

**ROLE OF MODERN TECHNOLOGY IN ENHANCING PERFORMANCE OF
POLICE OFFICERS IN INVESTIGATING CRIMES: CASE OF NYERI
COUNTY, KENYA**

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DECLARATION

This project is my original work and has not been presented for a degree in any other university or for any other award.

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I confirm this work was done by Rosemary Karamuta under my supervision as the university supervisor.

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Date: _____

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DEDICATION

I dedicate this project to my family, and more so my late Mother Salome for educating me against all odds.

ACKNOWLEDGEMENT

I thank God for the strength, favor and provision he has given me this far. Thank you Lord.

I acknowledge with appreciation my supervisor Dr. Casper Masiga for his tireless effort in assisting and supervising my research work.

My special thanks go to my colleagues for giving me support materially and otherwise. God bless you all.

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LIST OF ABBREVIATIONS AND ACRONYMS

CI	-	Chief Inspector of Police
CID	-	Criminal Investigations Department
CPC	-	Criminal Procedure Code
CPL	-	Corporal
DNA	-	Deoxyribonucleic Acid
FBI	-	Federal Bureau of Investigations
FSO	-	Force Standing Orders
IG	-	Inspector General
IP	-	Inspector of Police
IPOA	-	Independent Police Oversight Authority
I/O	-	Investigating Officer
KPC	-	Kenya Police College- Kiganjo
NPS	-	National Police Service
NPSA	-	National Police Service act 2011
NPSC	-	National Police Service Commission
PAKA	-	Pending Arrest of Known Accused
PBC	-	Pending Before Court
PC	-	Police Constable
PUI	-	Pending Under Investigations
SGT	-	Sergeant
SP	-	Superintendent of Police
SSP	-	Senior Superintendent of Police
S/SGT	-	Senior Sergeant
SIO	-	Senior Investigative Officer

ABSTRACT

Police have a responsibility of providing efficient and effective service that is operative in combating crime. A criminal investigator continually applies skills that are acquired by studying and experience, to examine and observe the criminal and his or her behavior. With implementation of Kenya constitution 2010, confidence was created in Kenyans that police will be more responsive and effective in fighting crime, but this expectation has not been met. These sentiments are backed by the fact that the media covers unresolved crimes almost on daily basis. The general objective of this study was to establish the role of modern technology in enhancing performance of police officers investigating crimes in Nyeri Central Police Division, Nyeri County. The objectives of the study included: To examine the use of modern technology by investigators, to establish the Knowledge, Attitude and Practice (KAP) in relation to ICT among investigators and to establish legal procedures influencing use of modern technology. The study used Performance Theory to explain the use of modern technology. The study adopted a descriptive survey research design and targeted a population of 120 serving police officers. The study used two sampling techniques: Simple random and purposive sampling techniques to sample 44 serving officers from the rank of Police Constable to senior superintendent of police. Data was collected through the use of questionnaires and interview guides. There were two types of data: Quantitative and qualitative data. Quantitative data was analyzed using descriptive statistics e.g. percentages. They were presented in tables, graphs and pie charts. Qualitative data on the other hand was analyzed according to themes and patterns formed. They were presented in narrative and verbatim quotation marks. 68.2% of respondents strongly agreed that use of DNA analysis in investigation improve accuracy of results. 68. 1% percent of the respondents fully agreed that many police officers are not knowledgeable on matters ICT due to minimal allocation of time to train on the same in all courses offered at the police training institutions. 41 percent of the respondents also felt that some of the prevailing legal procedures fully affect the performance of investigators. For instance, the fear of being sued when a case flops, may affect the judgment of an investigator. The study therefore recommended prioritization of equipping of the forensic laboratory and devolvement of the same services to counties, courses offered in police training institutions to have a greater content on ICT and thorough training on legal processes and procedures that apply in investigations. The study recommends that further research should be done in predictive policing on crime prevention that involves technology and technological applications on reduction of sexual harassment in police institutions.

OPERATIONAL DEFINITION OF TERMS

Performance

This means accomplishment of a task given, which is measured against some preset known standard of accurateness, completeness, cost, and also speed. In this study, the term will be used to mean robust investigation of crimes by police officers deployed in Nyeri Police Division measured by the number of crimes solved.

Policing community

These are stake holders in law enforcement. For the purpose of this study, policing community entails police officers, private security guards, and any other entity providing security to Kenya citizens

Police Officer

Means any person trained and appointed to serve in the National Police Service. For the purpose of this study police officers will be taken to mean all officers who are attached to five police stations in Nyeri Police Division

Successful investigation

Means accomplishing a desired aim or result in a formal inquiry or systematic study. For the purpose of this study, successful investigation will be taken to mean a crime that has been fully investigated, suspects arraigned in court and convictions obtained.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Criminal Cases have soared high world over in the last four decades owing to the increased human activities that have been heavily aided by technology. This very technology has created an environment that has been used by criminals to execute illegal business activities affecting millions of people (McLaughlin & Munchie, 2002). These occurrences have called for the investigative arm of the police service in various countries to scale up their efforts so as to keep up with the ever-evolving crimes.

On the global scene for instance, American government has embarked on a plan to overhaul their training curriculum to their crime investigating officers so as to be abreast with the contemporary criminal activities. This was informed by the fact that there had been a significant evolution of crimes. The police service has thus enhanced efficacy and efficiency of interviewing and interrogating victims, witnesses as well as the suspects involved by incorporating gadgets like digital cameras and voice recorders. Investigators in the US are now able to employ Forensic technology in getting connection between crimes and offenders. The Boston Police Department's Ballistics Unit has also significantly increased the ability to link crimes which have been committed with the same firearm by adding ballistics imaging technology (Braga, 2005).

Following structural changes that were initiated to the Victoria police in 2005, the crimes department recorded an increased efficiency in preventing; detecting and prosecuting major crimes. This was adopted in the light of embracing modern policing which embraces use of best-known methods of policing so that authorities can always

be ahead of criminals. The police are expected to increase the ability to prevent, investigate and prosecute crime more quickly than criminals' are able to find new ways to profit from it (Boston Consulting Group, 2005).

According to (Swanson et al. 2006) a well-functioning Criminal Justice System causes a well-processed crime scene, good investigation, and successful conviction to yield positive results. Usually Police policies and trainings are of high standards and if their implementation would be as directed, policing would be very effective and solvability of crimes would increase. However, there is usually a disparity between what the policies stipulate and what is practiced within the police and within the Criminal Justice System as a whole in most of the developing countries.

In Africa there is a shortage of detectives in the police services who only constitute around nine percent of the total population of the police force in the continent despite their critical role. In addition, there is the issue of insufficient resources such as vehicles, housing, computers and furniture, issued to detective units by station commanders. The inadequate training of many detectives, lack of mentorship as well as training in-service furthermore raises questions on the ability of some detectives to perform their duties efficiently and effectively (Etannibi, 1988).

In South Africa, investigation of a crime requires expertise and a lot of dedication. Detectives assigned to a case leads and manages the investigations depending on information required for a particular case, like record of previous convictions of the suspects' that is obtained from the Criminal Record Centre (CRC) where modern technology has been used to analyze and store them. In complex cases where criminal syndicates are involved, a team of detectives investigates the case but in general practice, one detective is allocated one case. At this stage available technology is to be used to unravel and process the offenders. A 24-hour docket inspection takes place after

the detective begins the investigation of a particular case and the docket is sent to a senior public prosecutor to decide whether to prosecute or not to prosecute the suspect. The detectives assigned to a crime scene investigate and manage the cases, while qualified crime scene technicians collect of physical evidence from a crime scene. A detective is expected to adhere to procedures during investigations, use available resources and remain efficient to ensure the case is disposed accordingly (Motesh, 2007).

Just as it's envisioned in the blue print document vision 2030, creation of society that is secure and free of fear is a key component for the economy to thrive. The Government of Kenya is therefore determined to improve the security of the country in order to attract investment, reduce the cost of doing business and give Kenyans a more secure living and working environment (vision 2030). Kenyans voted to adopt a new Constitution in August 2010 with a view of creating a police service that is professional, corruption free, transparent, accountable and one that applies the principles in practice (Amnesty 2013). The National Police Service Act (2011) that establishes the Directorate of Criminal Investigations with independent funding was enacted, to enhance the management and quality investigations.

According to (Amnesty 2013) Kenyans continue to lose confidence in law enforcers. The violence that broke out between the Pokomo and Orma communities between August and September 2012 could have been easily contained if intelligent reports were properly handled. In the report, Tana Delta residents claimed that their repeated attempt to raise concerns about the insecurity with police before August 2012, were never taken seriously. To that effect, several local residents believe that enough was not done to deal with reports of smaller scale violence being made. To the residents, the police

either entirely did not respond to attacks or where they arrested individuals, they released them without doing any investigations.

According to (Omeje & Mwangi 2010), Nyeri County may be among the richest counties in the Republic but its potential has not been maximally being exploited. Insecurity has continued to thrive amidst concerns by stakeholders on the need to have peace and a stable region. For instance, the unprecedented increase of educated but unemployed youth in the region has led to use of modern technology to commit crimes leading to many cases of kidnappings, murders facilitated by mobile phones, human trafficking etc. Sustainable containing of this situation calls for a whole new perspective in intelligent report collection and handling of investigations within the County.

1.2 Statement of the problem

Technological progress in computing, information and communication in the last few years has seen an increase in the number of people using it (Nunn, 2001). As a result, digital systems are driving digital economy, translating to convenience, efficiency and reduced operational cost (Koper et. al 2014). Even in security complicated matters cases like rape and murder can now be resolved fast and easily by use of modern technology. The Government of Kenya has made efforts to make sure that the National Police Service integrates its activities with Information Communication Technology. Efforts are being made to digitize the police records and procuring of modern equipment's to make police officers work efficiently and effectively.

A Criminal Intelligence Unit has facilitated investigation of crimes where smart phones have been used, training of forensic analysts to mine and analyze latent prints, experts analyze DNA samples collected from victims and suspects to facilitate fast solving of cases.

Despite the above efforts, there is still a lot to be done in this area; for example in the year ending December 2019, out of the 493 cases handled by the department, only 10.3 percent of the cases were conclusively attended to. The main reasons given were that police service has not been digitalized enough. A lot of activities which include receiving and recording of reports, handling of exhibits, processing of offenders are still being done manually.

It's against this realization that the researcher undertook this study to try and assess the role of modern technology in enhancing performance of police officers investigating crimes in Nyeri Central Police Division, Nyeri County.

1.3 General objective

The general objective of the study was to assess the role modern technology plays in enhancing performance of police officers investigating crimes in Nyeri Central Police Division, Nyeri County with a view of finding solutions that will make officers perform better.

1.4 Specific objectives

1. Establish the use of modern technology in investigation of crimes in Nyeri Central Police Division, Kenya.
2. Examine the Knowledge, Attitude and Practice (KAP) of officers investigating crimes in relation to ICT in Nyeri Central Police Division, Kenya.
3. To determine legal procedures influencing use of modern technology in investigation of crimes in Nyeri Central Police Division, Kenya.

1.5 Research questions

1. What modern technology do criminal investigators use in Nyeri Central Police Division?
2. What is the level of KAP on ICT among officers conducting investigations in Nyeri Police Division?
3. What are the various laws influencing use of modern technology during investigation of crimes in Nyeri Central Police Division?

1.6 Justification and significance of the study

In the current world, knowledge and information has become too valuable leading to employees, criminals, and competitors exploiting loopholes in the available security architectures to control structures with a view of obtaining information to commit crimes that are digital in nature (Sommer, 2005). In Kenya according to (CCK, 2008), many crimes being perpetuated by the use of mobile phones like trafficking in drugs and persons, terrorism, extortion, laundering of money, fraudulent undertakings, incitement to violence, and spreading of hate messages are on the increase. This is the reason why the researcher thinks that it is urgent to carry out a study on role of modern technology in enhancing performance of police officers investigating crimes in Nyeri County at this point in time.

The results of this study would be of cardinal importance in helping the National Police Service to appropriately equip crime investigating officers with the right technologies and equipment so as to enhance their efficiency and effectiveness. This understanding would also help review the curricula used in training these officers so as to be in tandem with the contemporary crimes. Thirdly these findings will help policy makers create proper policies that are interdem with modern investigations of crimes.

1.7 Scope of the study

This was carried out in Nyeri County, Nyeri Central Police Division. The study concentrated on the role modern technology plays to enhance performance of police officers investigating crimes in Nyeri Central Police Division.

1.8 Limitations

Most police information is classified as confidential due to national security concerns. To eliminate poor, low or erratic response the researcher explained to respondents that the research is purely for academic purpose and that it was meant to improve their performance and help reduce the fatigue of the complainants who wait too long to get their cases concluded.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter covered empirical literature review that is related to the study by making sure that the themes reviewed reflected the objectives of the study; theoretical framework and conceptual framework.

2.2 Use of modern technology in criminal investigation

Modern policing has greatly been shaped by technological advancements available today in many important ways. The primary police strategy that was available for much of the 20th century was the motorized preventive patrol and also the rapid response to calls for service. The invention of the vehicular mobile, two-way radio communication, and computer-aided dispatch (911) systems led to the development of primary strategy (Manning, 2008). In the U.S, Information Technology (IT), DNA testing, video surveillance systems, and bullet resistant vests, are some of the recent modern technological developments and common critical tools in law enforcement that have been introduced. Contemporary policing issues over counterterrorism and homeland security have generally created technological hitches and burdens for police, just as the growth of computer-related crime has done. Rapid technological change in policing has indeed been experienced in the late 20th and early 21st centuries (LaVigne et al, 2011).

According to (Nunn, 2001) in the current world, knowledge and information has become too valuable leading to employees, criminals, and competitors exploiting loopholes in the available security, architectures to control structures with a view of obtaining information to commit crimes that are digital in nature. He further says that many digital crimes have emerged and are on the increase placing a strain on

governments' law enforcement agencies. These include cyber stalking, hacking, illegal spreading of pornographic materials, terrorism, money laundering, extortion, fraud, embezzlement, forgery, harassment, discrimination, sabotage, incitement and hate messages, copyright infringement, drug trafficking, theft, virus attacks, security violations, among others.

In Kenya, the Government has a vision to improve crime detection through intensified surveillance by use of modern crime investigation techniques like forensic investigation and use of ICT skills (vision 2030). According to (Futrell1996) DNA testing is very effective because of its diminutive allowance for error to an extent of overturning a sentence for a person who has been wrongly sentenced. Latent print collection and analysis can also be used along with DNA testing to assist solve difficult crimes especially those that have previously been unsolved. CCTV has the potential to assist police after the commission of crimes, specifically by securing early guilty pleas from offenders, improving the response of personnel to emergencies and providing visual evidence for use in criminal investigations (Ashby, 2017). According to (Winge & Knutsson, 2003) we must also recognize the possibility for CCTV to raise reported crime to police because CCTV can detect crimes that otherwise would have gone unreported. Due to the rise in demand for the new technologies in fighting crime, collection and analysis of Latent Prints have progressed a long way and are expected to continue doing so. Lifting of latent prints from a crime scene requires great expertise to realize results because erasure and contamination can easily occur. (Smith and Flanagan 2000) also says that ThruVision is a particularly interesting and new idea developed by Dr. Jonathon James from United Kingdom. ThruVision detects concealed objects by the use of a terahertz imaging system that is able to see through clothing and hidden body armor. It is able to see metallic and non-metallic objects as well as guns and

explosives. Due to the fact that modern-day security systems mostly detect metal objects only, James thought of inventing a prototype that would improve security at the airports by detecting more than metals. He mentions that this is the only way we can detect the presence of explosives to deal with terrorist threats and the associated fears within the world. Still images, video images and conventional photographs that have been converted to digital format can be examined by the use of Video and Digital image analysis tools. In this case, the examiner is able to acquire, process, and output images whose details have been enhanced, the imagery has been duplicated, authenticated, converted to other formats and also conduct other forensic examinations leading to revelation of features that are not otherwise obvious. These techniques are capable of revealing obliterated and indented handwriting (Chan 2003).

According to (Koper et al 2014), there has been introduction of Digital cameras in investigations in the place of the traditional film cameras. Digital cameras use is becoming popular because they are small hence portable and they are easily incorporated into other products like cell phones making them more portable and ideal for covert use. The digital images captured can be transmitted electronically, easily stored in digital devices and also digitally altered. Examples of digital cameras include Web cameras which are used in conjunction with computers by cable or wireless connection to take either still or video images and on integrating a microphone, sound is also captured. To investigators, digital cameras are suitable for use during surveillance, search documentation or any other operation where a film camera is usable, reducing the time required to develop the films hence saving on time. These cameras are greatly used in investigating crimes like child exploitation, identity theft, counterfeiting and any other crime that requires covert surveillance.

Schultz (2008) asserts that technological advancements have greatly influenced modern policing to an extent that every country that values an environment free from crimes is employing the most modern form of technology to solve crimes. The Government of Kenya has been investing heavily in the security sector to ensure officers are facilitated to perform their duties but there has been minimal output in terms of cases successfully investigated over the years in Nyeri County. To what extent did investigators in Nyeri Central Police Division use modern technology in their work?

2.3 Knowledge, Attitude and Practice (KAP) of crime investigators in relation to modern technology (ICT)

According to (Etannibi, 1988) competencies are capabilities that are individual in nature aimed at bringing about results that are desired to allow the meeting of job demands in an organization. Competences contribute to a situation where there is superior job and organizational performance. In the police organizations, competencies that lead to higher performance are either classified as functional or core self-learning platforms that allow officers to take part in career-long, self-directed/personal learning. A number of studies conducted on Criminal Justice have alluded to the fact that criminal investigations would be more efficient if all police officers tasked with the responsibility of conducting initial investigations are adequately trained to avoid losing evidence as they respond to crime scenes. If the suspect is not identified at the initial stage, then there is very little probability that s/he will be identified later. The results of this study also revealed that over seventy-five percent of all the cases cleared were those cases where arrests were made at crime scenes or suspects were identified immediately meaning that efforts of the first officer responding to a crime affected the results of the investigation (Greenwood et al, 1977). In the developed world, scientific knowledge/methods application to investigations of crimes and solving of complex

criminal riddles is common hence forensic sciences being viewed as the crucial handmaiden of an investigator conducting criminal investigations (Oluwafemi, 2011). In Baltimore Police Department, a detective known as Bob Cherry argued that instead of focusing on the quantity of police officers, departments need to focus on the quality of police officers. To him, solving problems is more than just having more cops but levitating the standards and progressing to the next level. He felt that whereas some cities required more police, there was need to concentrate on creating a smarter, leaner, and professional police Service. To Bob Cherry, hiring officers meeting the best standards, working and producing best results through proper training should be the focus of every police organization. Since training remains a vital and important matter for analysts, more education in theory and operation of criminal investigation is necessary. This means that quality program management, results interpretation and statistics and Computer skills are some of the areas that require bolstering (Zenk, 1979). In addressing cybercrime, there is need for police officers to receive some training so that they will know what questions to ask victims of cybercrime, respond to victims an intelligent way and offer helpful information to members of public about keeping themselves safe from scams and cyber criminals. Having a team of officers with a much higher level of training on cybercrime in police departments is also necessary although maintaining the cybercrime experts is a challenge due to the fact that private organizations pay far more than police agencies leading to officers leaving the police for greener pastures in the private sector.

Looking within police departments for officers or civilians interested in Information and Technology and training them to be analysts and investigators is usually highly recommended to enhance retention of the experts (US Department of Justice, 2014).

In US, there has been failure to invest in developing a sufficient, comprehensive and effective training program, geared towards development of a special police professional bearing in mind that the federal, state, and local governments have really made huge investments in computing systems to support police agencies.

According to (Smith & Flanagan, 2008) training offered to police professionals should ensure that they not only do things right but also know how to do the right things. After police organizations procure modern technology to enhance performance, the competencies of individual officer to handle the equipment's are then put in question. This calls for proper training to ensure a leaner, smarter and professional police service that can handle complex crimes successfully hence a safe environment for conduct of business. Although the government has built police training institutions for capacity building, cases successfully investigated in this division remain few. Were the investigators in Nyeri Central Police Division adequately trained to process criminal cases using modern technology?

2.4 Legal issues affecting performance of crime investigators

Standards, policies and procedures are vital guidelines in all organizations, in particular law enforcement agencies, that must be in place to help in Digital Forensic processes. The Standards, policies and procedures are used to aid forensic investigation besides legislative measures that back organizations prosecuting or attempting to prosecute digital crimes.

In U.S., some constitutional and statutory provisions, procedural rules, court decisions and industry-specific laws govern criminal investigations that comprise the use of technology or the gathering of digital evidence at the Federal and State levels. Breaching these requirements will eventually result in evidentiary challenge in a court of law or a civil suit, hence investigators, examiners, and prosecutors should be familiar

with them. In this case, a search for digital evidence is subject to the restrictions of all search and seizure laws be it Federal, State, constitutional or statutory. Searches by private parties are not limited by the Fourth Amendment's unless the conduct of such searches have been directed or requested by the government. Evidence of a crime acquired by private parties may be turned over to law enforcement, for use in furthering the investigation by detectives.

In Kenya, the Constitution of Kenya chapter four, article 31 provides that every person has a basic and fundamental right to privacy, meaning that a person has a right not to have themselves, their homes or their property searched for whatever reason and also to have their possessions seized and at the same time to have the infringement of their communication privacy. This may make investigations difficult in search for evidence. The amendment of Chapter 80 Laws of Kenya (Evidence Act) effected a change on laws guiding acceptability of confession in a trial by introducing Sec 25A which stipulates that a confession or admission which is meant to confirm that an accused person is guilty unless it is made in court cannot be accepted.

On one side the confession by a suspect or admitting of facts that are meant to prove that he/she is guilty is not admissible unless made in court and on the other hand Sec 29 is kept intact which talks of circumstances under which confession made to a police officer can be proved. Similarly, Sec 26 and Sec 27 stipulate how the confession made by the accused is admissible. Apart from being contradictory in letters and spirit, these provisions create nothing but confusion.

Sec 31 which dealt with discovery in consequences of information received from accused was deleted. This gives a fatal blow to already fragile investigating side of the state.

According to Section 49(f) of the Kenya constitution, an arrested person is expected to be arraigned in a court as the soonest possible but it should not be later than 24 hours after arrest and if 24 hours elapses due to the fact that it's not an ordinary court day like weekend or public holiday the next court day he/she should be presented in court. Some crimes become hard to investigate depending on the circumstances surrounding the commission of the crime (Rawal, 2005).

Sometimes, a confession is said to have been obtained by coercion and upon challenging of such a confessional statement, the court embarks on a separate trial which is meant to determine if the statement in question was given voluntarily or not through a procedure called "trial within trial". The procedure then delays criminal justice process although it is meant to protect the accused from self-incrimination that is involuntary. Several appeals from trial courts on confessional statements remain pending for many years before they are finally determined, and thereafter the matter is referred back to the trial court for the continuation of the substantive criminal charge. The process becomes tedious and a time consuming tree to the investigator, the victim and also not forgetting the witnesses who wait patiently to give evidence. After the determination of the case, the investigator may end up losing the case due to such technicalities and the state is sued for damages leading to unprecedented losses of government finances (Oluwafemi, 2011).

When a crime is committed, the processes of gathering, processing and presentation of evidence in a court of law is done while adhering to various standards, policies and procedures. Failure to adhere to those standards, policies and procedures leads to evidentially challenge in a court of law and civil suits where by in some cases there is loss of government revenue through compensations. What might have been the case in Nyeri Central Police Division?

2.5 Theoretical framework

2.5.1 Performance Theory

Individual's performance is critical to the overall performance of an organization. In trying to unlock issues that affect the performance of individuals in execution of their duties, one ought to apply the tenets of a certain theory. This study used performance theory as formulated by (Richard Schechner 1985 and Turner 1988). The proponents argued that the level of skills, knowledge, identity, fixed factors, personal factors and context determines the level of performance in any organization. They further contend that activities of an individual in whatever they do can only be gauged against the expected outcome of their actions. For example, the police service is expected to investigate crimes and take necessary action on the suspects. The extent of the impact of an individual's performance is what is used to determine their level of performance and productivity in regard to the duty allocated. The overall performance of officers investigating crimes is dependent on provision of a supportive working environment like provision of proper training, modern technology, non-contradicting laws and a wide range of modern strategies that hasten the fight against crime. This theory is related to this study because it emphasizes the provision of a good environment (see above).

2.6 Conceptual framework

The conceptual framework demonstrates the interrelationship between independent, dependent and moderating variables. In this study, various laws governing investigations, modern technologies applied by crime investigators and Knowledge, Attitude and Practice levels on ICT for crime investigation officers were the independent variables while enhanced performance of police officers was the dependent variable.

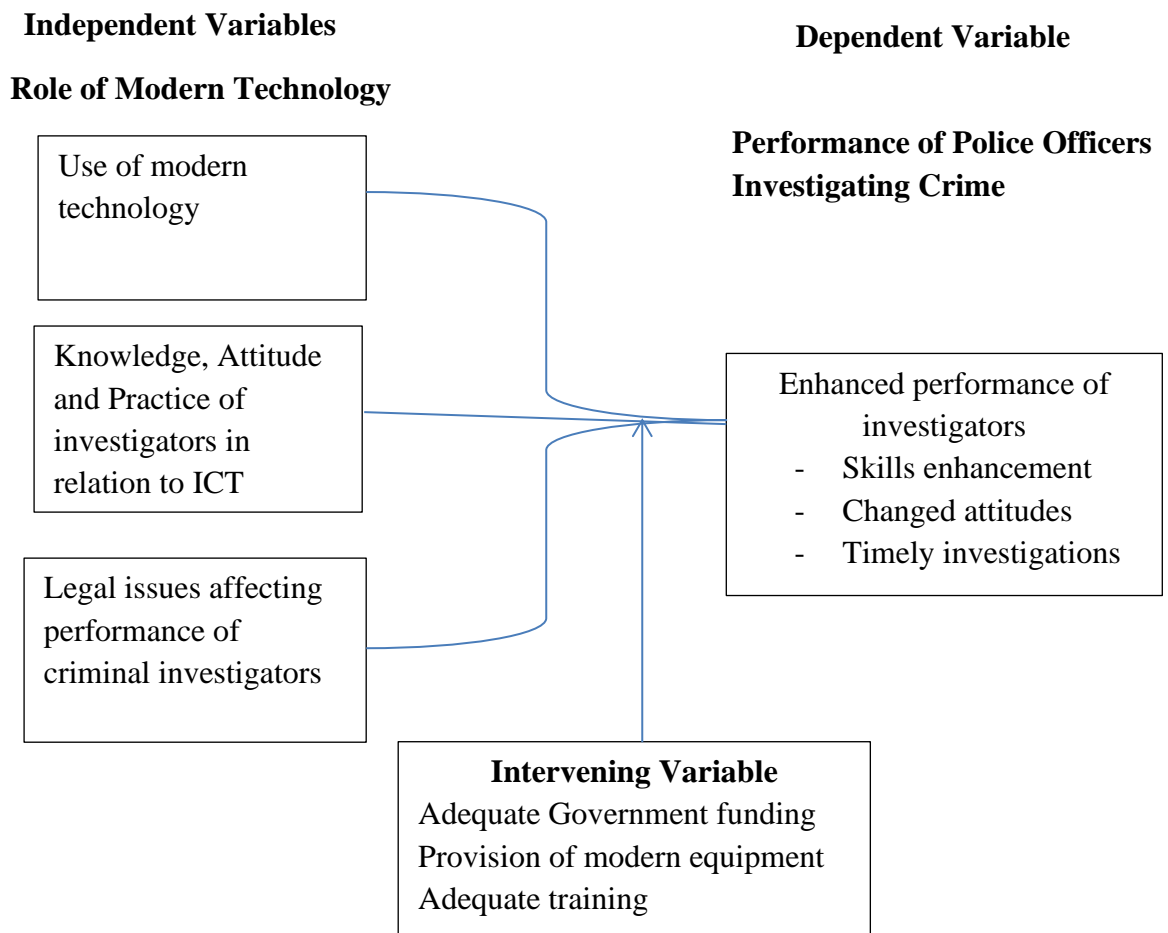


Figure 2.1 An Illustration of Relationships between Variables. Role of modern technology is the independent variable, performance of police officers is the dependent variable while adequate government funding, provision of modern equipment and training on ICT are the intervening variables

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter described the design of the research used by the researcher, the instruments of data collection used, measurement, analysis, target population, sampling techniques and data analysis methods used.

3.2 Research Design

Descriptive survey research design was adopted because it allows researchers to study occurrences without manipulating variables. (Gay 1981) argues that descriptive survey research design is ideal for exploratory and preliminary studies due to its ability to allow the researcher gather, summarize, present and interpret data accordingly. This design sought to establish the role of modern technology in enhancing performance of police investigating crimes that the researcher cannot manipulate. The researcher has presented events regarding the study from information collected without manipulation of the variables about the state of affairs making the design suitable for the study.

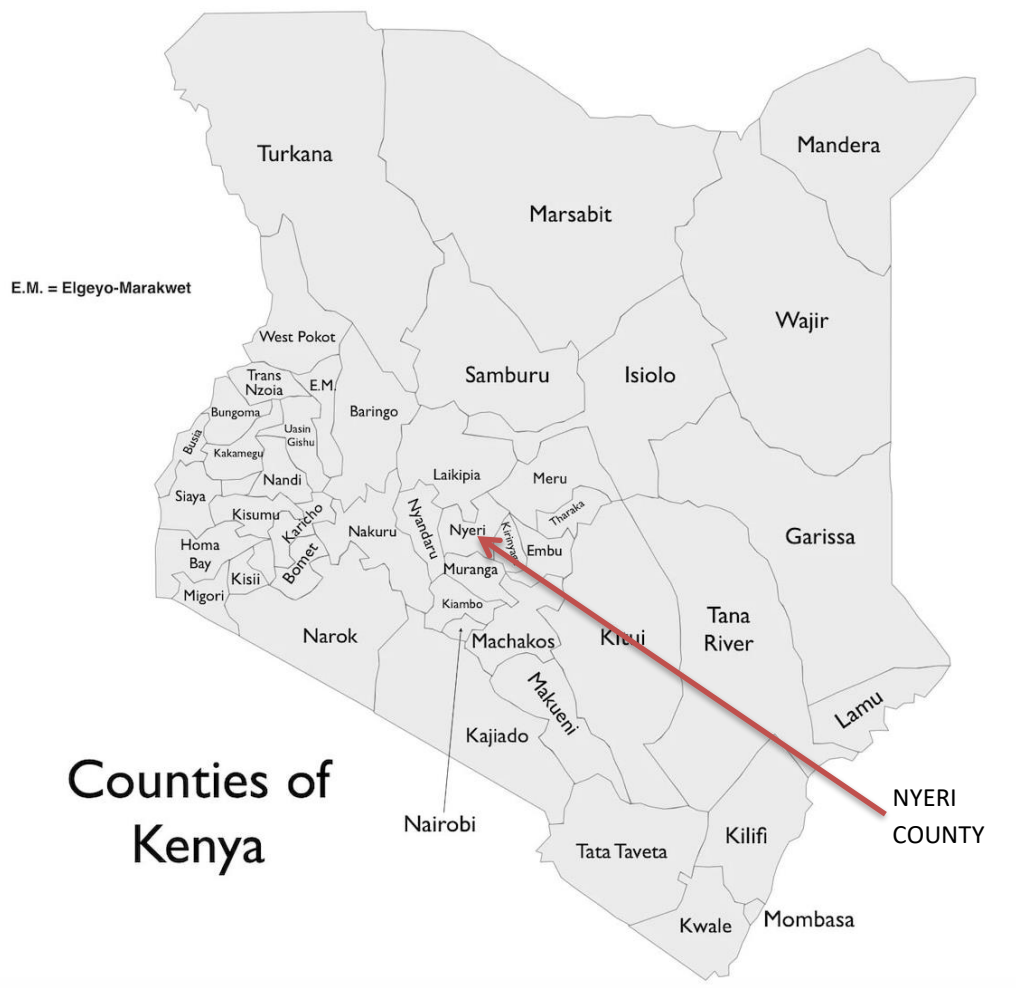
3.3 Location of the study

The study was conducted in Nyeri County which is one of the 47 counties in Kenya (IEBC 2012). Nyeri County harbors the Nyeri Central Police Division which is approximately 160kilometers north of Nairobi city. In addition, the County covers an approximate area of 3,350 square kilometers bordering Laikipia, Nyandarua, Kirinyaga, Muranga and Meru Counties.

Nyeri County predominantly is home for Kikuyus who are farmers growing tea, coffee maize, assorted vegetables, beans, and sweet potatoes recording a populace of approximately 693,558 people i.e. male 49% and female 51% (2009 National Census).

There are other tribesmen and women in the County including Embu, Luo, Kamba, Meru, Somali and Borana who are doing businesses or are employed by the government or private sector. The study location was chosen because reports from the divisional headquarters have indicated that less than twenty percent of the cases reported are conclusively attended to.

One police station, one police post and seven patrol bases were covered which include; Nyeri, Kabiruini, Gatitu, Marua, major Seminary, Mathari, Tetu, Kinunga and King'ong'o. The study did not cover the courts and corrections in the Criminal Justice System because criminal investigations are solely done by the police.



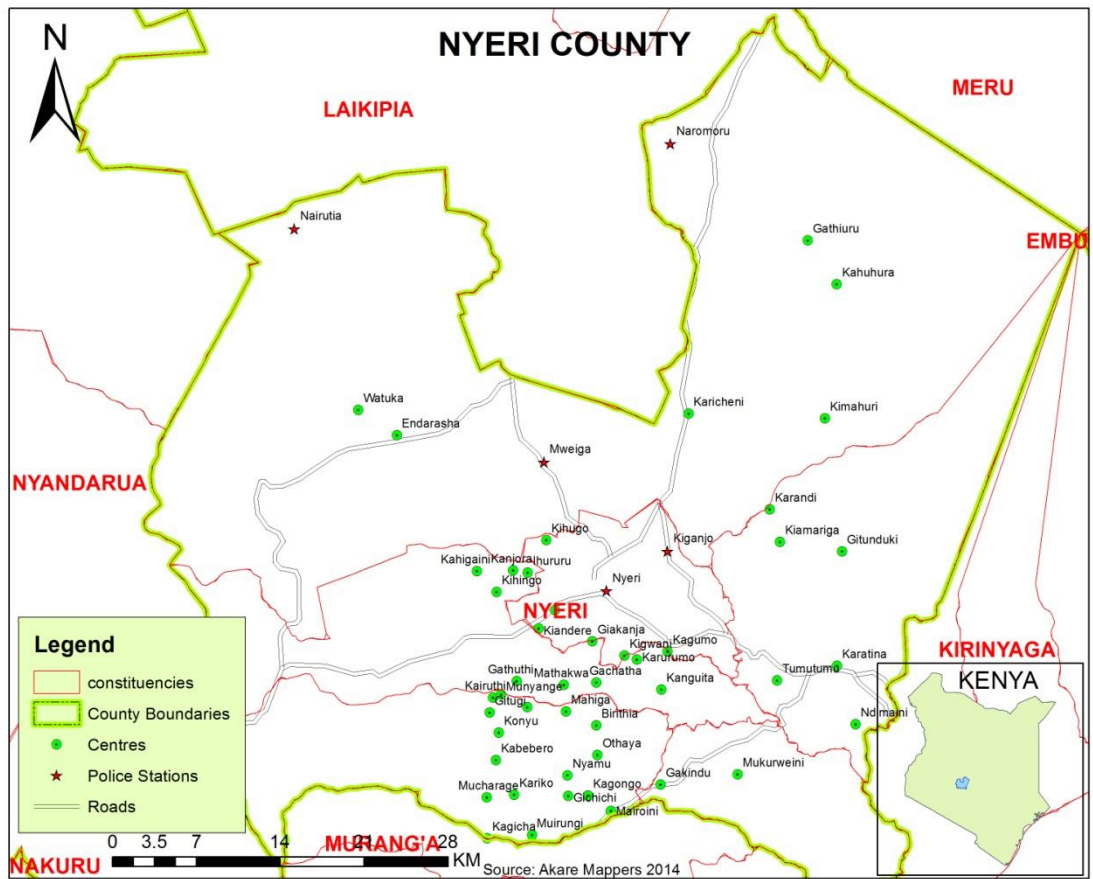


Figure 3.1 Study Area

3.4 Target Population

The study targeted police officers including all ranks in the senior and middle management level and junior officers present in the police division as indicated in the Table 3.1. The officers were drawn from Nyeri Central Police Division comprising five police stations making a total of 120 officers (Inspection Report, Nyeri Central Police Division, 2015).

Table 3.1 Population Size

Rank.	P.C.	CPL.	SGT.	S/SGT.	I.P.	C.I.	SP.	SSP.	TOTAL.
population	89	12	4	2	8	3	1	1	120

Inspection Report: 2015

3.5 Sampling Procedure and Sample Size

The target population of study was 120 individuals drawn from Nyeri County. They were sampled through random and non-random sampling to produce a sample size of 44 individuals. According to (Lavrakas 2008), the target population should comprise an entire set of units of equally survey-able potentials and for which the survey data are used to make inferences. In the current research context, it is primarily police officers that are survey-able to provide a sample capable of prudently addressing questions related to criminal investigations. Where police officers in a rank were performing similar duties, systematic sampling was used, where police officers in a rank (supervisors) are directly involved in investigations, purposive sampling was used (see the table below).

Table 3.2 Sample Size

Rank	Population	Sampling method	Sample size obtained
PC	89	Systematic sampling	30
CPL	12	Systematic sampling	4
SGT	4	Purposive sampling	2
S/SGT.	2	Purposive sampling	1
I.P	8	Simple random	3
C.I	3	Purposive sampling	2
SP	1	Purposive sampling	1
SSP	1	Purposive sampling	1
Total	120		44

3.6 Research Instruments

Data collection was mainly done through the use of questionnaires and schedule interviews. A questionnaire can be defined as a structured set of questions that will generally be answered by a respondent and clarifications will be offered by the researcher where necessary. Whereas (Gay 1981) believes that questionnaires provide an avenue for the respondents to express views and opinions without feeling insecure and also to make suggestions, (Kothari 2003) observe that questionnaires are easily administered to large numbers and provide easy accumulation of data. Additionally, schedule interviews were conducted among senior ranking police officers i.e. the rank of Inspector (IP) to Senior Superintendent (SSP) in the divisions. Focused group discussions were also included in the collection of data among the low ranking police officers i.e. Constable (PC), Corporal (CPL) and Sargent (SGT).

3.7 Validity and Reliability

3.7.1 Validity

Validity refers to the extent to which instruments are able to measure what it is supposed to measure and perform as it is designed to. To validate instruments, the candidate with the help of her supervisor made sure that the instruments reflected the objectives of the study.

3.7.2 Reliability

Reliability refers to a degree to which an instrument is able to measure the same way every time it is used for data collection in the same condition with the same subjects. To ensure reliability the candidate made sure that the instruments were subjected to a test-retest after an interval of two weeks.

3.7.3 Piloting

The study instruments were administered to ten randomly selected police officers from Embu County because Embu County has the same characteristic as Nyeri County.

3.8 Data Analysis and Presentation

Data collected by the researcher was subjected to the process of editing, and thereafter coding, then cleaning and then it was entered into statistical Package for Social scientists (SPSS). There were two types of data: quantitative and qualitative data. Quantitative data was analyzed using descriptive statistics e.g., percentages, and frequency tables. They were presented in tables, pie charts and graphs. Qualitative data was analyzed according to themes and patterns formed. They were presented in narrative and verbatim quotation marks.

3.9 Ethical Consideration

Authorization letter to collect data was obtained from Kenyatta University, graduate school. The permit was given by the National Council for Science and Technology. Equally, authority was sought from the officer commanding Nyeri Central Police Division to consent to have officers in the division provide the required information. The principles of informed consent, confidentiality, anonymity were guaranteed.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter covers data presentation, analysis and discussion. This study purposed to establish the role of modern technology in enhancing performance of police officers investigating crimes in Nyeri Central Police Division Nyeri County. To do this, the chapter first presents the socio-demographic information of the respondents because this is very important in a study of this nature since to a large extent investigation are dependent on socio-demographic factors of the investigators. Before this is done, the chapter first explains how data collected from the field was systematically broken down by the use of Statistical Package for Social Sciences (SPSS), refined and then presented in a form that is easy to understand. Quantitative and qualitative techniques were used in the collection of data. The findings, in form of views and opinions are presented in frequency tables.

4.2 Demographic information

The demographic information of the respondents was examined based on their gender, age, length of service, rank and the number of cases solved. The respondents were drawn from all the police stations within Nyeri Central Police Division.

Table 4.1 Gender characteristics of respondents

Indicator	Frequency	Percentage
Male	32	72.7
Female	12	27.3
Total	44	100.0

Source: Field data 2019

For the survey, the respondents were randomly chosen within the strata of police stations. Table 4.1 above presents the distribution of the survey respondents by characteristics of gender. The table shows that the survey sample had a fair gender representation because 72.7% of the respondents were male and 27.3% of the respondents were female. The police service is still dominated by the male gender. The government of Kenya is trying very much to get more female police officers. This is the reason why the researcher writes that getting 72.7% male and 27.3% female is a fair representation. This is a clear indication that both genders in the National Police Service are given opportunities to utilize their knowledge and skills in the investigations department even though the representation by women is low. According to (UNODC 2010) Women are severely under-represented in most police departments. The numbers of women in law enforcement can be kept artificially low by widespread discriminatory hiring and selection practices.

Table 4.2 Age of the Respondents

Indicator	Frequency	Percentage
Age		
18-28 Yrs	5	11.4
29-39 Yrs	18	40.9
40-50 Yrs	17	38.6
Above 50 Yrs	3	6.8
Missing	1	2.3
Total	44	100.0

Source: field data 2019

Table 4.2 above presents the distribution of the survey respondents by characteristics of Age of respondents. 11.4 % were aged between 18 and 28 years while 40.9% were aged between 29 and 39 years forming the bulk of the population. 38.6% were aged between 40 and 50 years while those respondents above 50 years of age were 6.8%. Only one respondent did not give feedback on this part. From the findings, there are

few performing criminal investigation duties that are aged between 18years and 28years. This can be attributed to the fact that for an officer to work in investigations department they must have worked in general duty for some time and depending on their capabilities they are recruited and further trained to specialize in investigations. This state of affairs is corroborated by (Turner 2015) who says that investigators are specialists. They undertake activities related primarily to law enforcement. They gather crime information, effect arrests, and prepare cases for prosecution and trial.

Table 4.3 Length of service

Indicator	Frequency	Percentage
Length of service		
5 Yrs and below	2	4.5
6 – 15 Yrs	20	45.5
16 – 25 Yrs	16	36.4
Over 25 Yrs	6	13.6
Total	44	100.0

Source: field data 2019

The study established that officers with a length of service that is below 5 years were 4.5%. Majority of the respondents had a work experience of between 6 years to 15years which was 45.5% of the respondents. Those officers with a length of service between 16years and 25 years were 36.4% and finally respondents with over 25 years of service were 13.6%. This is an indication that most of the respondents in this category had sufficient experience and skills to handle and manage cases requiring criminal investigation reported in their areas of jurisdiction.

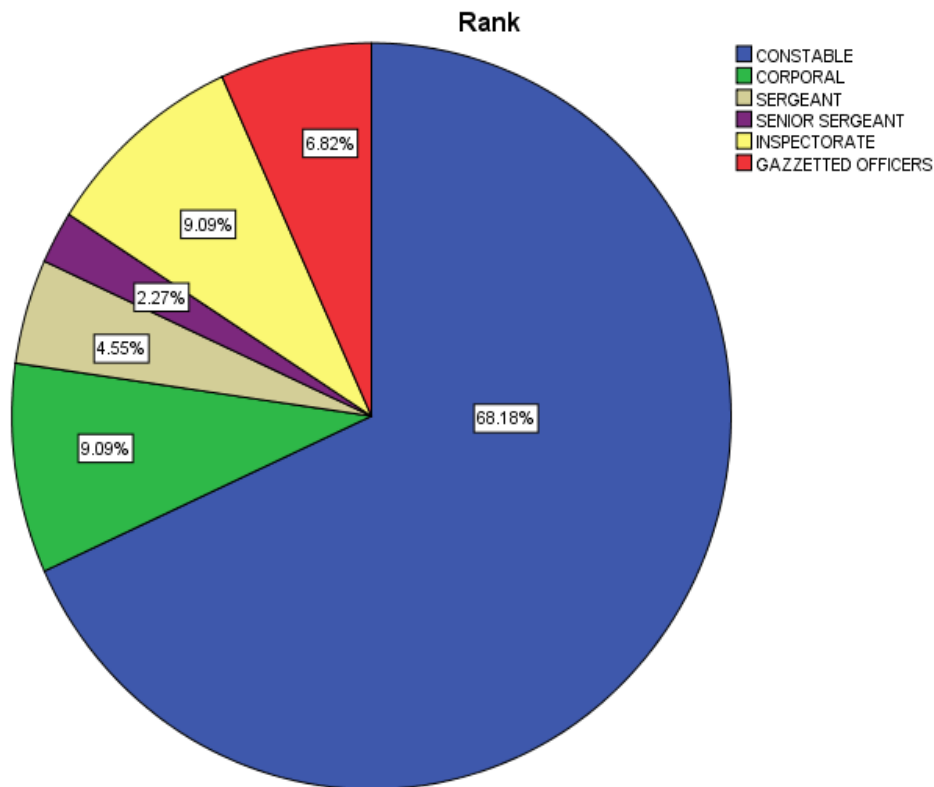


Figure 4.1 Rank of the Respondents

In terms of Ranks, 68.2% were police Constables. 9.1% were Corporals, 4.6% were Sergeants, 2.8% were Senior Sergeants, 9.1% were members of Inspectorate, and 6.8% were Gazetted Officers. The Constables formed the bulk of respondents. This is the entry rank for all officers and they form the bulk of the service. They conduct patrols, respond to crime scenes, document reports, conduct investigations and process offenders amongst other duties. This agrees with the Common Wealth Human Rights Initiative and KNHCR report on police accountability in Kenya that duties of constables are to investigate crimes, apprehend suspects, collect information affecting law and order, prevent crime and obey lawful orders.

Table 4.4 Level of Education

Indicator	Frequency	Percentage
Level of education		
Primary	2	4.5
Secondary	31	70.5
Diploma	4	9.3
Degree	6	13.6
Others	1	2.3
Total	44	100.0

Source: field data 2019

The study established that 4.5% of the respondents studied up to primary level, majority of the respondents had trained to secondary level (70.5%), 9.3% possess a diploma, 13.6% possess a degree and respondents with other forms of academic qualifications were 2.3%. This can be explained further by the fact that the level of education considered during recruitment is Secondary level of education. Upon recruitment, they are subjected to professional courses that enable them perform police work. This agrees with (Etannibi 1998) who says that in police organizations, competencies that lead to higher performance are either classified as functional or core self-learning platforms that allow officers to take part in career-long, self-directed/personal learning.

Table 4.5 Cases successfully investigated

Indicator	Frequency	Percentage
Cases successfully investigated		
None	7	15.9
Below 20	24	54.5
20-50	8	18.3
51-100	3	6.8
Over 100	2	4.5
Total	44	100.0

Source: Field data 2019

A case is considered successfully investigated when a suspect is arrested, prosecuted and jailed for a crime he or she has committed. In terms of cases successfully investigated from the day they were employed, respondents who have not successfully investigated any case are 15.9%, while respondents who have investigated cases that are below 20 were 54.5%. The results also indicate that 18.3% of respondent have successfully investigated between 20 and 50 cases, while those who have investigated between 51 and 100 cases were 6.8% and finally those who have investigated over 100 cases were 4.5%. Majority of respondents had investigated cases meaning they were aware of the happenings in the Criminal Justice System. This information agrees with (Eck, 1983) who says that, in the United States of America, within police departments, criminal investigators are smaller in number and have an elite status.

4.3 Use of modern technology in Criminal Investigations

The use of modern technology in criminal investigations was assessed from the respondents.

The researcher sought opinions on use of various modern technological advancements to solve crimes. The researcher sought to know if at all use of DNA analysis in investigations improve accuracy of results, whereby 68.2% of respondents strongly agreed that use of DNA analysis improves accuracy of results, 25% agreed whereas 6.8% remained neutral on the same.

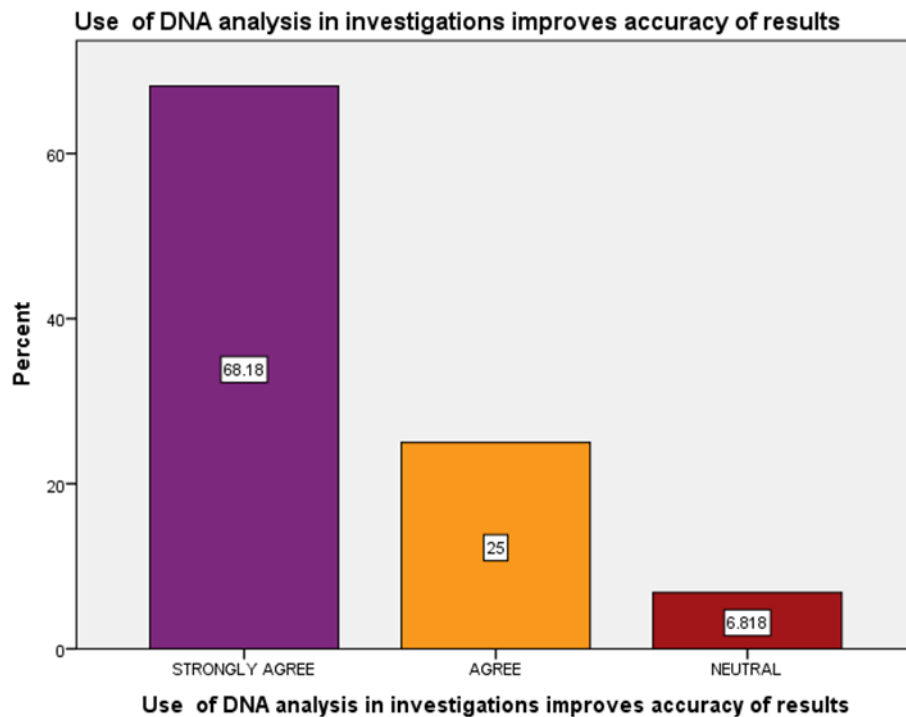


Figure 4.2 Use of DNA analysis in investigations

According a senior officer asked whether the government has provided modern technology to facilitate criminal investigations especially on use of DNA analysis;

“The Government has been working hard to facilitate investigation using modern technology by building a forensic laboratory although not fully operationalized. We still have a long way because we need such services readily available in all counties for efficiency to be realized”.

This agrees with Futrell (1996) who said that DNA testing is very effective in solving crimes because of its diminutive allowance for error to an extent of overturning a sentence for a person who has been wrongly sentenced. The same sentiments were also echoed by (McEwan, 2011), who said that DNA evidence has developed into a useful tool for law enforcement in obtaining convictions as well as exonerating the innocent. These results give credence to the findings of a study carried out in Kumasi Metropolis of Ghana in which (Ayalew and

Berhane 2010) established that lack of adequate DNA facilities and financial constraints were the main challenges to adoption of DNA technology while undertaking investigations. Despite these contradicting viewpoints, these results indicate that critical DNA facilities are either not available or if available are inadequate to cater for the numerous cases reported on a regular basis, but which need thorough and prompt investigations.

On latent prints, the researcher sought to know if analysis of such prints left at a scene of crime improves the solvability of a crime. 50.0% of the respondents strongly agreed, 34.1% agreed, 4.6% remained neutral, 2.3 % disagreed and 9.0% did not provide an answer. The pie chart below illustrates the state of things.

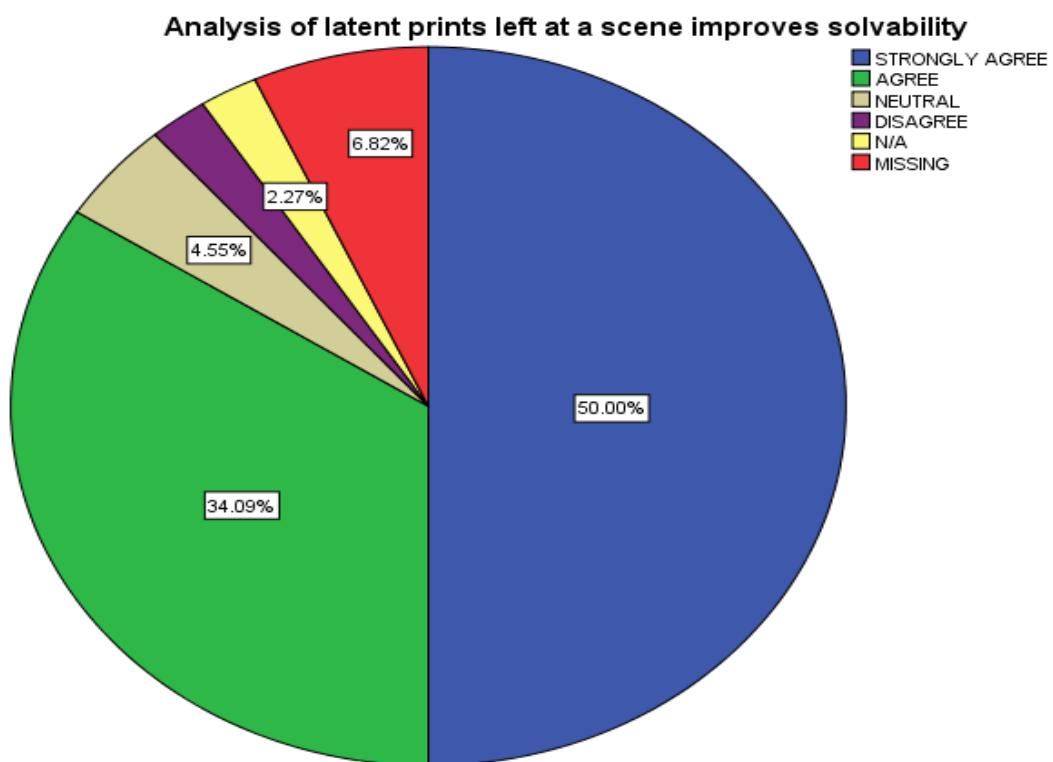


Figure 4.3 Analysis of latent prints left at a scene

A senior police was asked if analysis of latent prints left at a scene help in investigations and said that;

“Mining of prints left a scene of crime and matching them with others in the bank helps to trace the author of a crime easily. Every other modern technology used has helped us solve very many crimes”.

These sentiments agree with (Ritter, 2008) who said that Forensic technology available to investigators has vastly improved their ability to make links between crimes and offenders.

The researcher also sought information on Use of Thru Vision and CCTV cameras in investigations. The respondents were asked whether use of Thru Vision and CCTV cameras aids in investigations and 56.8% strongly agreed that use of the equipment’s aid in investigations, 36.4% agreed, 2.3% chose neutral and 4.6% did not give a response on the matter.

Table 4.6 Use of Thru Vision and CCTV cameras aid in investigations

Indicator	Frequency	Percentage
Use of Thru Vision and CCTV cameras aid in investigations		
Strongly agree	25	56.8
Agree	16	36.4
Neutral	1	2.3
Missing	2	4.5
Total	44	100.0

Source: Field data 2019

A senior police officer was asked whether use of Thru Vision and CCTV cameras aid in investigations and said that;

“Since the installation of CCTV camera even privately by home owners in their homes and entrepreneurs in their businesses, investigations have become easy because when we analyze the images captured we are able to a great extent discover the perpetrators/authors of crimes”.

This agrees with (Ashby, 2017), who says that CCTV has the potential to assist police after the commission of crimes, specifically by securing early guilty pleas from offenders, improving the response of personnel to emergencies and providing visual evidence for use in criminal investigations.

The researcher sought to know if Digital & Image Analysis tools used by investigators to analyze evidence procured from crime scenes are critical tools in investigations. From the data collected, analysis revealed that 63.6% of the respondents strongly agreed that digital and image analysis tools are critical, 22.7% of the respondents agreed with the statement, 9.1% chose to remain neutral and 4.5% did not give their opinion on this issue. The graph below illustrates

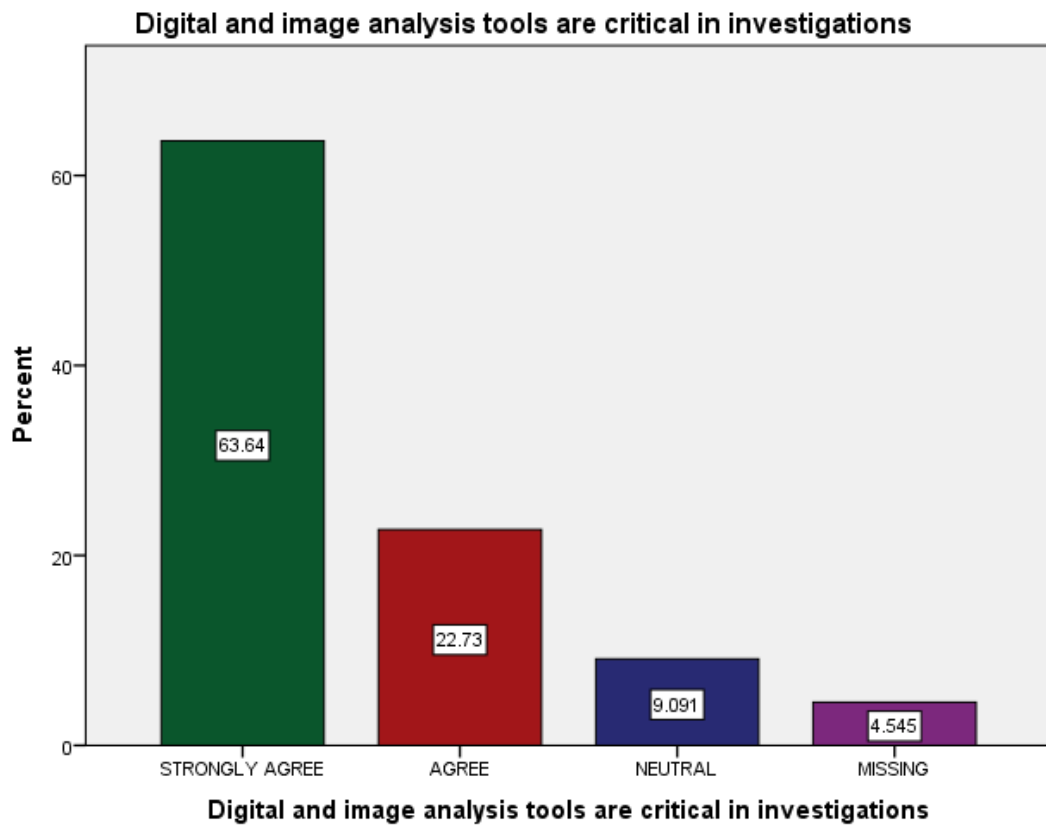


Figure 4.4 Use of digital and image analysis tools in investigations

A senior police officer was asked how use of digital and image analysis tools has helped in investigations and he said that

“Digital and image analysis tools have helped us in a big way because when these tools are used, they reveal features that cannot be seen with naked eyes”.

This agrees with (Chan 2003) who says that digital and image analysis tools help the examiner to acquire, process, and output images whose details have been enhanced, the imagery has been duplicated, authenticated, converted to other formats and also conduct other forensic examinations leading to revelation of features that are not otherwise obvious. These techniques are capable of revealing obliterated and indented handwriting (Chan 2003).

The researcher also sought to know from respondents whether digital cameras can help obtain evidence during interrogations. 38.6% of respondents strongly agreed, 54.5% of the respondents agreed, 4.5% chose to remain neutral on the matter and 2.3% disagreed.

The pie chart below illustrates;

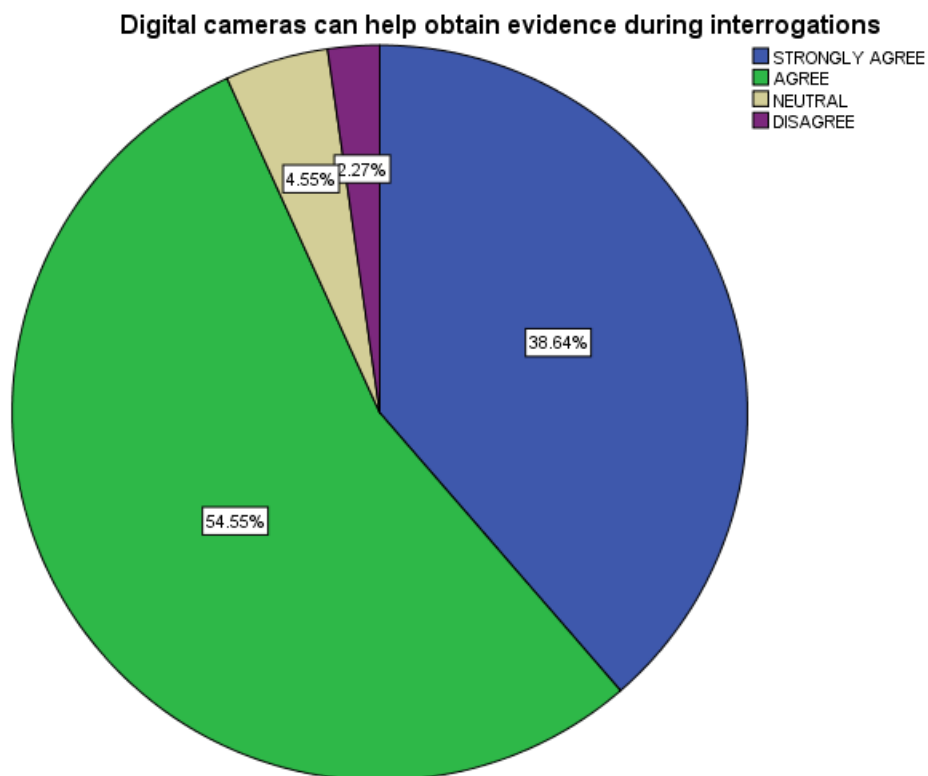


Figure 4.5 Digital cameras and interrogations

A senior police officer was asked for the advantages of using Digital cameras in interrogations and he said that;

“Digital cameras are portable and images captured can easily be uploaded in other gadgets as well as transmitted easily electronically to counterparts. They are not bulky and can help capture interrogations so that what an investigator could not capture during the process can be detected during preview”.

This agrees with (Baca 2006) who says that to investigators, digital cameras are suitable for use during surveillance, search documentation or any other operation. He also said that Digital cameras use is becoming popular because they are small hence portable and they are easily incorporated into other products like cell phones making them more portable and ideal for covert use. The digital images captured can be transmitted electronically, easily stored in digital devices and also digitally altered.

The researcher also sought to know if resources available to perform a task affects results and 63.6% strongly agreed, 20.5% agreed, 4.5% remained neutral, 2.3% disagreed and 9.1% strongly disagreed. Table 4.7 illustrates

Table 4.7 Resources available for investigations affects results

Indicator	Frequency	Percentage
Resources available for investigations affects results		
Strongly agree	28	63.6
Agree	9	20.5
Neutral	2	4.5
Disagree	1	2.3
Strongly disagree	4	9.1
Total	44	100.0

Source: Field data 2019

According to one senior officer asked if resources available for investigations affect results of an investigation said that;

“There is no difficult case to investigate. An investigator can produce excellent results if he/she is

provided with the new investigative skills and equipment's”.

These sentiments can be likened to those of (Ettanibi 1988) who said that competencies contribute to a situation where there is superior job and organizational performance.

The lack of an operationalized forensic laboratory and the devolving of such services might be the reason why investigations have not yielded much result in Nyeri Central Police Division, Nyeri County.

4.4 Knowledge, Attitude and Practice in relation to ICT use

The study further assessed various views that the respondents had with regard to Knowledge, attitude and practice in relation to use of ICT amongst police officers in Nyeri County. Their responses were presented on a five-point scale of fully, to a great extent, to some extent, very limited and never.

In this area, the researcher sought to know if all officers have adequate knowledge on ICT skills. The respondents who felt that officers are not fully equipped on matters relating to knowledge on ICT were 68.2%. On the other hand, 11.4% of the respondents felt that they were knowledgeable only to a great extent. A few respondents (15.9%), and (4.6%) felt that they were to some extent and very limited knowledgeable respectively on ICT. The pie chart below illustrates

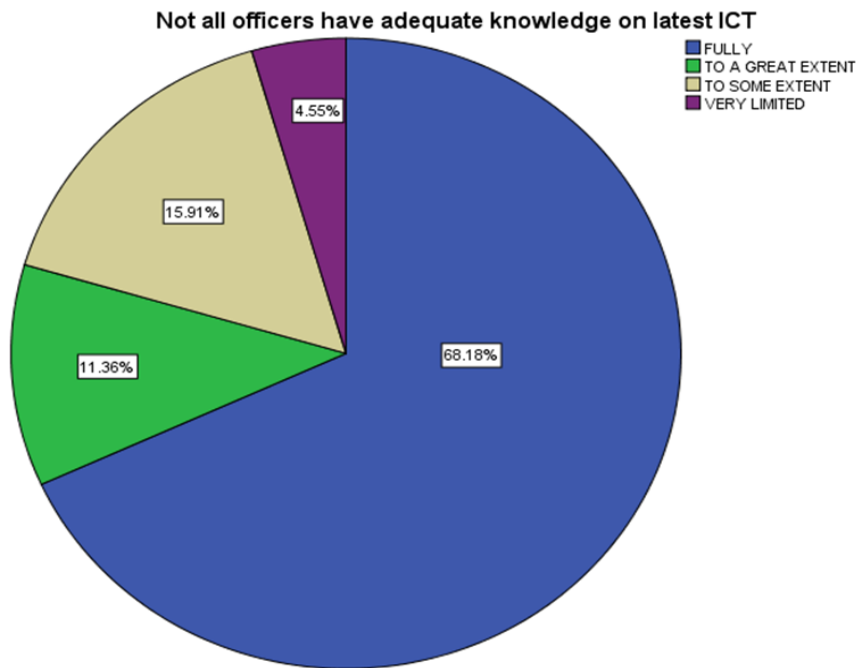


Figure 4.6 Officers knowledge on ICT

One of the senior officers asked whether all officers in the command are knowledgeable on ICT said that

“The ICT offered in different courses in our police training institutions is very little leaving officers to train themselves in other tertiary colleges that offer the same. Those who cannot afford they remain without the requisite knowledge”

This agrees with (Zenk 1979) who says that since training remains a vital and important matter for analysts, more education in theory and operation of criminal investigation is necessary. This means that quality program management, results interpretation and statistics and Computer skills are some of the areas that require bolstering.

The Respondents were also requested to provide views on their feeling concerning use of ICT to solve crimes. A great number felt that officers with ICT skills work better, whereby 52.3% fully supported that ICT use improves performance, 20.5% supported to a great extent, 15.9% supported to some extent, while very limited and those who never supported were at 6.8% and 4.4% respectively. The bar graph below illustrates

Officers with ICT skills work better

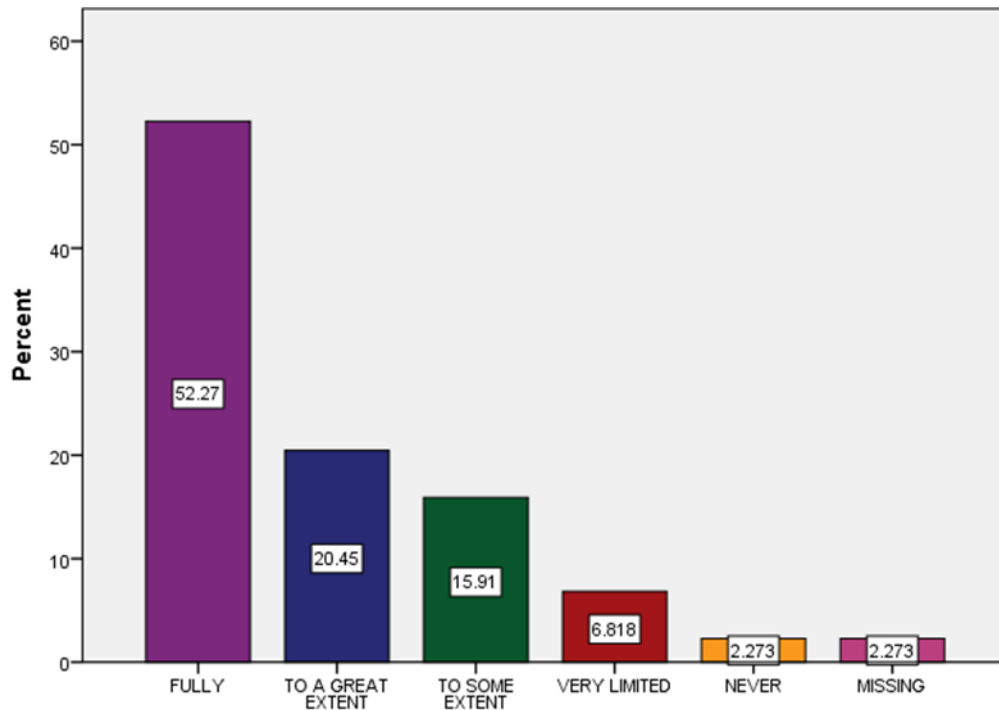


Figure 4.7 Officers with ICT skills work better

Another senior officer asked whether officers with ICT skills work better said that;

“With introduction of ICT even in secondary schools, there is a clear indication that ICT can only be embraced by everyone because it is here to stay. Officers have been great beneficiaries of ICT and with the Digitization of Occurrence books and other police records, all officers require ICT like yesterday. It is therefore necessary that by all means police officers learn ICT”.

And, as shown by the work of (Davis et al 1989), a powerful determinant of whether computer systems are used is "perceived usefulness." This means that the officers have the right attitude and are ready to deliver if provided with adequate ICT.

The researcher sought to know to what extent the police officers investigating crimes use ICT in performing their duties. There were 63.6% of the respondents who felt that they have not been fully using ICT, 11.4% felt that they have utilized ICT to a great

extent, 13.6% felt that to some extent they have utilized ICT, while 6.8% and 4.5% settled on very limited and never respectively.

Table 4.8 Practice in relation to ICT use

Indicator	Frequency	Percentage
Practice in relation to ICT use		
Fully	28	63.6
To a great extent	5	11.4
To some extent	6	13.6
Very limited	1	2.3
Never	4	9.1
Total	44	100.0

Source: Field data 2019

One senior officer who was asked to what extent the organization has utilized ICT said that

“Since the days of colonization, the police utilized manual systems of operation. All police records have been manual and the organization remained comfortable until recently when the government focused into police reforms. These reforms did not only touch on equipment’s but also human capital development. The syllabus was reviewed to address emerging issues in crime hence inclusion of courses like cybercrime. Introduction of the Integrated Communication and Command Centre lead to more officers getting trained on ICT to operate the equipment’s and gadgets”.

This agrees with (U.S Department of Justice 2014) who says that since computers have proved to be useful tools in police work, we need to increase their use to an advanced professional standard by offering focused training programs.

4.5 Legal procedures influencing use of modern technology

The study further sought information to what extent various legal procedures affect the processing of criminal cases using modern technology. The Kenya Constitution protects citizens from arbitrary arrests and search of persons, home and property

without a warrant. To obtain a search warrant the investigating officer has to swear an affidavit before a magistrate and the process consumes time. The researcher sought to know to what extent the searching of person or property with a warrant affects investigations. 40.9% of the respondents fully agreed that the procedure has an effect on investigations, 25.0% agreed that the procedure will affect the investigations to a great extent, 11.4% agreed that the procedure will affect the investigations to some extent, 9.1% agreed that the procedure will affect the investigations to some extent, 9.1% felt that the procedure will not affect the investigations, 6.8% felt that the procedure will never affect the investigations while another 6.8% did not respond.

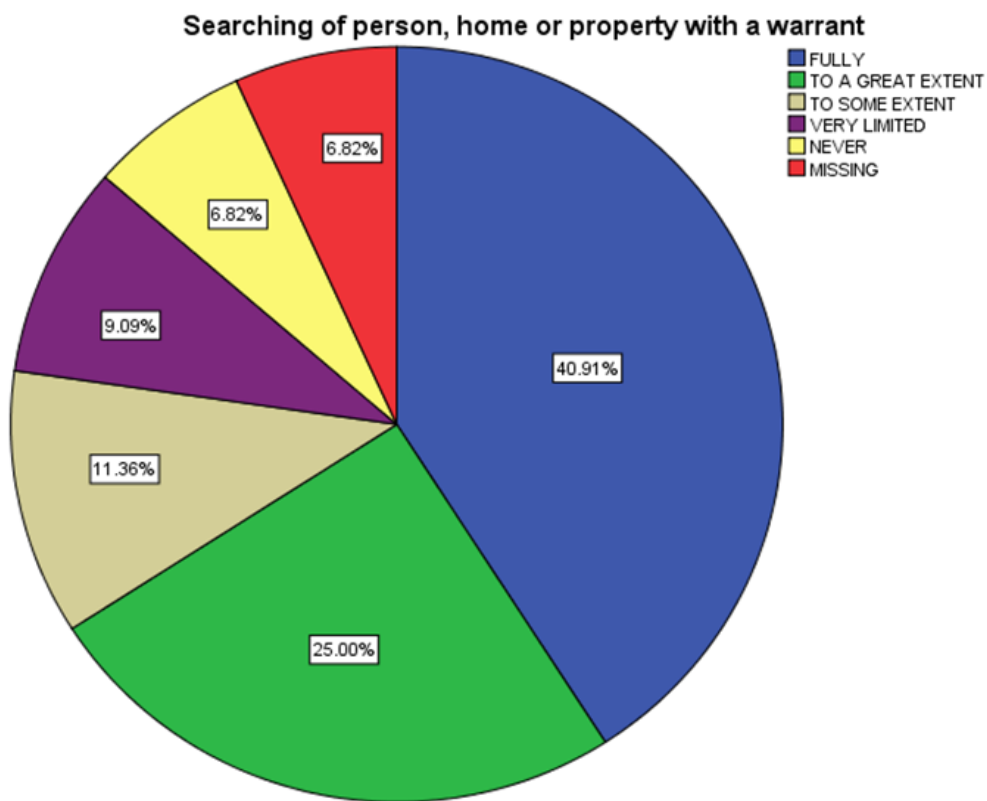


Figure 4.8 Search of person, home or property with a warrant

One officer who was asked whether searching of a person, home or property with a warrant affects investigations said that

“Nowadays investigators have a hard time searching for evidence because the process involved gives room for the suspect to hide or destroy evidence such

that by the time a warrant is obtained from the courts there is no evidence available”.

This state of affairs is corroborated by (Rawal 2005) who says that in Kenya, the Kenya constitution chapter four, article 31 provides that every person has a basic and fundamental right to privacy, meaning that a person has a right not to have themselves, their homes or their property searched for whatever reason and also to have their possessions seized and at the same time to have the infringement of their communication privacy. This may make investigations difficult in search for evidence. The researcher also engaged respondents to find out to what extent the rule that a suspect must be presented before a court of law within 24 hours affects the quality of investigations to be conducted bearing in mind that some crimes have been committed using modern technology and others require analysis using modern technology. 34.1% of the respondents settled for the rule fully affects, 45.5% chose to a great extent, 11.4% settled for some extent, 9.1% chose very limited. Table 4.9 below illustrates.

Table 4.9 24-hour rule of presenting prisoners to court use

Indicator	Frequency	Percentage
24 hour rule of presenting prisoners to court		
Fully	15	34.1
To a great extent	20	45.4
To some extent	5	11.4
Very limited	4	9.1
Total	44	100.0

Source: Field data 2019

One of the senior officers asked if the 24hr rule of presenting prisoners to court affect investigations said that;

“Depending on the complexity of a case presenting a suspect in court before 24hours are over affects investigations because it is not usually guaranteed that the number of days the court will give will still be enough for the investigations”

This agrees with (Rawal 2005) who says that According to Section 49(f) of the Kenya constitution, an arrested person is expected to be arraigned in a court as the soonest possible but it should not be later than 24 hours after arrest and if 24 hours elapses due to the fact that it's not an ordinary court day like weekend or public holiday the next court day he/she should be presented in court. Some crimes become hard to investigate depending on the circumstances surrounding the commission of the crime.

The researcher also wanted to know whether respondents fear being sued when a suspect is acquitted by a court leading to loss of government funds through compensation or to face administrative action a situation that generally affects investigation of crimes. From the data collected, 40.9% of respondents fully agreed, 18.2% agreed to a great extent, 11.4% agreed to some extent, 15.9% settled for very limited, 9.1% chose never and 4.6% did not respond. The pie chart below illustrates;

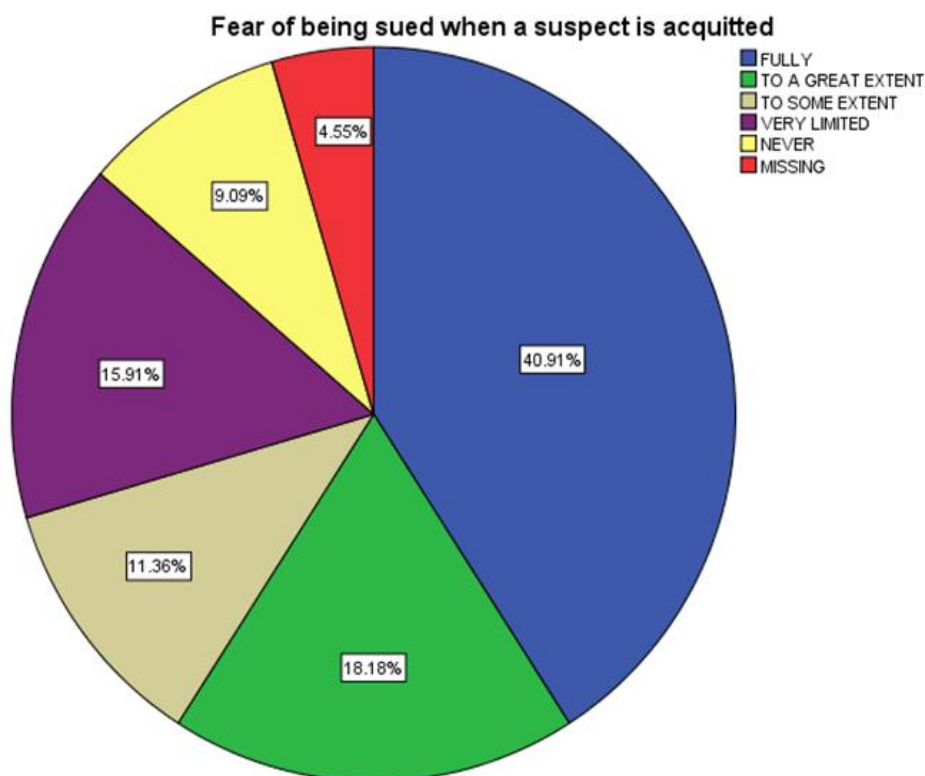


Figure 4.9 Fear of being sued when a suspect is acquitted

One of the senior officers asked whether fear of being sued when a suspect is acquitted affect investigations said that;

“A senior officer interviewed said that ‘although the mechanism is effective in reducing bungling of investigations and lack of seriousness when conducting investigation, officers sometimes drag their feet and they will avoid cases that don’t look explicit’ Depending on the complexity of a case presenting a suspect in court before 24hours are over affects investigations because it is not usually guaranteed that the number of days the court will give will still be enough for the investigations”

This agrees with (Oluwafemi 2011) who said that sometimes after determination of a case, the investigator may end up losing the case due to technicalities and the state is sued for damages leading to unprecedented loses of government finances.

Respondents were also asked whether the deterioration/delicateness of digital evidence affects the processing of criminal cases and ultimately the outcome of the investigations. 52.3% of the respondents fully agreed, 22.7% agreed to a great extent, 15.9% agreed to some extent, 9.1% chose never. The table 4.10 illustrates.

Table 4.10 Deterioration/delicateness of digital evidence

Indicator	Frequency	Percentage
Deterioration/delicateness of digital evidence		
Fully	23	52.3
To a great extent	10	22.7
To some extent	7	15.9
Very limited	4	9.1
Total	44	100.0

One of the senior officers asked if deterioration/delicateness of digital evidence affect investigations said that

“Digital evidence is delicate and any time we mishandle it, room is created to raise technicalities that end up making the cases lost in court.

This is in agreement with a report from National Institute of Justice (U.S. Department of Justice 2007) which says that special precautions should be taken when documenting, collecting, preserving, and examining digital evidence. Failure to do so may render it unusable, result in an inaccurate conclusion, or affect its admissibility or persuasiveness. The fact that digital evidence is delicate and it sometimes deteriorates might be another challenge that makes officers in Nyeri Central Police Division not successfully conclude cases.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter therefore presents a summary of findings, conclusions and recommendations as well as providing areas of further research.

5.2 Summary of Findings

This study first sought to know the technological advancements in criminal investigations the respondents have been exposed to and their application in their day to day work. The findings indicate that majority of the respondents are aware of various technological advancements used in Kenya and the implications of using them. Majority of respondents are aware that communication with higher levels of command has greatly improved with the introduction of ICT and that peer officers have related well when modern communication is embraced. Majority of respondents also feel that when samples taken from people and crime scenes are subjected to DNA sampling, the results become more accurate and it becomes easy to link people and crimes. More so, analysis of hidden prints in a crime scene, use of Thru Vision, CCTV cameras, digital & image analyzing tools during investigations also increases the solvability of crimes. The largest number of respondents also felt that officers using modern technology are better investigators and that for investigations to yield better results there is need to provide adequate resources to the investigators.

The study sought to know Knowledge, Attitude and Practice in relation to modern technology in ICT. Majority of the respondents said that police officers are not adequately knowledgeable on matters ICT. There is little time set aside to train officers on ICT in all courses that are offered in police training institutions. Due to the fact that

the entry grade during recruitment is a D+ in KCSE, those with low grades have not been embracing it because the police records have been managed manually all through. Those with high grades have privately enrolled in tertiary institutions offering IT courses and the government has sponsored others. Such officers are the ones currently working in offices that are fully operationalized in matters ICT. With reference to the attitude of criminal investigators towards ICT, the respondents felt that ICT makes work easier for an investigator. Majority of them said that with the introduction of ICT in all learning levels, the police cannot also avoid the same. To address the issue of practice, many respondents said that the police have started embracing reforms and since the time the government started improving their conditions of service as per the recommendations of Philip Ransley report, (Ransley, 2009) there is great improvement in terms of use of ICT. This is due to the fact that the modernization plans currently being implemented and the equipment's being procured demand that officers must be conversant with ICT.

In line with the third objective of the research, the study sought to know from the respondents the legal procedures influencing use of modern technology in criminal investigations. The majority of the respondents felt that investigators have to be extra careful when taking on investigations for fear of being sued in case a conviction is not sustained. They also felt that the procedures involved in handling of exhibits and the delicateness of the same influence the investigations. Despite the complexity in an investigation, majority of the respondents felt that the requirement of production in a court of law of a suspect before 24 hours elapse also affects how an investigation is handled.

5.3 Conclusion

Modern technology plays a big role in ensuring that investigations are efficient and effective. The National Police Service plays a key role in ensuring that police officers are provided with adequate resources to perform their tasks. In Nyeri County, Criminal Investigators are exposed to modern technological equipment's and techniques that they use to investigate crimes. These range from DNA analysis, latent prints analysis, CCTV cameras, Digital and image analysis, Digital cameras and ICT. Police officers are aware of the importance of these modern technological equipment's and the implications of employing them in investigations. There is however a feeling that they are not adequate and if such services were devolved, investigations would be handled more efficiently and effectively.

Investigators are also knowledgeable on ICT although not much has been done to train them on the same. Due to the entry level in grades during recruitment, some do not bother to acquire extra knowledge on the same while others pursue those careers and become very instrumental in the use of ICT in the organization. Investigators are aware that ICT is good and very useful to obtain good results in investigations. They have used ICT for communication within ranks and between peers making it easy to pass information from one officer to another on official and private matters. Where a crime requires analysis they have embraced the available modern technology to investigate crimes. There is a general feeling that the organization has not done enough training on ICT among its members and provision of utilities is not adequate. This predicament might be one of the reasons why investigators have not been very efficient and effective in performance of duty.

Criminal Investigators in Nyeri have not been spared by various legal procedures in their operations leading to sometimes taking more time to make a decision on whether

to prosecute on not. This has in turn affected the quality of evidence acquired like exhibits whose value deteriorates as time goes by. In other situations, evidence is interfered with by suspects as investigators rush to court to obtain warrants that will allow them get access into homes or properties that are believed to contain evidence. Once a suspect becomes aware that their homes or property are targeted for investigation, they seek intervention from the high and mighty and others go to court and acquire anticipatory bails making it hard to pursue the suspects. The evidence is moved or destroyed as investigators grapple with legal procedures. This situation might have also been one of the reasons why investigators in Nyeri County have not been effective and efficient in performance of duty.

5.4 Recommendation

On the strength of the findings of the study this study makes the following recommendations:

- a) The government hastens the process of equipping the forensic laboratory and acquires more items to devolve some equipment's to the counties to make access easy hence efficiency is achieved more so the National Police Service to hasten the process of digitizing the police records to make it easy to obtain previous records easily and also minimize paperwork.
- b) All courses offered in police institutions to include a greater content on ICT and specialized courses sponsored by government on ICT to be increased too. Officers conducting investigation to be specially trained and those with greater intellectual capacities to be deployed on those fields
- c) All officers to have thorough training on legal processes and procedures that apply in investigations and where possible seek amendment of laws that impede the attainment of justice for victims of crimes

5.5 Areas of Further Research

1. The study recommends that further research should be done on predictive policing on crime prevention that involves technology
2. Further research could be carried out on technological applications on reduction of sexual harassment in police institutions.

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APPENDICES

APPENDIX I: RESEARCH WORK PLAN

Activities	Duration in months				
	June	July	September	February	May
1.proposal preparation and presentation					
2.defense, pilot testing and revision of questionnaire					
3.data collection					
4.data coding, editing, analysis and report writing					
5.report presentation, binding and final submission					

APPENDIX II: RESEARCH BUDGET

Items	Total cost (Kshs)
1. Proposal	
Stationeries	1000
Transportation	5,000
Proof reading	1,500
Typing of research work	4,000
Reading from other Libraries	1,500
Sub-Total	13,000
2. Project	
Stationeries	5,500
Traveling	5,500
Typing the research work	6,000
Field work	15,000
Proof reading	4,000
Printing	3,500
Processing of Data, coding and entry	7,500
Analysis of Data	12,000
Communication costs like air time	5,500
Sub-Total	64,500
Grand Total	77,500

APPENDIX III: QUESTIONNAIRE COVER LETTER

Rosemary Karamuta

P.O. Box

397(00200)

Nairobi- Kenya.

Dear Respondent,

I am an MA student at Kenyatta University conducting a study on the *role of modern technology in enhancing performance of police officers investigating crimes in Nyeri Central Police Division, Nyeri County*. I therefore invite you to answer the attached questionnaire to the best of your knowledge to facilitate in the completion of this study.

I assure you that the information you will provide will be treated with strict confidentiality and your name will not be mentioned in this research.

Yours faithfully

Rosemary Karamuta

THANK YOU VERY MUCH FOR YOUR RESPONSES

APPENDIX IV: QUESTIONNAIRE FOR POLICE OFFICERS

SECTION A

This questionnaire is aimed at collecting data to help the researcher carry out an academic study on the *role of modern technology in enhancing performance of police officers investigating crimes in Nyeri Central Police Division, Nyeri County*. The results obtained from this study were solely to be used not for any other purpose but academic.

1. Gender

Male

Female

2. Age.....

3. Current work station.....

4. Length of service in the National Police?

5 years and below

6-15 years

16-25 years

Over 26 years

5. Kindly indicate your rank?

6. What is your highest level of Education?

Primary Level

Secondary Level

Diploma

Bachelors Degree

Others; (specify).....

7. Where did you undergo your initial training (please tick)

A-KPC

B-GSU

8. How many cases (crime reports) does your station receive in a day?

Cases	None	Below 20	21-50	51-100	Over 101
Tick					

9. How many cases (crime reports) have you successfully investigated in your current work station?

Cases	None	Below 20	21-50	51-100	Over 101
Tick					

PART 1; TECHNOLOGICAL ADVANCEMENTS IN CRIMINAL INVESTIGATIONS

To what extent do you agree or disagree with the following statements in enhancing performance of criminal investigations.

[1- Strongly agree 2- agree 3- neutral 4- disagree 5- strongly disagree]

- 1. ICT improves communication with higher levels of command staff 1 2 3 4 5
- 2. ICT improves relationships between officers of the same rank 1 2 3 4 5
- 3. It is important for officers have knowledge on ICT 1 2 3 4 5
- 4. Use of DNA analysis in investigations improves accuracy of results 1 2 3 4 5
- 5. Analysis of latent prints left at a scene improves solvability 1 2 3 4 5
- 6. Use of Thru Visions and CCTV cameras aids in investigations 1 2 3 4 5
- 7. Digital and image analysis tools are critical in investigations 1 2 3 4 5
- 8. Digital cameras can help obtain evidence during interrogations 1 2 3 4 5
- 9. Officers using modern technology are better investigators 1 2 3 4 5
- 10. Resources available to perform a task affects results 1 2 3 4 5

PART 2; KNOWLEDGE, ATTITUDE AND PRACTICE IN RELATION TO MODERN TECHNOLOGY

To what extent do you agree with the following statements regarding Knowledge, Attitude, and Practice of ICT in criminal investigations within your station area? (Please tick the numeral that best fits your choice)

[1-fully, 2- to a great extent, 3- to some extent, 4- very limited, 5- never]

- | | | | | | |
|---|---|---|---|---|---|
| 1. Not all officers have adequate knowledge on latest ICT | 1 | 2 | 3 | 4 | 5 |
| 2. Where ICT is involved investigators deliver easily | 1 | 2 | 3 | 4 | 5 |
| 3. When officers are provided with adequate ICT they work better | 1 | 2 | 3 | 4 | 5 |
| 4. My organization doesn't adequately use ICT | 1 | 2 | 3 | 4 | 5 |
| 5. Number of personnel available to do investigations affects performance | 1 | 2 | 3 | 4 | 5 |
| 6. Investigators should embrace ICT | 1 | 2 | 3 | 4 | 5 |
| 7. All investigators should do investigation courses | 1 | 2 | 3 | 4 | 5 |
| 8. Investigators seek more knowledge on ICT to appraise | 1 | 2 | 3 | 4 | 5 |
| 9. What my organization provides in ICT is inadequate | 1 | 2 | 3 | 4 | 5 |
| 10. Good investigators apply ICT when solving crimes | 1 | 2 | 3 | 4 | 5 |

PART 3; LEGAL PROCEDURES INFLUENCING USE OF MODERN TECHNOLOGY

To what extent do you think the following issues affect processing of criminal cases involving modern technology like digital evidence in your station area? (Please tick the numeral that best fits your choice)

[1-fully, 2- to a great extent, 3- to some extent, 4- very limited, 5- never]

- | | | | | | |
|---|---|---|---|---|---|
| 1. Searching of person, home or property with a warrant | 1 | 2 | 3 | 4 | 5 |
| 2. The twenty four hour rule of presenting prisoners to court | 1 | 2 | 3 | 4 | 5 |
| 3. Procedures available to manage exhibits | 1 | 2 | 3 | 4 | 5 |
| 4. Fear of being sued when a suspect is acquitted | 1 | 2 | 3 | 4 | 5 |
| 5. Mechanisms available to manage case files | 1 | 2 | 3 | 4 | 5 |
| 6. The right of the arrested person to remain silent | 1 | 2 | 3 | 4 | 5 |
| 7. Deterioration/ delicateness of digital evidence | 1 | 2 | 3 | 4 | 5 |

Highlight in order of importance issues you think should be addressed to enhance your performance a criminal investigation officer.

.....

.....

.....

.....

THANK YOU VERY MUCH FOR YOUR RESPONSES

APPENDIX V: SENIOR OFFICERS INTERVIEW SCHEDULE

SECTION A

This questionnaire is aimed at collecting data to help the researcher carry out an academic study on the *Role of modern technology in enhancing performance of police officers investigating crimes in Nyeri Central Police Division, Nyeri County*. The results obtained from this study were solely to be used not for any other purpose but academic.

Has the government provided modern technology to facilitate criminal investigations especially on use of DNA analysis?

Does analysis of latent prints left at a scene help in investigations?

Does use of Thru Vision and CCTV cameras aid in investigations?

How has use of digital and image analysis tools helped in investigations?

What are the advantages of using Digital cameras in interrogations?

Do resources available for investigations affect results of an investigation?

Are all officers in your command knowledgeable on ICT?

Do you think officers with ICT skills work better?

Do investigators in your command use ICT?

Does the provision to search of a person, home or property with a warrant affect results of an investigation?

Does the 24hr rule of presenting prisoners to court affect investigations?

Does fear of being sued when a suspect is acquitted affect investigations?

Does deterioration/delicateness of digital evidence affect investigations?

5. Have you attended any job training program since your deployed in your current position

6. Approximately how many Police officers are under your command?.....

7. Are there trained and competent criminal investigation officers under your command?

Yes No

8. Is the number enough for the operations in that docket?

Yes No

9. What issues do you think need to be ironed so as to enhance efficiency of the crimes department under your command?

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

10. What would you consider as your strengths in the investigation department under your command? List in order

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

11. What is the greatest hurdle to the achievement of efficiency and efficacy in the crimes department under your command?.....

.....
.....

12. A. As a manager, do you use Information Technology to monitor daily activities at your work station?

Yes No

B. If the answer for the above is yes, enumerate few areas where you have successfully employed ICT?

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

C. Would you consider what the organization provides in terms of ICT adequate?

13. Briefly comment on how use of modern technology like DNA sampling, CCTV cameras, latent prints mining, Thru Vision, digital and image analysis tools etc have helped you in performance of duty.....

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

What best practices in the use of modern technological mechanisms can be employed to enhance the efficiency and effectiveness of officers investigating crimes in your area of jurisdiction

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

Thank you

APPENDIX VI: RESEARCH PERMIT

THIS IS TO CERTIFY THAT:
MS. ROSEMARY KARAMUTA
of KENYATTA UNIVERSITY, 0-200
Nairobi, has been permitted to conduct
research in Nyeri County

on the topic: ROLE OF MODERN
TECHNOLOGY IN ENHANCING
PERFORMANCE OF POLICE OFFICERS
INVESTIGATING CRIMES: CASE OF NYERI
COUNTY, KENYA

for the period ending:
6th June,2020

Permit No : NACOSTI/P/19/77288/30874
Date Of Issue : 7th June,2019
Fee Recieved :Ksh 1000



[Signature]
Applicant's
Signature

[Signature]
Director General
National Commission for Science,
Technology & Innovation