted that in Africa, mobile ownership is over 700 million people, and this has led to the financial institutions coming up with innovative methods such that mobile banking which increases the presence of banking industry. In trying to understand financial inclusiveness, the study looked at the Kenyan market with success in mobile money transfer options using M-pesa. The study revealed that M-pesa has improved the instances of money transfers and payment of goods and services using pay bill numbers in paying for purchases in retail stores.

The SME's adoption of mobile payment technology was guided by all the constructs put together in the frame work. Thus, if we consider all the factors in total, it would influence how the SME make decision on the adoption of the mobile payment method. The overall conceptual framework for the eventual adoption of mobile payment methods by SME can be demonstrated by associating the constructs with the factors playing a role to the adoption of mobile payment arising from the TOE platform. This study therefore was aimed at identifying the

Technological, Organizational and Environmental factors that influence the SME decision makers into choosing mobile payment as a means of payment in their transaction.

One of the most used methods of mobile payment in Kenya is M-Pesa. According to a World Bank report, a huge percentage of money transfers were done via M-Pesa as opposed to the custom post office, (Toma 2012). By the end of 2007, it is estimated that M-Pesa subscription had reached 1million; a figure that has continuously increased with each passing year with 2009 recording over7.7 million and by 2010 the figure going to about 9 million, (Plyler et. al. 2010). Bill (2012) indicates in a more recent work, that subscription to M-Pesa is more than 13 million people. Considering that many more mobile phone providers have also introduced the mobile payment platform, this figure could be even higher, although empirical data to that effect is yet to be availed.

2.3.2 Track and Trace Technology

The transport sector has implemented tracking technology amongst its users to improve its performance and reliability. In the era of insecurity ranging from kidnappings, car theft, violence and even murder, tracking systems have come in handy. According to Gössling (2018) tracking is an exercise that surveys a person's location as they move from point A to point B. The tracking technology uses a similar technology as that used in ships and other long-distance vehicles. The tracking technology uses satellites and radio masts to transmit signals of a vehicle and individuals giving their time and location. Tracking can be active where information is remitted in real time using GPRS and GSM systems, passive tracking is where the information is not real time, the system gets the data and stores it then the information can be obtained at a later date.

The increase commercialization and use of GPS would make it easier and possible to track and trace anything, anywhere on the planet. The system is able to accurately locate information and missing items and report their findings in a cheap and easy mode. The police in Kenya have adopted advanced technologies in tracking and apprehending criminals. Ngumbi (2016) also shares that the police use vehicle tracking and monitoring systems such as CCTV cameras along the roads and highways, on streets and buildings in major towns and cities. The Kenyan police department has also invested in drones to give aerial feedback over a wide sparse of ground. While Wamuyu (2017) noted that drones are used in places prone to incidences of cattle rustling, although the study reveals that one of the major challenges is integrating the older models of systems and the new advanced system. Using advanced systems improve its accuracy and its applicability hence providing long-term solutions to the insecurity problems.

Prinsloo and Malekian (2016) investigation on usage of RFID in accurately locating vehicles. This technology has been adopted by large truck companies that transport goods and parcels across the globe such DHL. The system uses web-based tracking systems to pin-point the location of the vehicles and the driver anywhere across the globe. This increase the safety of the goods, the vehicle and the drivers. Reliability is one of the aspects that sell such a company to its customers. Tracking ensures that goods are safeguarded for sale delivery.

2.3.3 Smart Car

Transportation in major cities has become a problem due to a lot of congestion which has made motor vehicle manufacturers opt to make smaller and smarter cars. The so called ‘smart cars’ have been around for long but have become common in the recent few years, as the congestion and jam increases especially in modern cities. Some of the major automakers like BMW and

Nissan have already made compact electric cars, which can brake immediately and have low fuel consumption as well as easy to pack as they use very little space (Klein & Smart, 2017).

Nakrani (2015) did an investigation on smart care technologies, sharing that driving is hectic hence creating smart cars with a communication centre for music and entertainment or connectivity with others makes driving fun and stress free. But on the other hand, the communication and entertainment centre, creates distraction which has increased the number of accidents. Klein and Smart (2017) showed that the technology used in smart cars allows for assisted driving technologies that increase efficiencies.

2.3.4 Global Positioning System

Another important system used in transport sector is GPS which refers to Global Positioning System that was first used in World War II where the military used it to target, fleet management, navigation and positioning. But in our current world, GPS is commonly used in tracking delivery packages and passengers, in law enforcement procedures, wildlife tracking and in search and rescue missions or missing persons. Furthermore, as noted by Enoch (2015) who revealed that tracking and tracing technologies have grown in significance and usage by individuals and business persons. GPS started by the US defence in 1978 in following up military operations and later the system became commercialized and people could buy and install for their personal usage. GPS systems are now installed in mobile phones, laptop, motor vehicle (Malekian, Moloisane, Nair, Maharaj & Chude-Okonkwo, 2017).

The GPS technology is another system that the owners and taxi companies can use to track their own fleet of cars as well as track the drivers. In instances and areas where insecurity is high, the cars, driver and passengers can easily be located, through the GPS system (Zhang,

Tang, Wang, Wang & An, 2017). Alternatively, GPS is used by the drivers to get the directions within a city and drivers use it to pick and drop customers at places of convenience. GPS tracking products today range from passive to active trackers and it has turned out to be the most important form of technology driving performance of taxi businesses.

2.3.5 E-Hailing Technology

E-Hailing technology is a new invention that allows customers to download the application on their devices including mobile phones, tablets, laptops and desktops and once they log in, they can locate a taxi and call the driver to pick them at point A and drop them at point B. According to Adriano and Su (2017) in Filipino many of their taxi riders prefer the hailing application because it's safer, cost efficient, convenient, high reputation from online reviews and recommendations from peers and other users. It is a challenge to get a safe and reliable taxi in most of the urban centres.

Ackaradejruangsri (2015) revealed that taxi passengers suffered in case they did not know the direction, the drivers could use a longer route to charge them more, at times some drivers may refuse to go to some locations or charge a higher rate to go to some areas, some are overcharged since there is no meters to read the distance or time. These are some of the reasons that passengers have shifted to using e-hailing application that is convenient and safer.

He and Shen (2015) on the services taken by taxis using the smartphone-based e-hailing applications noted that there are many taxi hailing applications that are free to download on technological devices and help in solving the problem consumers have of hailing cabs on the streets. Companies like Lyft, Didi Dache and Hailo have two categories one-part shares e-hailing orders and customer information (pick-up points and destinations) with the drivers and

eases the business angle. Therefore, the application limits wait time as the closest willing driver picks and delivers the customers. The second part of the application involves linking private car drivers with customers who are going in the same location.

According to Onyango (2016) in adoption of E-Hailing and competitive advantages of taxi business noted that innovation in GDPs system significantly impacted on ability of taxi businesses to operate. The rise of E-Hailing in taxi business is among the forms of innovation in place. The emergence of E-Hailing technology had intensified the level of competition in the industry. The growth of the taxi business enterprises has helped in developing the SME sector and gained job opportunities for many youths.

2.4 Modern Technology and Organizational Performance

Technologies are computing aspects that have become common in everyday activities used to improve the effectiveness and efficiency of organizational operations and eventually its productivity. Kimani (2015) on information technology and organizational performance shares that many firms have invested in various IT devices to help business entities to offer quality services to customers. The study further showed that adoption of IT had direct and significant influence on performance. Organizations that are seeking improve productivity and competitive edge should invest in technological tools and services.

In an assessment of IT competencies and agilities and performance of organizations, Chakravarty, Grewal and Sambamurthy (2013) revealed that as organizations grow and change to adapt to the market environment, they have more dependence on technological tools for their survival and for profitability. Today, technology has been used in establishing solution to key challenges and issues facing businesses, increasing decision making capabilities and quality

and productivity. Technology can also be used a great force to open up new and exciting opportunities and ventures for business units and organizations.

Technology can also be used to push a firm towards achieving its missions, goals and set strategic plans in an effective way. Masenge (2014) who studied on ICT usage and the SMEs performance noted that in the face of diminishing raw materials for productive units, technological tools have been adapted to cut on resources wastage and standardize production. Leadership in an organization should appreciate the critical role played by technology and commit resources towards the same.

Imran, Maqbool and Shafique (2014) on technological advancement and its effect on employee performance, noting that technology has revolutionized the way organizations carry out operations. Through technology, firms today are able to make effective decisions, improve on the quality and gain competitive advantage. Although technology keeps on changing, it has remained as the most significant avenue for firms to improve on their performance.

Moreover, as noted by Abbas, Muzaffar, Mahmood, Ramzan and Rizvi (2014) on technology and performance of employees that technology is used to improve performance of staff. Setia, Venkatesh and Joglekar (2013) revealed that the assets possessed by an organization should be unique to enable them to remain competitive. As a strategic mechanism, technology enhances cooperation, communication and acquisition and sharing of knowledge. As such this study investigated on the importance of technological assets in organizational performance.

2.4.1 Accessibility to Customers and Taxi Businesses Performance

Internet and internet-based services have increased innovation in all the small and medium based enterprises of which the transport sector is included in. The internet has allowed users to

download applications on their mobile phones and hail cabs to take them from one point to another. Social networking platforms increases the number of customers for online taxi business as peers share the information. The usage of technological based applications has enabled the customers to easily book a ride through making a phone call to the company or driver and getting a taxi, as noted by Wang, Xiang and Fesenmaier (2016) in their study on use of smart phones.

Rose, Carruthers, Parry and Wood (2017) carried out a study to determine of how digital innovation impacts on the transport sector and network. The launch of Uber in London back in 2012 changes the established mode of taxi transport that started almost 300 years ago. Companies like Black Can and private hire taxi business were greatly inconvenienced with entry of Uber taxis into their market space. Digital platforms have allowed companies and its customers to feel safer and secure, and it makes it convenient for customers to hail a cab for transportation services. Adoption of technology among taxis, has changed the transport sector and now more individuals download the taxi applications and use it for transportation (MacDonald, 2016).

In violence related with work that urban taxi drivers face, Burgel, Gillen and White (2014) noted that insecurity has pushed many customers to consider online applications usage in hiring a taxi. This is because prior to booking a ride, a confirmation is sent via text, email or phone. The online booking form sent to the customer details the name of the driver with license number and the photograph of the same driver. Before the start of the journey, it is important that the private hire operator informs customer of the number of hours it would take to get to the destination. The information of the customer is also entered into the data base of the company to be retrieved in case of emergencies and insecurity.

2.4.2 Diverse Payment Methods and Taxi Businesses Performance

Technology has been adopted in the taxi business that eases the ordering process, navigation and payment. According Wamalwa (2009), payments can be made in cash to the driver after reading the value on the meter inside the car or sent directly to the company or using mobile payment options to send to either the driver or the company. Oliveira, Thomas, Baptista and Campos (2016) in the study on mobile payment; comprehending the factors affecting the intention and ability of customers to recommend this technology. The study noted that mobile payment options has increased over the years and it has gained attention from business units, traders, consumers and customers as an alternative method to making payments using cheques, credit cards and cash payments.

The technology has grown because of its safety features, ease in usage, and the fact that it can literary be used anywhere within reach of network connectivity. The study found out that compatibility of the technology, perceived security of the system, innovativeness, ease of usage even for uneducated persons and influence by social peers have led to the high number of mobile payments. Social peers have also led to use of mobile phones for communication purposes and receiving and sending moneyed business entities prefer mobile based payment methods as a security measure especially as opposed to cash payments. Cash payments are exposed to buggery and theft.

The Uber fares are market led and adjust according to the demand and supply economic traits. For example, an increase in demand would bring about a surge in prices and clients should just accept this before booking. This is made possible by the use of technology. Uber can be much cheaper than the traditional cabs but during surges a traditional cab may well be cheaper. But the real pull for using online platform taxi companies like taxify and Uber is the non-cash

payment system which is a security measures and allows an individual to be tracked (Loveridge, 2014).

2.4.3 Flexibility and Taxi Businesses Performance

Taxi businesses has grown across the globe and one of the major reasons was its flexibility and personal service delivery. A customer is picked at a location of their choice and dropped at the specified place. According to Ndung'u (2013) traditional cab drivers would often refuse to access certain locations for security measures, poor road network and inconveniences. But entry of digital platforms for taxis means that the more the Uber driver cancels jobs, it affects their rating since the cancelation is on the application and can be viewed by everybody hence, they get less jobs.

One reason advanced for selecting Uber and other online taxi business instead of the traditional transport was the issue of geographical coverage and area. Today, there exist a number of transport choices for people wishing to move around major towns and cities. Uber has a technology that records the level of efficiencies of the drivers, the network coverage and how efficient is the route the driver will use. The traditional operating taxi companies have drivers with preferences to certain favourable locations and leave others, which may inconvenience certain group of clientele.

Mutai (2017) analysed the link between dynamic capabilities and the ability of the firm to gain competitive advantage with a focus on Uber Kenya. It was revealed that Uber is one of the leading firms in in the online transport firms and it has undergone a number of changes that help customers use phones for booking from anywhere.

The taxi drivers are free to decide on accessing the system whenever they desire. At the same time, these drivers are able to allocate their schedules of activities in a strategic manner. These flexible options allow the drivers to rest and gain on work-life balance. At the same time, drivers can obtain their own vehicles and thus move away from the costly leases. It also saves operators from pressure and stress emanating from issues related with e-hailing (Henama & Sifolo, 2017).

Santos (2013) shared that it is important to get customer feedback so as to improve the performance of any business unit. The study looked at transportation from Faro Airport, considered customer feedback and developed a flexible transport service using a new model. The flexibility allowed the taxi companies to create new routes to allow the customers use the taxis for transportation. The adopted business model looked at fixed routes which headed in or away from the airport and had many customers, and as such the taxis would ply the routes on a daily basis. Other options included shared transportation for customers with similar needs and characteristics, which lowered costs. Flexibility was also advanced through ticketing format and payment modes, where customers could pay in cash, using mobile phones and credit/debit cards.

Aarhaug (2014) studied the concept of using taxis as a mode of urban transportation in Norway. The study revealed that taxis are used as means in most cities and towns of the world. And for the sector to perform well, there are regulations and code of conduct expected of the taxi companies. For high performance in financial terms, the taxi companies must have flexible and diverse routes so as to better serve their customers. And from the customers point of view, the taxi sector provides flexible, reliable and fast transportation services. The convenience of using taxis comes with a high charge rate per person per kilometre.

2.5 Summary of Knowledge Gap

The taxi sector has grown over the years leading to intense competition that has led to upgrading the sector. In the current world, few people have to que in line waiting for a cab to transport them to their preferred destination, all they need to do is download the application and call a cab to pick them at the door step. Some of these studies have covered taxi sector in other countries such as In London, Wood et al. (2017) assessed how digital innovations impacted on transportation systems and networks and Henama and Sifolo (2017) on Uber: The South Africa Experience.

In Kenya, Mutai (2017) assessed how dynamic capabilities support competitiveness with reference to Uber Kenya. Onyango (2016) looked at the adoption of E-hailing and the ability of the firm to remain competitive. Ndungu (2013) looked at the competitive strategies with reference to by KENATCO taxis limited. These studies concentrated in gaining competitiveness using technology but fail to link technology to performance. The studies also do not cover taxi business in terms of the SME sector. This study filled this gap by assessing the effect of technology on SMEs performance of the taxi businesses in Nairobi County, Kenya.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter covered the research methods that the researcher adopted in the process of collecting data and the sampling technique. The chapter was divided into sections such that there is the research design that were adopted and the population. There is a section on data, collection method and analysis.

3.2 Research Design

The study design is a blueprint that guide the way the research activities were conducted (Creswell & Creswell, 2017). A descriptive research design was employed in assessing the effect of technology on performance of taxi businesses. This type of design helped to observe, document, relate and the facts in its natural setting. The purpose of this design was to create a picture of technology in the taxi businesses in the SME sector as it naturally occurs.

3.3 Population of the Study

The population was drawn from the top management in the 34 taxi companies operating within Nairobi County (Appendix I) from the records held by the taxi association of Kenya. The management staff were either the operations or the administrative manager; thus, the total population is 34.

Since the population was small, a census was undertaken and thus no sampling was done. A census is a survey where the entire population is included in the study and it is more accurate. Bryman and Bell (2015) indicate that whenever the population is small of less than 200

members who are unique and having unique characteristics then applying a census where all members are picked for the study is ideal.

3.4 Data Collection

The study collected primary data, which informed on the effect of modern technology on performance of taxi businesses. Primary data was collected using semi structured questionnaires as it helps in producing standardize answers and that is easy to analyze. The questionnaire used a five-point Likert scale to rate the extent to which the respondents agree with the statements on the study variables. The instruments were filled by the researcher with the help of four research assistants to collect information from the companies.

3.5 Data Analysis

All the collected data was cleaned, sorted, coded and entered into computer application for purposes of analysis. The information was entered into Statistical Package for Social Science (SPSS version 23.0) for analysis. Descriptive analysis was computed such that central measures of tendencies was obtained. These are means, standard deviation, frequencies and percentages.

Inferential analysis included correlation which tested the strength of the relationship between the study variables. The independent variable was modern technology while performance of the taxi businesses was the dependent variable in the study. The findings of the study were presented in forms of graphs, charts, tables and discussions.

The adopted regression model took the following form;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Whereby Y = Performance

X1 = Accessibility

X2 = Diverse Payment

X3 = Accessibility

ε = Error term/Erroneous variables

CHAPTER FOUR: DATA ANALYSIS, PRESENTATION AND DISCUSSIONS

4.1 Introduction

The chapter gives the results from the processed data. Questionnaires played an important role in collection of data. The presentation of the findings was done with the aid of Tables.

4.1.1 Response Rate

The researcher distributed 34 questionnaires to administrative and operations Managers in the 34 taxi companies operating within Nairobi County. Out of these, 27 questionnaires were fully filled by study respondents therefore the response rate was 79%, which was sufficient for analysis as indicated in Table 4.1.

Table 4.1: Response Rate

	Frequency	Percentage
Response	21	79
Non-response	6	21
Total	27	100

This finding on the response rate is supported by Mugenda and Mugenda (2003) who noted that for excellent presentation of the findings, the response rate should be over 70%.

4.2 Demographic Information

The demographic information of respondents is shown subsequent sections.

4.2.1 Gender

Gender distribution of the respondents is as indicated in Table 4.2. According to the findings, 63% of respondents were male and 37% were female.

Table 4.2: Gender

	Frequency	Percentage
Male	17	63
Female	10	37
Total	27	100

The results concurred with a previous study by Onyango (2016) whose results showed taxi businesses are dominated by male as compared to female drivers.

4.2.2 Experience of the Respondents

Table 4.3 shows that 48% of the respondents had served in the taxi business for 0-3 years, 26% for 3-6 years, 15% for 6-9 years and 11% for over 10 years.

Table 4.3: Experience of the Respondents

	Frequency	Percentage
0-3years	13	48
3-6 years	7	26
6-9 years	4	15
Over 10 years	3	11
Total	27	100

Most of the respondents had worked in the taxi businesses for 0-3 years an indication that they understood the business well. Technology in the taxi industry started taking shape in 2015 and this would explain why majority joined around the same time. The respondents were therefore conversant with the business.

4.2.3 Level of Education

As presented in Table 4.4, 49% of the respondents had degrees, 37% had diplomas while 14% had certificate.

Table 4.4: Level of Education

	Frequency	Percentage
Degree	13	49
Diploma	10	37
Certificate	4	14
Total	27	100

Taxi business administrative and operations managers are learned as majority were either diploma or degree holders. This means that the respondents understood the questions asked and answered them correctly. This was supported by Darling (2001) who considered learning to be the production of desired behavior and denied any influence of mental processes.

4.3 Forms of Technologies Used by Taxi Business

4.3.1 Forms of Technology

According to the study 100% of the taxi business companies had tract and trace technology, and global positioning systems, 88.9% had adopted mobile phone technology, 81.5% had smart car and 74.1% had social network systems form of technology. However, veriFone(44%), payment (41%), emailing systems (41%) and E-Hailing technology (37%) were least adopted forms of technology in the businesses studied. Table 4.5 indicates the findings on these forms of technology.

Table 4.5: Forms of Technology

Statement	Frequency	Percent
Mobile Phone Technology	24	88.9
Smart Car	22	81.5
E-Hailing Technology	10	37
Emailing Systems	11	41
Social Networks System	20	74.1
Tract and Trace Technology	27	100
Global Positioning System	27	100
VeriFone Systems	12	44
Payment Systems	11	41

From the research findings, 27 taxi businesses had adopted more than one form of technology. All the forms studied were used in the taxi business hence making them significant for the study. The results agree with Lee, Moon, Kim and Mun (2015) who stated that mobile technology had reshaped our entire society, its communication models and ensuing global economies. In our current world, the number of cell phones, the tablets and smartphones had by now outnumbered the production, distribution and usage of desktop computers. Mobile phones are one of the key elements that have made the world to become a global village. Communication eases information flow despite the distance and space, payments are made in a timely manner ending the traditional format of waiting for hours, days or weeks. Communication and payment channels have increased the number and value of transactions being handled on a daily basis by millions of entrepreneurs across the globe

4.3.2 Extent to Which Taxi Company Engages in the Forms of Technology

The researcher asked the respondents to indicate to what extent their company engaged in the forms of technology outlines. When placed on a continuous three-point Likert scale, the following threshold is established; 1-1.4 (Rarely), 1.5-2.4 (occasionally), 2.5-3.0 (All the time).

Respondents agreed ($M=2.80$ $SD= 0.34$) that they used mobile phone technology all the time. The study established that taxi business embraced smart car technology all the time, ($M=2.54$ $SD= 0.58$). According to the findings, respondents stated that taxi business engaged in E-hailing technology occasionally ($M=2.10$ $SD=0.79$).

On social network system, the respondents indicated that their company engaged on social network system all the time ($M=2.56$ $SD=0.85$). Respondents established that all their taxi businesses embraced track and trace technology all the time ($M=2.99$ $SD=0.45$). The study

further established that all taxi businesses engaged on global positioning system all the time (M=2.99 SD=0.83).

According to the findings, the study indicated that their taxi business embraced VeriFone systems all the time (M=2.50 SD=0.73). The respondents further established that the respondents tax business occasionally payment systems form of technology (M=2.02 SD=0.99).

Table 4.6: Extent to Which Taxi Company Engages in the Forms of Technology

Statement	Mean	Std. Dev
Mobile Phone Technology	2.80	0.34
Smart Car	2.54	0.58
E-Hailing Technology	2.10	0.79
Emailing Systems	1.45	0.75
Social Networks System	2.56	0.85
Tract and Trace Technology	2.99	0.45
Global Positioning System	2.99	0.83
VeriFone Systems	2.50	0.73
Payment Systems	2.02	0.99

Respondents agreed that most taxi company use tract and trace technology, Global Positioning System, VeriFone systems and mobile phone technology as forms of technology.

4.3.3 Social Networking systems Commonly Used

On social networking systems commonly used in taxi businesses, the findings were as indicated in Table 4.7. All taxi businesses used social networking platforms. It was established that all respondents (100%) adopted Facebook, WhatsApp and twitter as their platforms respectively, (92.6%) of the respondents indicated that their companies used webpages for social networking while (74.1%) indicated Instagram.

Table 4.7: Social Networking Systems Commonly Used

	Frequency	Percent
Facebook	27	100%
Twitter	27	100%
Webpages	25	92.6%
WhatsApp	27	100%
Instagram	20	74.1%

Based on these findings, taxi business companies rely on social networking for marketing due to reduced cost and ease of accessibility by the wider public.

4.3.4 Reliability of Technology Systems

The study examined whether the systems on billing, hailing a cab and route management were accurate and reliable. Several statements when placed on a continuous three-point Likert scale, the following threshold is established; 1-1.4 (little extent), 1.5-2.4 (Large extent), 2.5-3.0 (Very large extent). According to the finding, billing was reliable (M=2.70 SD=0.39). The study further found out that the respondents agreed to a little extent that hailing was reliable (M=1.31 SD=0.78). The cab and route management were accurate and reliable (M=1.75 SD=0.69).

Table 4.8: Reliability of Technology Systems

Statement	Mean	Std. Dev
Billing	2.70	0.39
Hailing	1.31	0.78
Cab and Route Management	1.75	0.69

The findings therefore show that majority of the respondents agreed that their systems on billing, hailing a cab and route management were accurate and reliable.

4.4 Accessibility to Customers

Statements on how accessibility to customers influenced performance of taxi businesses in Nairobi were studied. When a number of statements on accessibility to customers are placed on a continuous five-point Likert scale, the following threshold is established; 1-1.49 (no

extent), 1.5-2.49 (little extent), 2.5-3.49 (moderate extent), 3.5-4.49 (great extent) and 4.5-5.0 (very great extent). The use of technology allowed taxi businesses customers to download applications that aided in hailing a cab (M=3.88, SD= 0.917). Social networking (WhatsApp, Facebook, twitter, Instagram) platforms increased the number of customers (M= 4.27 SD= 0.805). Respondents moderately agreed that taxi customers can easily book a ride by making a phone call to the company (M= 3.42, SD= 0.992).

The digital platforms had made drivers and customers feel safer through tracking services (M=4.03 SD= 1.01). The taxi business customers got SMS with details of the car registration as a security measure (M=4.10 SD= 0.954). Respondents agreed that they shared with their customers the drivers detailed before commencement of the journey (M= 3.92, SD= 1.26). There was a database for customers increased repeat purchases (M=3.83 SD= 1.19).

Table 4.9: Accessibility to Customers

	Mean	Std. Dev
Use of technology allows our customers to download applications that aide in hailing a cab	3.88	.917
Social networking (WhatsApp, Facebook, twitter, Instagram) platforms increases the number of our customers	4.27	.805
Our customers can easily book a ride by making a phone call to us	3.42	.992
Digital platforms have made our drivers and customers feel safer through tracking services	4.03	1.01
Our customers get SMS with details of the car registration as a security measure	4.10	.954
We share with our customers, the drivers detailed before commencement of the journey	3.92	1.26
We have a database for our customers increase repeat purchases	3.83	1.19

According to the finding the respondents were in agreement with Kimani (2015) who established that there exists a positive link between utilization of IT and performance of an organization. the respondents were also in concurrent with Lee et al. (2015) who established that communication and payment channels have increased the number and value of transactions being handled on a daily basis by millions of entrepreneurs across the globe

4.4.1 Influence of E-Hailing and Social Media Networks on Performance

Respondents were asked to indicate how E-Hailing and social media platforms affected the performance of taxi business on a scale of 1-5, where 1=Not at all,2=Little Extent,3=Moderate Extent, 4=Large Extent and 5=Very Large Extent. According to the findings, the study established that E-hailing had a positive influence on performance (M= 4.02 SD= 0.598). The study further established that social platforms (M= 4.01) affected performance.

Table 4.10: E-Hailing, Social Media Networks and Performance

	Mean	Std. Dev
E-hailing	4.02	0.598
Social media platforms	4.01	0.598

According to the finding, E-Hailing affected the performance of taxi business. This agreed with Wood, Parry, Carruthers and Rose (2017) who established that digital platforms have allowed companies and its customers to feel safer and secure, and it makes it convenient for customers to hail a cab for transportation services. According to the findings, using social media platforms to access customers influenced company performance an indication that taxi businesses significantly use social media platform to increase their output.

4.4.2Checking of Social Media Accounts

Respondents were asked whether their social media accounts were active and being checked daily. The findings are shown in Table 4.11. Most of the respondents 21(78%) ensured that their social media accounts (Facebook, WhatsApp, twitter and Instagram were active besides being checked on a regular basis.

Table 4.11: Social Media Accounts

	Frequency	Percentage
Yes	21	78
No	6	22
Total	27	100

Information from their customers and to remain updated. Based on the findings, respondents checked their social media account frequently.

4.5 Diverse Payment Method

The researcher asked the respondents to indicate the influence of diverse payment methods on performance of taxi businesses in Nairobi on a Likert scale of 1-5, where 1=no extent, 2= little extent, 3=moderate extent, 4=great extent and 5=very great extent. The findings are as shown in Table 4.12. The study pointed out that respondents moderately agreed that customers paid on cash basis (M= 3.31, SD= 1.09). The study established that the respondents agreed that customers paid only the figure detailed on the car meter (M=3.88, SD= 1.11). Respondents moderately agreed that taxi businesses allowed customers to pay directly to the company using mobile payment options (M= 3.51 SD= 1.26). The study further established that the respondents agreed that paying by swiping credit/debit card was safer which increased respondent's client base (M= 4.06 SD= 1.12).

Table 4.12: Diverse Payment Method

	Mean	Std. Dev
Our customers can pay on cash basis	3.31	1.09
Customers pay only the figure detailed on the car meter	3.88	1.11
We allowed customers to pay directly to the company using mobile payment options	3.51	1.26
Paying by swiping credit/debit card is safer which increases our client base	4.06	1.12

According to the finding most of the respondents agree that diverse payment method was used in taxi business. This is supported by Lee et al. (2015) who established that communication

and payment channels have increased the number and value of transactions being handled daily by millions of entrepreneurs across the globe.

4.5.1 Extent of Application of Payment Methods

The researcher asked the respondents to indicate the extent to which customers paid using M-PESA on a Likert Scale 1-3 where 1-All the time, 2-Occasionally, 3-Rarely. The findings in Table 4.13 shows that customers paid by use M-PESA all the time (M=2.792SD=1.09). The findings in Table 4.13 show that majority of the respondents made payments by use of credit cards occasionally (M= 1.56 SD= 1.09). Majority of the respondents used jambo pay all the time (M=2.67, SD=1.09). Table 4.13 summarizes these findings.

Table 4.13: Extent of Application of Payment Methods

	Mean	Std. Dev
Customers payment via M-PESA	2.792	1.09
Make payments by use of credit cards	1.56	1.09
Jambo Pay is used to pay taxi services	2.67	1.09

According most of the respondents paid using M-PESA. Most of the respondents occasionally used credit cards as a mode of payment. The findings further indicated that respondents had adopted Jambo Pay as a mode of payment.

4.5.2 Discounts Ride

The researcher asked the respondents to indicate whether they gave ride discounts, the findings are as shown in Table 4.14. The study established that majority of taxi companies 18(66.7%) agreed that they gave ride discount and 9(33.3%) indicated no.

Table 4.14: Discounts Ride

	Frequency	Percent
Yes	18	66.7
No	9	33.3
Total	27	100.0

The findings established that majority of taxi businesses significantly entice customers by offering discount rides.

4.5.3 Loyalty Rewards System

The researchers asked the respondents to indicate whether they used loyalty rewards system.

The findings in Table 4.15 shows that most of the respondents most of the tax business 63% had loyalty reward systems.

Table 4.15: Loyalty Rewards System

	Frequency	Percent
Yes	17	63
No	10	37
Total	27	100

Based on the findings, majority of taxi companies used loyalty reward systems.

4.5.4 Loyalty Reward System, Discounts and Performance

The researcher asked the respondents to indicate the impact of the loyalty reward system and discounts to taxi business performance on a scale of a 1-3 where: 3-Very Large, 2- Large and 1-Moderate. The findings in Table 4.16 show that loyalty reward systems was in place (M= 2.88 SD= 0.589). The findings in Table 4.16 show that discounts affected the overall performance (M= 2.69 SD= 1.09).

Table 4.16: Loyalty Reward System, Discounts and Performance

	Mean	Std. Dev
Loyalty Reward Systems	2.88	0.588
Discounts	2.69	1.09

Most of the respondents there agreed that loyalty reward system influenced taxi business performance. Therefore, based on the findings loyalty reward system significantly affected the taxi business performance. According to the finding, majority of the respondents agreed that discounts influenced the overall performance. Therefore, discounts significantly affected the performance of Taxi business.

4.6 Flexibility

Respondents were asked to indicate the influence of flexibility on performance of taxi businesses in Nairobi. To attain this objective, several statements were established on flexibility and respondents were asked and when placed on a continuous five-point Likert scale, the following threshold is established; 1-1.49 (no extent), 1.5-2.49 (little extent), 2.5-3.49 (moderate extent), 3.5-4.49 (great extent) and 4.5-5.0 (very great extent). convenience of customers picked at their doorstep increased their taxi business (M=3.89 SD=1.09). Respondents agreed that customers were picked at a location of their choice, enhancing the customer numbers (M=3.80 SD= 0.858). Respondents agreed that drivers went wherever place the customer wished to be taken (M=4.05 SD=0.998). The study established that taxis operated at all hours of the day and night leading to satisfied customers (M=3.87 SD=0.950).

The drivers had no preference to certain favourable locations in the city (M=3.96 SD=0.895). Respondents agreed that their company allowed drivers to open/close the system at their discretion (M= 3.82 SD= 1.05). Respondents agreed that their customers can choose to share the transportation and split the cost (M =3.55 SD= 0.895). Respondents further established that they had diverse routes to cater for all customers (M=3.70 SD= 1.22).

Table 4.17: Flexibility

	Mean	Std. Dev
The convenience of customers picked at their doorstep increases our business	3.89	1.09
Customers can be picked at a location of their choice, enhancing the customer numbers	3.80	.858
Our drivers must go wherever place the customer wishes to be taken	4.05	.998
Our taxis operate at all hours of the day and night leading to satisfied customers	3.87	.950
Our drivers have no preference to certain favourable locations in the city	3.96	.895
Our company allows to drivers to open/close the system at their discretion	3.82	1.05
Our customers can choose to share the transportation and split the cost	3.55	.895
We have diverse routes to cater for all customers	3.70	1.22

Based on the findings, the respondents were consistent with Henama and Sifolo (2017) who indicated that the taxi drivers are free to decide on accessing the system whenever they desire. At the same time, the drivers are able to allocate their schedules of activities in a strategic manner. Flexible options allow the drivers to rest and gain on work-life balance. At the same time, drivers can obtain their own vehicles and thus move away from the costly leases. It also saves operators from pressure and stress emanating from issues related with e-hailing.

4.6.1 New Transit Route

Respondents were asked to indicate if their drivers charged more for new transit routes, the findings are as shown in Table 4.18. The findings established that majority of the respondents 22(81.5%) indicated that their drivers did not charge more for new transit routes and 5(18.5%) indicated yes.

Table 4.18:New Transit Route

	Frequency	Percent
Yes	5	18.5
No	22	81.5
Total	27	100.0

The findings show that majority of taxi businesses retained fixed transit route cost.

4.6.2 Flexibility of Drivers and Frequency of Failure to Pick Clients

The respondents were requested to indicate how flexible their drivers were in an effort to satisfy their clients on a Likert scale of 1-3 where 1-All the time, 2-Occasionally, and 3-Rarely. The findings in Table 4.19 show that the drivers were flexible (M=2.851, SD= 0.785). The researcher further requested the respondents to indicate how often their drivers refuse to pick a client. The drivers refused to pick a client occasionally (M= 2.12, SD= 0.459).

Table 4.19: Flexibility of Drivers

	Frequency	Percent
Our drivers are flexible	2.851	0.785
How often do you refuse to pick a client	2.12	0.459.

According to the findings, taxi businesses shows that they were flexible. Based on the research findings most drivers always picked up the clients at their convenience.

4.7 Performance of Taxi Business

The respondents were asked to indicate how their taxi businesses performed. A Likert scale of 1-5 where 1=no extent and 5=very great extent was used. The findings are as shown in Table 4.20. The study established that the taxi customer numbers had increased (M= 3.72; SD= 0.968). Respondents agreed that they had realized high returns on investments (M= 3.89, SD= 0.619). The study found out that respondents agreed that the number of taxis had increased (M= 3.66 SD= 1.31). Respondents agreed that they had expanded to include new transit routes (M= 4.00, SD= 1.11). The study established that taxi businesses had a wide market share (M= 4.07 SD= 0.839). The asset base had increased (M= 4.24 SD= 0.797). Taxi businesses established that they had increased their profitability margins (M=3.76 SD= 0.930). The study further established that respondents agreed that their taxi businesses customers rated their enterprise highly (M= 4.33, SD=0.912).

Table 4.20: Performance of Taxi Business

	Mean	Std. Dev
Our customer numbers have increased	3.72	.968
We have realized high returns on investments	3.89	.619
Our number of taxis have increased	3.66	1.31
We have expanded to include new transit routes	4.00	1.11
We have a wide market share	4.07	.839
Our asset base has increased	4.24	.797
We have increased our profitability margins	3.76	.930
Customers rate our enterprise highly	4.33	.912

According to the findings, the number of customers has increased tremendously hence expanding taxi business therefore technology has increased the performance of taxi business

4.7.1 Capital Outlay Payback

On whether they had recovered the amount of money invested in the technology, the findings were as shown in Table 4.21. Results show that majority 23(85.2%) of taxi businesses had recovered the amount they had invested in technology and 4(14.8%) indicated no.

Table 4.21: Capital Outlay Payback

	Frequency	Percent
Yes	23	85.2
No	4	14.8
Total	27	100.0

Based on the findings, technology had majorly benefitted the taxi business by acquiring a wide market range hence recovering the amount invested in the initial outlay.

4.7.2 Feedback/Complaint Mechanism

The researcher asked the respondents to indicate whether they had a feedback/complaint mechanism from their clients. The findings are as shown in Table 4.22. The study established that majority of the respondents 25(93%) agreed that they had a feedback/complaint

mechanism from their clients and 2(7%) of the respondents indicated that they did not have a feedback/complaint mechanism

Table 4.22: Feedback/Complaint Mechanism

	Frequency	Percent
Yes	25	93
No	2	7
Total	27	100

Based on the findings, majority of the companies had a feedback/ complain mechanism for clients which show that they had feedback mechanism to channel their grievances.

4.8 Modern Technologies and Performance of Taxi Business

Inferential statistics help the researcher to draw relevant deductions and inferences about a given phenomenon. The study used correlation and regression analysis as the inferential statistics.

4.8.1 Correlation Matrix

The researcher conducted Pearson Correlation analysis to establish relationship between the modern technology and performance of taxi businesses. The findings are shown in Table 4.23. Correlation values usually range from 0-1. Values from 0.10 to 0.29 shows weak relations, 0.3 to 0.49 indicate moderate and over 0.5 show strong correlation. The findings show that accessibility to customers had a Pearson correlation (r) of 0.491 an indication of a strong relationship with performance. Diverse payments $r= 0.370$, an indication of a moderate correlation with performance and flexibility of drivers $r=0.583$ and indication of strong correlation with the performance.

Table 4.23: Correlation Matrix

		Performance	Accessibility	Diverse	Flexibility
Performance	Pearson Correlation	1			
	Sig. (2-Tailed)				
	N	27			
Accessibility	Pearson Correlation	.491**	1		
	Sig. (2-Tailed)	.000			
	N	27	27		
Diverse	Pearson Correlation	.370**	.210**	1	
	Sig. (2-Tailed)	.000	.000		
	N	27	27	27	
Flexibility	Pearson Correlation	.583**	.407**	.495**	1
	Sig. (2-Tailed)	.000	.000	.000	
	N	27	27	27	27

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

According to the finding, flexibility of taxi businesses had the highest Pearson correlation, followed by accessibility and lastly by diverse payment which shows that flexibility, accessibility and diverse payment significantly affect performance of taxi business.

4.8.2 Regression Results

The study conducted regression analysis to establish the effect of modern technology performance of taxi businesses in Nairobi. The findings are shown in subsequent Tables.

4.8.2.1 Model Summary

The study found established $R=0.823$ and R square was 0.677 while Adjusted R square was 0.611 . This shows that 67.7% change in performance of the studied taxi businesses is explained by their modern technologies.

Table 4.24: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.823 ^a	.677	.611	2.68143

a. Predictors: (Constant), Flexibility, Diverse Payment, Accessibility

According to this findings performance of taxi businesses can be explained by accessibility to customers, diverse payments and flexibility of taxi businesses.

4.8.2.2 Analysis of Variance (ANOVA)

The findings in Table 4.25 established that $F_{\text{Calculated}}$ was 16.071 and F_{Critical} was 3.028, hence, $F_{\text{Calculated}} > F_{\text{Critical}}$ (16.071 > 3.028) an indication that the overall regression model was fit for the study.

Table 4.25: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	1960.483	3	653.494	16.071	.000 ^b
Residual	935.231	23	40.662		
Total	2895.714	26			

a. Dependent Variable: Performance

b. Predictors: (Constant), Flexibility, Diverse Payment, Accessibility

According to the finding, at least one variable significantly influenced performance of Taxi businesses.

4.8.2.3 Coefficients of Regression

The findings are as shown in Table 4.26. The study established that the possible value of performance of taxi business when all factors are held constant is 5.815. A unit increase in accessibility of customers when holding all the other variables constant, performance of taxi business would be at 0.627. A unit increase in diverse payment when holding all the other variables constant, performance of taxi business would be at 1.030. A unit increase in flexibility of taxi business when holding all the other factors constant, performance of taxi businesses would be at 0.306. At 5%, the study revealed that accessibility of customers ($p=0.000 < 0.05$),

diverse payment ($p=0.000<0.05$) and flexibility ($0.046<0.05$) all had significant influence on how tax businesses performed.

Table 4.26: Coefficients of Regression

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	5.815	2.524		2.304	.024
Accessibility	.627	.181	.370	3.462	.001
Diverse Payment	.331	.105	.484	3.152	.000
Flexibility	.306	.141	.109	2.169	.046

a. Dependent Variable: Performance

According to the findings, the respondents were concurrent with Kimani (2015) who argued that there exists a direct and significant link between level of utilization of IT and the performance of an organization. The respondents also agree with Wamalwa (2009) who established that payments can be made in cash to the driver after reading the value on the meter inside the car or sent directly to the company or using mobile payment options to send to either the driver or the company. Lastly respondent supported by Ndung'u (2013) who established that taxi businesses have grown across the globe and one of the major reasons was its flexibility and personal service delivery.

4.9 Discussions of the Findings

The study found out that the accessibility to customers highly influenced performance of taxi businesses. This shows that an increase in accessibility of clients highly influences taxi businesses performances. The findings are consistent with Rose et al. (2017) who established that digital platforms have allowed companies and its customers to feel safer and secure, and it makes it convenient for customers to hail a cab for transportation services.

The greater the technology adoption in social media, e-hailing and e-mail the larger the market niche acquired by the company hence better performance. This is supported by Kimani (2015) who carried a study on information technology and established that many firms have invested in various IT devices to enable them to perform their duties to high standards. It was noted that utilization of IT directly influences performance of an organization. The adoption of these forms of technology is significantly explained by the theory of Diffusion of Innovation. According to Rogers (1962), the key to a smooth diffusion process of the forms of technologies is to improve on stakeholder awareness of new technologies among the intended innovation users.

The study established that diverse payment has significant effect on performance of taxi businesses. The finding is in line with Wamalwa (2009) who established that technology has been adopted in the taxi business that eases the ordering process, navigation and payment. It is evident that majority of taxi businesses embraced M-PESA payments, credit cards and jumbo pay as a mode of transaction hence influencing better performance of taxi businesses. The findings are further supported by Oliveira et al. (2016) who noted that mobile payment options have increased over the years and it has gained attention from business units, traders, consumers and customers as an alternative method to making payments using cheques, credit cards and cash payments.

The mobile and cell phone devices have become powerful and sophisticated in handling digital applications as directed by the users. According, Xiang and Fesenmaier (2014), many people use mobile devices for e-mailing, conducting e-commerce transactions and access to applications, because the devices are convenient to carry and walk around with them. Lee et al. (2015) established that mobile phones are one of the key elements that has made the world

to become a global village by increasing the number and value of transactions being handled on daily basis by millions of entrepreneurs across the globe.

The study further established that flexibility of taxi businesses influenced performance of taxi businesses. The finding concurs with Aarhaug (2014) who studied the concept of using taxis as a mode of urban transportation in Norway and for high performance in financial terms, the taxi companies must have flexible and diverse routes so as to better serve their customers. Therefore, an increase in flexibility of the taxi companies positively influences performance. The study asserts that respondents agreed that taxi businesses in Nairobi assured their clients on flexibility of their drivers on satisfying them and emphasised on fixed charges. This agrees with Ndung'u (2013) who established that taxi businesses have grown across the globe and one of the major reasons was its flexibility and personal service delivery. A customer is picked at a location of their choice and dropped at the specified place.

From the findings of correlation analysis, the study revealed that modern technology is positively correlated with performance of taxi business. The finding agrees with Kimani (2015) on information technology and organizational performance who shares that many firms have invested in various IT devices to help business entities to offer quality services to customers. Similarly, Chakravarty et al. (2013) revealed that today, technology has been used in establishing solution to key challenges and issues facing businesses, increasing decision making capabilities and quality and productivity.

According to regression results, it can be inferred that modern technology significantly influences performance of taxi business. The finding agrees with Olatunji (2015) who argues that application of technology in business operations leads to business competitiveness, enabling businesses to compete on similar grounds with large well-established organizations.

Moshi (2018) further established that the application of technology and innovation has been found to avail businesses with valuable information that if well utilized could lead to better performance.

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the key findings from the collected data. The key findings are used to make conclusions. Recommendations emanating from the key findings are also presented. The suggestions for further studies are also indicated.

5.2 Summary of the Findings

The study sought to establish the effect of modern technology on performance of Taxi Businesses. The study variables were accessibility of clients, diverse payment methods and flexibility and performance of taxi companies.

The design adopted was descriptive and it aimed at establishing the effect of modern technology on performance. The top management staff in the 34 taxi companies operating within Nairobi County was targeted by the study. The study carried out census since the population of the study was small. The study found out that coefficient of adjusted R squared of 0.611 which translates to 61.1%, this shows that performance of taxi businesses can be explained by accessibility to customers, diverse payments and flexibility of taxi businesses.

5.2.1 Forms of Technology

The study established that the all taxi businesses companies had adopted more than one form of technology, but all the companies had embraced tract and trace technology and global positioning system technology. The company engaged in mobile phone technology all the time. The companies embraced tract and trace technology all the time. The study further established that taxi companies engaged on global positioning system all the time.

The study further established that all of the taxi companies used social networking platforms such as Facebook, twitter and webpages to market themselves. The study established that majority of the clients that used technology as a form accessing services from taxi business were younger customers, hence the company attracted younger more tech savvy customers who used social media platforms.

5.2.2 Accessibility to Customers

On accessibility to customers, the study pointed out that respondents agreed that digital platforms had made drivers and customers feel safer through tracking services in Nairobi, customers received SMS with details of the car registration as a security measure and shared with their customers the drivers detailed before commencement of the journey. Taxi companies had a database for their customers increased repeat purchases, respondents agreed that social networking (WhatsApp, Facebook, twitter, Instagram) platforms increased the number of customers and use of technology allowed taxi businesses customers to download applications that aided in hailing a cab.

The study further established that respondents agreed that E-Hailing affected the performance of taxi business and agreed that using social media platforms to access customers influenced company performance. Majority of the respondents agreed that their customers used e-mail to contact their company and respondents agreed that their companies checked their social media account frequently. The findings of correlation matrix established that accessibility to customers had a strong relationship with performance of taxi businesses. The findings of regression analysis established that accessibility to customers significantly influenced performance of taxi businesses.

5.2.3 Diverse Payment Method

The study pointed out that respondents agreed that paying by swiping credit/debit card was safer which increased respondent's client base. Respondents agreed that their taxi businesses allowed customers to pay directly to the company using mobile payment options. Taxi businesses staff agreed that customers paid only the figure detailed on the car meter and respondents moderately agreed that customers paid on cash basis. Majority of the respondents paid using M-PESA, credit cards and Jambo Pay frequently used a mode of payment.

The study further pointed out that majority of firms enticed their customers by offering discount rides and respondents agreed that taxi companies offered discounts frequently. Respondents further agreed that discounts influenced the overall performance. The study further established that taxi companies used loyalty reward systems and loyalty reward system influenced taxi business performance. The findings from correlation analysis established that diverse payment had a strong relationship with performance. Regression analysis established that diverse payment method significantly influenced performance of Taxi businesses.

5.2.4 Flexibility of Taxi Businesses

The study found out that drivers went wherever place the customer wished to be taken, taxi businesses drivers had no preference to certain favourable locations in the city and respondents agreed that the convenience of customers picked at their doorstep increased their taxi business. Respondents agreed that customers were picked at a location of their choice, enhancing the customer numbers, taxis operated at all hours of the day and night leading to satisfied customers and taxi businesses company allowed drivers to open/close the system at their discretion. The

study further established that respondents agreed that their customers can choose to share the transportation and split the cost and drivers had diverse routes to cater for all customers.

The study further established that taxi businesses drivers always picked up their clients at their convenience. Respondents agreed that majority of taxi businesses retained fixed transit route cost and taxi drivers were flexible in an effort to satisfy their clients. The findings of correlation analysis established that flexibility of taxi drivers had a strong relationship with performance of taxi businesses. The findings of regression analysis further established that flexibility positively influenced performance of taxi businesses.

5.3 Conclusion

In view to forms of technology, all taxi businesses had embraced tract and trace technology and global positioning system technology. All taxi companies engaged in mobile phone technology all the time. Taxi companies embraced tract and trace technology and global positioning all the time. Taxi companies embraced tract and trace technology and global positioning all the time. Taxi companies used social networking platforms such as Facebook, twitter and webpages to market themselves. Company e-mailing helped customers access their services and majority of the clients that used technology as a form accessing services from taxi business were younger customers, hence the company attracted younger more tech savvy customers who used social media platforms.

On accessibility to customers, the study concludes that digital platforms had made drivers and customers feel safer through tracking services in Nairobi, customers received SMS with details of the car registration as a security measure and shared with their customers the drivers detailed before commencement of the journey. Taxi companies had a database for their customers

increased repeat purchases, respondents agreed that social networking (WhatsApp, Facebook, twitter, Instagram) platforms increased the number of customers and use of technology allowed taxi businesses customers to download applications that aided in hailing a cab. E-Hailing affected the performance of taxi business and use of social media platforms to access customers influenced company performance. Customers used e-mail to contact their company and taxi companies checked their social media account frequently.

On diverse payment method, the study concludes that paying by swiping credit/debit card was safer which increased client base. Taxi businesses allowed customers to pay directly to the company using mobile payment options. Taxi businesses staff agreed that customers paid only the figure detailed on the car meter and customers paid on cash basis. Clients paid using M-PESA, credit cards and Jambo Pay frequently used a mode of payment. Firms enticed their customers by offering discount rides and taxi companies offered discounts frequently. Discounts influenced the overall performance and taxi companies used loyalty reward systems and loyalty reward system influenced taxi business performance.

On flexibility of taxi companies, the study established that drivers went wherever place the customer wished to be taken, taxi businesses drivers had no preference to certain favourable locations in the city and the convenience of customers picked at their doorstep increased their taxi business. Customers were picked at a location of their choice hence enhancing the customer numbers, taxis operated at all hours of the day and night leading to satisfied customers and taxi businesses company allowed drivers to open/close the system at their discretion. Customers chose to share the transportation and split the cost and drivers had diverse routes to cater for all customers. Taxi businesses drivers always picked up their clients at their

convenience. Taxi businesses retained fixed transit route cost and taxi drivers were flexible in an effort to satisfy their clients.

5.4 Recommendations

On forms of technology, the study recommends that all taxi businesses companies ought to adopt more than one form of technology. The taxi company ought to engage in mobile phone technology all the time. Taxi companies ought to embrace track and trace technology and global positioning system all the time. on all the time. Taxi companies ought to use social networking platforms such as Facebook, twitter and webpages to market themselves. E-mailing ought to help customers access their services. Taxi companies ought to influence all tech savvy customers to accessing services from taxi business.

On accessibility to customers, the study recommends that digital platforms ought to make drivers and customers feel safer through tracking services, customers ought to receive SMS with details of the car registration as a security measure and ought to share with their customers the drivers detailed before commencement of the journey. Taxi companies ought to have a database for their customers increased repeat purchases, social networking platforms ought to increase the number of customers and use of technology ought to allow taxi businesses customers to download applications that aided in hailing a cab. E-Hailing ought to affect the performance of taxi business and use of social media platforms to access customers ought to influence company performance.

On diverse payment method, the study recommends that paying by swiping credit/debit card ought to be safer which increases client base. Taxi businesses ought to allow customers to pay directly to the company using mobile payment options. Taxi businesses customers ought to pay

only the figure detailed on the car meter and customers ought to pay on cash basis. Customers ought to pay using M-PESA, credit cards and Jambo Pay frequently as a mode of payment. Firms ought to entice their customers by offering discount rides and taxi companies ought to offer discounts frequently. Discounts ought to influence the overall performance and taxi companies ought to use loyalty reward systems and loyalty reward system ought to influence taxi business performance.

On flexibility of taxi companies, taxi drivers ought to go wherever place the customer wished to be taken, taxi businesses drivers ought to have no preference to certain favourable locations in the city and the convenience of customers picked at their doorstep ought to increase their taxi business. Customers ought to be picked at a location of their choice hence enhancing the customer numbers, taxis ought to operate at all hours of the day and night leading to satisfied customers. Taxi businesses company ought to allow drivers to open/close the system at their discretion. Customers ought to choose to share the transportation and split the cost and drivers ought to have diverse routes to cater for all customers. Taxi businesses drivers ought to always pick up their clients at their convenience. Taxi businesses ought to retain fixed transit route cost and taxi drivers ought to flexible in an effort to satisfy their clients.

5.5 Limitations of the Study

The study was limited to determining the effect of Modern Technology on Performance of Taxi Businesses. The study covered all tax business in Nairobi City County, Kenya. Modern technology was operationalized under accessibility to customers, diverse payments and flexibility of taxi businesses. Data for the study was mainly collected by questionnaires. The study was further limited to a descriptive research design. This helped in collection and analysis of data for the study.

5.6 Recommendations for Further Research

The current study focused on the effect of modern technology on performance of Taxi Businesses in Nairobi City County, Kenya, future scholars ought to carry out similar studies on different county in Kenya. The current study carried collected data from all the 34 taxi companies, future scholars ought to carry out similar studies on an individual company. The study relied on primary data, future scholars ought to carry out similar studies by use of secondary data.

The current study focused on the effect of modern technology on performance of Taxi Businesses, future scholars ought to carry out similar studies on different organizations. In the current study, 61.1% change in performance of taxi businesses was explained by modern technology. This shows that there are other factors apart from modern technology that explain 38.9% change in performance of taxi businesses which future studies should focus on.

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APPENDICES

Appendix I: Research Questionnaire

Please fill out these questions on:

EFFECT OF TECHNOLOGY ON PERFORMANCE OF TAXI BUSINESSES IN NAIROBI CITY COUNTY, KENYA.

All your responses will be treated with confidence and your identity will not be revealed.

SECTION A: BACKGROUND INFORMATION

1. Gender

Male [] Female []

2. Indicate the name of the taxi company you are currently working for.

.....

3. Indicate the number of years that you have worked in the company.

0-3years [] 3-6 years []

6-9 years [] More than 10 years []

4. Kindly indicate your highest level of education

Degree [] Diploma [] Certificate []

PART I: TECHNOLOGY

5. Please select the forms of technology that your company engages in.

Mobile phone technology [] Tract and trace technology []

Smart Car [] Global positioning system []

E-Hailing technology [] Verifone systems []

Emailing systems [] Payment systems []

Social networks system []

6. To what extent does your company engage the above listed forms of technology? Tick appropriately using a 3-point Likert Scale where 1=rarely, 2=occasionally and 3=all the time.

	Rarely	Occasionally	All the time
Mobile phone technology			
Smart Car			
E-Hailing technology			
Emailing systems			
Social networks system			
Tract and trace technology			
Global positioning system			
Verifone systems			
Payment systems			

7. What social networking platforms do you commonly use?

Facebook [] Twitter [] WhatsApp [] Instagram []
 Webpages [] Others []

8. What impact of the social network platforms have on company performance?

.....

9. Kindly indicate the reliability of your system on billing, hailing a cab and route management. Use a 3-point Likert scale where 1=little extent, 2=large extent and 3=very large extent.

	Little extent	Large extent	Very large extent
Billing			
Hailing			
Cab and Route Management			

ACCESSIBILITY TO CUSTOMERS

10. These are statements on accessibility of customers, state how it affects performance of your taxi business. Use a scale of 1-5 where 1=no extent, 2= little extent, 3=moderate extent, 4=great extent and 5=very great extent.

	1	2	3	4	5
Use of technology allows our customers to download applications that aide in hailing a cab					
Social networking (WhatsApp, Facebook, twitter, Instagram) platforms increases the number of our customers					
Our customers can easily book a ride by making a phone call to us					
Digital platforms have made our drivers and customers feel safer through tracking services					
Our customers get SMS with details of the car registration as a security measure					
We share with our customers, the drivers detailed before commencement of the journey					
We have a database for our customers increase repeat purchases					

11. How does e-hailing affect the performance of your taxi business?

Not at all Little Extent Moderate Extent Large Extent Very Large Extent

12. What is the effect of using social media platforms to access customers hence the company performance?

Not at all Little Extent Moderate Extent Large Extent Very Large Extent

13. Is your Facebook, WhatsApp, twitter and Instagram account active and checked on a daily basis?

Yes No why

14. What is the effect of the use of social networking platforms?

.....

DIVERSE PAYMENT METHODS

15. These are statements on diverse payment methods, rate the extent to which it affects performance of your taxi business. Use a scale of 1-5 where 1=no extent, 2= little extent, 3=moderate extent, 4=great extent and 5=very great extent.

	1	2	3	4	5
Our customers can pay on cash basis					
Customers pay only the figure detailed on the car meter					
We allowed customers to pay directly to the company using mobile payment options					
Paying by swiping credit/debit card is safer which increases our client base					

16. To what extent do your customers pay using M-pesa?

All the time []

Occasionally []

Rarely []

17. How often are credit cards used in making payments?

All the time []

Occasionally []

Rarely []

18. To what extent do the customers pay for taxi services using JamboPay?

All the time []

Occasionally []

Rarely []

19. Do you give ride discounts?

Yes [] No []

20. What is the effect of discounts to your overall performance?

Not at all [] Little Extent [] Moderate Extent [] Large Extent [] Very Large Extent []

21. Do you have and use loyalty rewards system?

Yes [] No []

If Yes, which ones

22. What is the impact of the loyalty reward system to your taxi business performance?

Not at all [] Little Extent [] Moderate Extent [] Large Extent [] Very Large Extent []

FLEXIBILITY

23. Below are statements on flexibility in business units, rate the extent to which it affects performance of your taxi business. Use a scale of 1-5 where 1=no extent, 2= little extent, 3=moderate extent, 4=great extent and 5=very great extent.

	1	2	3	4	5
The convenience of customers picked at their doorstep increases our business					
Customers can be picked at a location of their choice, enhancing the customer numbers					
Our drivers must go wherever place the customer wishes to be taken					
Our taxis operate at all hours of the day and night leading to satisfied customers					
Our drivers have no preference to certain favourable locations in the city					
Our company allows to drivers to open/close the system at their discretion					
Our customers can choose to share the transportation and split the cost					
We have diverse routes to cater for all customers					

24. How often do your drivers refuse to pick a client?

All the time []

Occasionally []

Rarely []

25. Do you drivers charge more for new transit routes?

Yes [] No []

18b. If you Yes, by how much?

.....

26. How flexible are your drivers in an effort to satisfy your clients?

All the time [] Occasionally [] Rarely []

PART 11: PERFORMANCE

TAXI BUSINESS PERFORMANCE

27. These are statements taxi business performance, rate how each of these statements applies in your taxi company. Use a scale of 1-5 where 1=no extent, 2= little extent, 3=moderate extent, 4=great extent and 5=very great extent.

	1	2	3	4	5
Our customer numbers have increased					
We have realized high returns on investments					
Our number of taxis have increased					
We have expanded to include new transit routes					
We have a wide market share					
Our asset base has increased					
We have increased our profitability margins					
Customers rate our enterprise highly					

28. Have you recovered the amount of money invested in the technology?

Yes [] No []

19b. If Yes, it took you how long?

.....

29. Do you have a feedback/complaint mechanism from your clients?

Yes [] No []

22b. If Yes, how do your handle negative feedback and what cause of actions do you take?

THE END

Appendix II: List of Taxi Companies in Nairobi County

	COMPANY
1	Divine Cabs Services Limited
2	Delight Cabs
3	Prince Cabs Services
4	New Jambo Taxi Operators
5	King Cabs and
6	Apple Park Cabs Ltd
7	Jatco Taxis and Tours Ltd
8	Courtesy Cabs
9	Universal Cabs
10	First Cab
11	Hilltop Taxis
12	JimcabSevices Limited
13	Kenatco Taxis Ltd
14	On Time Cabs and Travel Ltd
15	Princess Cab & Car Hire Ltd
16	Wonderview Taxis Ltd
17	Focus Cab Services Ltd
18	Alitex Cabs
19	Archer's Cabs (K) Ltd
20	Beska Cabs
21	Charlie Cabs Ltd
22	Comfort Taxis
23	Gavis Cabs
24	Junction Cabs
25	Links Cabs
26	Max Cab
27	Mwalimu Taxis
28	Neema Taxi Cabs
29	Pekee Smart Cabs Ltd
30	Pewin Cabs
31	Royal Cabs Ltd
32	Sign in Cabs
33	Yaya Taxi Cabs
34	Uric & Jay Cabs

Source: Taxi Association of Kenya (2018)