APPLICATION OF MOBILE PHONE IN CRIME PREVENTION WITHIN CENTRAL DIVISION, NAIROBI CITY COUNTY

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DECLARATION

This research report 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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This report has been submitted to graduate school for registration with my approval as university supervisor.

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DEDICATION

I dedicate this research report to all my colleagues in National Police Service in Kenya and the general public. To my lovely cherished Ann Wanjiru wife and to my children Charity, Chris and Allan for their relentless support and stand with me as I pursued my dream in acquiring Masters degree in my area of work with a view of broadening my strategic leadership and management skills in the security management.

ABSTRACT

The study sought to establish application of mobile phones applications by police officers in crime prevention in Central Police Division, Nairobi City County. Application of mobile phone in the police service is underutilized making the organization not to fully benefit from its usage. Understanding use of mobile phone applications by the police officers may assist the organization in crime prevention efforts. Due to its ability to engage consumers in a timely and direct manner at low costs, mobile phone applications are relevant for the police organization. The study was guided by the Mobile Technology Acceptance Model (M-TAM) as the success of the mobile phone implementation depends on perceived usefulness (PU) and perceived ease of use (PEOU).The targeted population in this study was police officers serving at Central Division of Nairobi County (782). A sample of 155 police officers was recruited using random stratified sampling procedure for this study. Questionnaires were used for data collection for both qualitative and quantitative data. Qualitative data was coded and analysed thematically after interpretation of theme while descriptive data was analysed using descriptive statistics by use of Statistical Package for Social Sciences (SPSS version 20.0). Mobile phone was found to be effective tool in prevention of crime in Nairobi Central. Mobile phone applications such as Facebook, Whatsapp, Twitter, emails and short text messages were found through adapted technology acceptance model (TAM) as to effectively contribute to crime prevention based on respondents' perspective. Police effort to use mobile technology was found to have significant effects on crime prevention. Based on these findings, the study recommends development of customised police mobile phone applications and enhancement of applications use through capacity building among police officers.

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LIST OF ACRONYMS AND ABBREVIATIONS

ASP/SP/SSP	Assistant superintendent/superintendent/Senior Superintendent of Police
CCTV	Closed Circuit Television
CI	Chief Inspector
CPL	Corporal
D.C.I.O	Divisional Criminal Investigation Officer
DCI	Director Criminal Investigation
DNA	Deoxyribonucleic Acid
DOI	Diffusion of innovation theory
ICT	Information Communication Technology
IP	Inspector
IT	Information Technology
OCPD	Officer Commanding Police Division
OCS	Officer Commanding Station
PC	Police Constable
S/SGT	Sergeant/Senior Sergeant
TAM	Technology acceptance model
PEOU	Perceived ease of use

PU	Perceived usefulness
SPSS	Statistical Package for social science
UTAUT	Unified Theory of Acceptance and Use of Theory

OPERATIONAL DEFINITION OF TERMS

Term	**Definition**
Crime	It is an act or omission constituting an offence. It is one of the very many elements of security of an individual, groups and nation where law enforcement agencies and citizens interest must be enhanced through co-operation, partnership and supporting each other to reduce its opportunity of occurrence.
Crime prevention	It is any activity by an individual or group, public or private, which attempts to eliminate or reduce crime prior to it occurring or before any additional activity results.
Social media	it is a computer-mediated technologies that facilitate the creation and sharing of information, ideas, career interests and other forms of expression via virtual communities and networks.
Mobile phone	It is a portable telephone that can make and receive calls over a radio frequency link while the user is moving within a telephone service area.
An **individual attitude**	It is an individual's positive or negative feelings (evaluative affect) about performing the target behaviour.
Perceived usefulness	It the degree a person or user believes that using a specific application system will increase his or her job performance within an organization context.
Perceived ease of use	It is the degree a person believes that using target system would be free of effort. It determines the user acceptance of particular information system.

Subjective norm	It is the degree in which the person's perception that people who are important to him/her think he/she should or should not perform the behaviour in question.
Subjective norm	It is the degree in which the person's perception that people who are important to him/her think he/she should or should not perform the behaviour in question.
Management styles	These are characteristics ways of making decisions and relating to subordinates. They also constitute to the officer level of information on mobile phone application use, involvement, health and safety.

CHAPTER ONE

INTRODUCTION

Background to the Study

Mobile phone today is an enveloping and pervasive tool that has become so important piece of a human being in their daily life that promotes the freedom of communication. It is changing people's life from being a mere 'technological object' to a key 'social object' Srivastava, (2005). The mobile phone is expanding at a very alarming rate, and the mobile devices are increasingly being personalized in nature by the manufacturer to befit their client status taste and preferences. The mobile phones have diversely affected the human behaviour; identity and their social interaction including their social life.

Over the last decades, rapid technological changes have occurred in the security and policing sector. Koper, Lum, Hibdon (2014) observed that the information technology (IT) has brought important development in mobile phone, video surveillance systems, license plates readers, De-oxy Ribonucleic Acid (DNA) testing, Closed Circuit Television (CCTV), among others which have far reaching effects on police agencies. It is also paramount to note that the law enforcement agencies are spending large sums on technology in view of enhancing their efficiency and effectiveness.

This is because fighting crime all over the world continues to pose great challenge to law enforcement officers in the recent years (Quarshie, 2014). Law enforcement officers in developed countries e.g. United States of America, United Kingdom, Jamaica, Sweden, among others have adopted the information communication technology (ICT) in crime prevention as a strategy and fully taken the benefits of the ICT tools in fighting crime. These tools are CCTV technology, tracking technology, social media and mobile phone among others.

The mobile technology by the police in policing has been revolutionized by the advancement of ICT. The technology has had positive impact on policing and knowledge sharing (Lindsay, Cooke, Jackson, 2009). It must be borne in mind the modern crimes basically are borderless and use of technology in policing in addition to traditional policing practices are inevitable thus should be borderless as well.

In Sweden, the use of mobile phone applications such as social media (Twitter, Face book) as a tool for community policing allows residents to engage in daily police work. This technology has spread from large cities to police forces in rural areas and has been used by citizens as a way to share local information about their safety with law enforcement agencies (Ceccato & Dolmen, 2013).

In South Africa, Dlodlo (2015), observed that, the police major tasks was to reduce crime levels on year to year basis. In pursuance to this, they have used internet in ensuring community safety and to facilitate the process of finding solutions to crime.

In Kenya, according to the National Police Service Act 2011, the National Police Service is mandated to provide assistance to the public in need, maintenance of law and order, preserve peace, protect life and property, investigate of crimes, collection of intelligence, prevention and detection of crime, apprehension of offenders, enforcement of all laws and regulations with which it is charged and perform any other duties that may be prescribed to them by any other law. A report on National Task Force on Police Reforms (2009) singled out failures to adopt new technologies by the Kenyan Police Services as part of their institution limitations. The services lacked basic ICT knowledge and skills, equipment and infrastructure and that there was lack of an effective electronic network and communication system which connects police stations. This undermines the ability of the police to use simple and cheap communication systems for policing purposes. The police were not able to key in and

preserve crucial information and data that would ordinarily help them not only track criminals but also to inform them on crime patterns or trends as well as assisting in case management.

Nairobi over the last 5-10 years has experienced rapid advancement in the use of mobile technology and it is today considered a leading hub for ICT innovation in Africa (Frilander, Lundine, Kutalek, & Likaka, 2014). While the ICT adoption by Kenyan society has been rapid, the Kenyan police department has not systematically incorporated the ICT into their operations and tend to rely on face to face communication and sometimes radio. Individual police officers do own mobile phones, which form an integral part of their daily engagement with the public. The importance of expanding the ICT use as part of reforms started in 2009 although not prioritised due to resource limitations.

National Police Service 2014 annual report, 69,736 criminal cases were reported in which it was a decrease of 2,456 cases or 3% as compared to 2013 which recorded 71,832 cases. In 2013, the overall crime recorded was a decrease of 6,020 cases or less 7.7% from 77,852 cases reported in the year 2012. The use of mobile phone by police officers in fighting crime remains unknown although mobile technology is believed to have an influence in it which need to be ascertained. These individually owned mobile phones by police are fit to access to all form of mobile applications and social network site.

The opportunities the mobile phone offers in the 21st Century need to be tapped and enhanced to boost the police in information sharing and policing. It is prudent to explore on elements that affect the police officers acceptance on the mobile phone in fight against crime in order to realise the benefits on the said tool. This study investigated the use of mobile phones on crime prevention by police officers. The perceived ease of use and perceived usefulness elements of mobile phone applications of M-TAM guided the study on individual

police officers efforts in crime prevention in Kenya Police Service and Directorate of Criminal Investigation in Central Division, Nairobi City County.

1.2 Statement of the Problem.

Crime is a challenge that impairs the general growth of nations, undermining the spiritual and material wellbeing. It also compromises human dignity while promoting a climate of fear and violence. From 18th century, various methods have been adopted to address crime and crime disorder. Many developed countries have led their countries to their current status by continuously controlling crime through all possible and applicable strategies including modern information communication technology. ICT especially mobile computing has been growing widely in its application in all sectors. Elsewhere police departments have in forefront in application of mobile application in crime reporting.

Studies show that the use of social media mobile applications in Kenya is high as well as applications in various sectors. For instance, Kenya ranks as the seventh when counting the number of Facebook users, having the most users in East Africa (Internet world stats, 2012a). In addition to Facebook, also the usage of Twitter is growing. According to Portland (2014), Nairobi is "the most active city in East Africa and the sixth most active on the continent" when it comes to tweets. Indeed, Kenya has been described to be the leading country regarding technology adaptation and recent studies have suggested that it is showing the way also in terms of social media use (Macharia, 2015). As this application gets their applicability in wide range of areas of human life, it is not clear how these applications have revolutionized the police service in sharing of criminal related information with colleagues.

Modernization of the service continues to get keen government focus in effort to address the insecurity in the country. This modernization entails adoption of information technology in crime prevention approaches which has so far not made the Kenya society free from danger

and fear as envisioned by our development blueprint of Vision 2030 thereby creating a gap which ought to be filled (Kenya Vision 2030 Research Team, 2007). The study made application of technological acceptance models (TAM) explore how police officers' in this geographical locale are influenced by the mobile phone in crime prevention. Though, the application of social media application may have wide applicability in crime prevention among the police, the use of mobile phone application in crime prevention still remains unclear especially in Kenya. This study examined how the use of mobile phone technology by the Central police division in Nairobi has influenced crime prevention.

1.3. The purpose of the study.

The purpose of this study is to investigate application of mobile phone use by the police officers on crime prevention in policing in Central Police Division, Nairobi.

1.4. Objectives of the study.

i) To establish the extent in which the police officers recognize ease of use of mobile phone in crime prevention.

ii) To determine the factors that strongly influences police officers intent to use mobile phone in crime prevention.

iii) To assess the extent police officers are influenced by personal norms on use of mobile phone in crime prevention.

iv) To determine the factors that affect implementation on use of mobile phone in crime prevention.

1.5 Research Questions.

i) In what extent do the police officers easily recognize the use of mobile phone in crime prevention?

ii) What are the factors that influence police officers intends to use mobile phone in crime prevention?

iii) In which ways are the police officers influenced by personal norms on use of mobile phone in crime prevention?

iv) What factors affect the use of mobile phone implementation in crime prevention?

1.6 Justification and Significance of the Study

Mobile technology is transforming policing in fundamental respects. New and emerging mobile technologies are playing increasing crucial role in the daily work of frontline police officers, equipping them with enforcement and investigative tools that have the potential to make them better informed and more effective. It facilitates closer and more collaborative relationships between law enforcement and the community.

This study was important as it sought to explore a very pertinent human aspect that touched on their perception, intent and behaviour towards the use of the mobile phone in effort to enhance their use, efficiency and overarching their productivity. The knowledge acquired in this study do inform the National police service on police officers of importance and intentions over the usage of mobile phone in crime prevention approaches and assist in making decision that address the issues learnt. The study also adds to the little and known literature that exists on police officers use of mobile phone in crime prevention policing matters.

The Government and policy makers may also use the findings from this research to formulate and develop a framework that would help in the improvement of security in Kenya. The policies and regulation may contribute to the security personnel's training and possible workshops to improve community police capacity to use mobile application in crime prevention.

Finally, the results of the study contribute towards filling the information gap on the subject matter. The findings of the study make beneficial additions to the literature in the field of technology in crime prevention.

1.7 Scope of the Study.

The geographical scope of the study was conducted in Central Police Division within Nairobi City County. It explored 1- 20 year police experience period running between 1996 and 2016 since the mobile phone use started mid 1990's. The respondent were serving police officers involved directly and indirectly in crime prevention approaches including administrative and leadership roles at Central Nairobi police division. The study focused on mobile phones applications categories on group communication and social media through short text messages, WhatsApp, face book, twitter, and e mail etc. The variables under study were police officers perceived ease of use, perceived usefulness, subjective norms influencing them on use of mobile phone as independent variables and their relation in crime prevention being the dependent variable.

1.8 Limitations of the study

i) The police officers individually had diverse noticeable capacity and ability in mobile phone usage in crime prevention due to different factors such as experience, training, exposure, etc.

ii) The police officers individually had limits in their action on use of mobile phone in crime prevention due to different individual intrinsic motivation levels.

iii) The police officers use of mobile phone in crime prevention is influenced by personal norms which were beyond the scope of this study.

iv) The police officers adoption in use of mobile phone in crime prevention is affected by implementation context of diverse management approaches.

1.9 Assumptions of the study.

i) It was assumed the police officers are easily influenced to use mobile phone in crime prevention by both internal and external factors.

ii) It was also assumed that police officers apparent use of mobile phone in crime prevention was influenced by performance factors.

iii) It was also assumed that police officers intent to use mobile phone was influenced by personal norm.

iv) It was also assumed the police officers adoption in use of mobile phone in crime prevention was affected by implementation context of diverse management approaches

v) The research assumed the respondents were likely to be affected by the problem of recall bias.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents literature review, theoretical model on mobile technology use by the police officers, other players in business and service oriented institutions. Mobile technology comprise applications in social network sites which includes voice calls, text, emails, tracking devices and other social media platforms. Mobile technology is one form of information communication technology (ICT) which is newly adopted and used by the police organization in all aspects of crime prevention. These may be useful tools in crime prevention if police officers perception and behaviour is intrinsically motivated toward adopting it in crime prevention. The literature is based on police institutions and organization that applied Mobile Technology Acceptance Models (M-TAM) in their adopted technologies and their findings on the perceived usefulness (PU), perceived ease of use (PEOU) in relation to their individual perception and behaviour. The chapter explore how the M-TAM influenced the police officers on the usage of mobile phone applications in their core mandate of maintenance of law and order.

2.1 Information Technology Use in Social Life and Crime Prevention

Ariffin, Solemon, Bakar, (2014) observed that information communication technology (ICT) technological revolution has involuntarily changed the way people share and disseminate information. Today, information sharing has been made possible globally. People are empowered to contribute skills, knowledge and expertise regardless of their physical location. People's role has now shifted from being solely information consumers to both information consumers and producers as mobile devices get more affordable to many. The number of smartphone owners is also tremendously increasing and it's greatly expected by 2018, 2.83

billion people in the world will own and use the smart phones according to a study by eMarketer.com. The increasing number of mobile phone in the market has helped in expediting information dissemination among the crowd include crime reporting. Ariffin (2014) noted that few studies in Latin and Brazil had shown that mobile application does help in reducing the number of crime violence in the local area.

IT adoption is a process whereby a new technology in an organization is introduced to enhance its productivity and services as observed by Bouw man, Van Den, Van De Wijngaert (2005). The information technology (IT) adoption in the institution has its own challenges based on the two levels of individual user and the organization context which are difficult to fully understand due to its complicity and uncertainty as stated by Jokonya, (2015). These two stages processes occur when the organization management has fully embraced the technology use and individual users' has decided to use that technology in its service delivery. The police officers in this study are the technology user' and their decision in using this technology is pertinent in realizing the full potential in crime prevention at their operational level. According to Bouwman, et al (2005), IT adoption in a given organization is also affected by its size, structure and culture. Individual user demographic factors affect IT adoption are age, gender, department, position, education, involvement in IT adoption and the number of years served in the organization.

Sago, (2013) noted that social media has become an important venue for marketers to reach their audiences. Understanding factors that influence the adoption and frequency of use of social media services can assist marketers in selecting the social media to use and how to best structure their social media content. The study examined factors impacting the adoption and frequency of use of various social media services –: Facebook, Twitter and Google+ – among undergraduate university students 18 to 23 years old. The study found there was positive

relationship between frequency of use of social media and its perceived usefulness, enjoyment, and perceived ease of use.

Few studies on police officers perceived use of this mobile phone applications in crime prevention exist in developed countries and therefore based on the dynamism the technology is expanding in our social sphere there is need to focus on the police officers perception and behaviour in the developing countries rapidly adopting the mobile phones in order to inform and benefit them in areas of decision making in different ranks of police service.

2.2 Mobile Technology Use by Police and Other Disciplines

Many scholars have studied on use of mobile technology by police in most countries in the world and this study has reviewed some empirical studies as follows:

Lindsay,*et al* (2009) did investigate the impact of mobile technology on a UK police force and their knowledge on sharing processes. Ethnographic approach to the research was adopted, using a mixed method approach of focus groups, questionnaires, observational 'work shadowing' and interviews with a total of 42 staff involved in a trial of mobile technology. Findings from all methods were consistent and suggested that mobile technology has a positive impact on policing and knowledge sharing. There was a positive impact on knowledge sharing in the course of operational duties. Information and knowledge could be shared more quickly with officers in the field; and mobile technology provided a new avenue for keeping each other up to date with events. This study focused on the mobile technology and specifically on use of mobile data terminal solutions on policing and not in perceived ease of use of the mobile phones by the police in which this study investigated in Kenya.

Recent technological advances have much potential for improving police performance, but there has been little research testing whether they have made police more effective in reducing crime in USA. According to Koper et al (2015), they studied the uses and crime control impacts of mobile computing technology in the context of geographically focused

"hot spots" patrols. An experiment was conducted using 18 crime hot spots in a suburban jurisdiction. Nine of these locations were randomly selected to receive additional patrols over 11 weeks. The researchers studied officers' use of mobile information technology (IT) during the patrols using activity logs and interviews. Nonrandomized subgroup and multivariate analyses were employed to determine if and how the effects of the patrols varied based on these patterns. This study focused on police officers from US, it was found that mobile information technology may have little if any measurable impact on officers' ability to reduce crime in the field. It emphasized on greater training and emphasis on strategic uses of IT for problem-solving and crime prevention, and greater attention to its behavioural effects on officers which might enhance its application for crime reduction. Both technology and human factors affect and transform one another in their performance. This study assessed how Kenya police officers used the mobile phone in solving its crime prevention problem.

Sago (2013) conducted research and examined factors impacting the adoption and frequency of use of various social media services (Facebook, Twitter and Google+) among undergraduate university students 18 to 23 years old. Self-administered questionnaires yielded 195 completed surveys by traditional age undergraduate university students. The researcher used technology acceptance model and studied perceived ease of use, enjoyment, perceived usefulness, social media adoption and frequency of use as variables. The research findings included the positive relationship between frequency of use of social media and its ease of use, enjoyment, and perceived usefulness.

Opportunities for further research include continued study of social media adoption and use by other age groups across the United States and in other countries. In addition, an opportunity existed for research of adoption and uses of more niche/specialized social media services which this study sought to explore in the police service institution. This confirmed social media offers an organization's the opportunity to engage with it customers in new

ways. Enhanced engagement between customers and businesses increases the chances that customers will become more involved with the company and its brands (Smith & Zook, 2011). The police organization as a public service can engage their clients through social media platform in a timely and direct manner with relative low costs as noted by Kaplan and Haenlein, (2010). Smith and Zook, (2011) also noted that social media is important because it lets customers communicate with each other and organizations communicate (two-way) with customers.

Dhume, *et al*, (2012) studied on adoption of Social Media by Business Education Students by application of Technology Acceptance Model (TAM). They believed that new communication platform such as social networking sites like Face Book and Twitter could be used to facilitate superior education. They studied the adoption of newer technology of Social Networking amongst the business students at NITIE, Mumbai (a premier MBA level B School in India). The study was carried out using on-line survey research amongst 145 students of MBA. The major findings of the study centred on the relationship between independent variables (Perceived Ease of Use, Perceived Usefulness), Intervening Variable (Attitude) on Dependent Variable (Intention to Use). The study findings implied that, by understanding Technology Adoption process in the background, the Practitioner can design effective strategies for promotion, diffusion and acceptance of these powerful technologies, which have the potential to enhance the effectiveness of learning and teaching process. These studies dealt on students and not the police officers who are required to serve the public. This study investigated how the mobile phone use by the police in Nairobi, Kenya influenced the crime prevention efforts.

Mobile phones use has provided an additional surveillance of the potential offenders which in essence has increased guardianship to the suitable targets of crime. They have increased the likelihood of punishment as the potential victim can easily contact guardianship assistance

and have evidence to identify the offender and subsequent arrest and be punished. Police personnel close proximity to the place of crime deters its commission but when the police are not visible the victim may incur cost trying to contact them. Many reports may fail to be shared with police due to delay in time and chances of offenders being arrested and being penalized were minimal and discouraged the victims. Mobile phones allow quicker reporting of crime and sometimes in real time communication of details about crime and criminal.

Kavanaugh, Fox, Sheetz, Yang, Shoemaker, Xie (2012) notes that, the environment where mobile phone are everywhere, the cost of reporting approaches zero opposing all the problems of delay experienced there before the use of mobile phones. Offenders perceived risks of apprehension was seen high when the victim is in possession of a mobile phone. Mobile phones lower the cost victims incur reporting crime. Mobile phone has improved the likelihood of photographic images transmission, apprehension, prosecution and conviction. The victims' phone provides the evidence by various forms which should influence on social behaviour. Lewis and Lewis (2011) noted that online interactions seem to influence offline thus the sharing among the police on the online platform is also able to enhance the sharing of knowledge. This is because technology has transformed the way information is being sought though practices and communication routines affects criminal and victim behaviours.

Lewis and Lewis, (2011) conducted digitalizing crime prevention theories on how technology affects victim and offenders behaviours. They studied the role that technology played in the lives of those that may commit crimes or be victimized by digitizing theories of crime prevention. They sought to understand how technologies influence the lives of both potential offenders and victims. They found examining technology influences information seeking practices and communication routines and predict criminal behaviours. They proposed modifications to the framework to increase their use in predicting criminal behaviour and practical application.

Mobile computing technology improves officers' access to real time data on crime and other events. It enhance timely deployment in the community, identify persons, vehicles, places and hence improves both reactive and proactive field work and officers ability to identify potential threats and risk, locate suspects in criminal investigation, problem solving capabilities and quality of information they may provide to the public, Consolvo, Klasnja, Mc Donald, Landay (2009).

The focus of the study was to assess how mobile phone use by police may reduce crime by identifying the potential offenders and recidivism. Mobile phone use technology as a tool may be a deterrent effort in identifying and intervening on known criminal offenders and reducing the opportunity to commit crime by improving police visibility and hardening the victim and the target.

Dlodlo, Mbecke, Mofolo, and Mhlanga (2015) research on internet of things in Community Safety and Crime Prevention for South Africa government is one of its major tasks of reducing crime levels on a year-to-year basis. It has used information and communications technologies (ICTs) to facilitate the process of finding solutions to crime. They used ICT subset named internet of things and integrated it with biometric technologies in the fight against crime. They identified community safety, partnership with the police and internet of things as tools of value in crime prevention.

Kumbuti (2013) conducted a study on Nairobi city Kenya police level of technology application in detecting crimes .the study found that technology has not been used to improve efficiencies in crime detection. She recommended technology be used as strategic management approach and be used as a tool in crime prevention and management. It never covered in particular the role the police do in utilizing the mobile phone to prevent crime. This study fill this gap by assess the use of application of mobile applications in crime prevention.

Quarshie (2014) studied Africa countries law enforcement officers' utilization on information communication technology (ICT) in fighting crime. He assessed the ICT tools available to them and noted that in contrast to developed countries, Africa has not fully taken ICT advantage in crime prevention. The study showed tools such as CCTV technology, tracking technology, social media and mobile phones are efficient in crime fighting at this time when rate of crime is challenging to the law enforcement officers due to communication and commercial activities taking place in the internet. The mobile phones can alert home owners on potential property crimes and automatically alert the police who may respond as crime is in progress. The study did not cover how Kenya police utilize their mobile phones in crime prevention which this study sought to ascertain.

Oduor, Acosta, Makhanu (2014) studied the adoption of Mobile Technology as a Tool for Situational Crime Prevention in Kenya. The study objective was to digitise police operations in Kenya and to develop a mobile application that the public can use to report criminal incidents to the police. This would aid the Kenyan public to report crimes to the nearest police station, receive alerts on new crime spot areas, query information about arrested individuals and encourage community policing. The study used participatory observation and desktop research on various crime reports. Several interviews were also carried out with the Kenya police. A web application prototype for recording crimes, crime mapping and report generation was developed and deployed to the police for testing. The mobile application was tested on different Android version to ascertain the compatibility level. The devices used for the testing included Samsung GT-S5570Mini Galaxy, Huawei Ideos, Techno Swipe, and Samsung Galaxy SIII. The devices run Android OS from version 2.1.A mobile application running on the Android platform was developed and given to specific group of mobile applications experts for testing. It found out the application of mobile technology in crime prevention in Kenya is still a new field. However, it noted there was need to train individual

police officers and public users on the usage of the application for its successful implementation. The study by Oduor (2014) didn't apply TAM and nor assess how police officers perceived and how they used the mobile devices available to them in crime prevention.

2.3 Theoretical Models

2.3.1Technology Acceptance Model

Technology Acceptance Model (TAM) is an Information Systems Theory which show computer based technology users comes to accept and use it. It was developed by Davis (1989) to explain computer usage behaviour. It suggest that if users are presented with a new software package there are a number of factors that will influence their decision on how and when they will use it. There exist other models that can be used also to predict and explain why users accept or reject an information system such as Diffusion of Innovations Theory, Concerns Based Adoption Model, and Social Influence Theory some of these theories and model apparently are complex in application than TAM. TAM is simple and robust enough as a model and useful to explain user' attitude and behaviour in social networking in crime prevention as noted by Dhume, *et al*, (2012). The individual decision to adopt and use technology is relevant to its usefulness in an organization. Its variation is based on adaptations of the theories of reasoned and planned behaviour to examine individual adoption of information technology. TAM elements are perceived usefulness and ease of use which have been found to be relevant in capturing its usage contexts as stated by Jokonya, (2015). The intent to use adopted information technology is a valid predictor of behaviour of the user.

Technology Acceptance Model by Davis (1989)

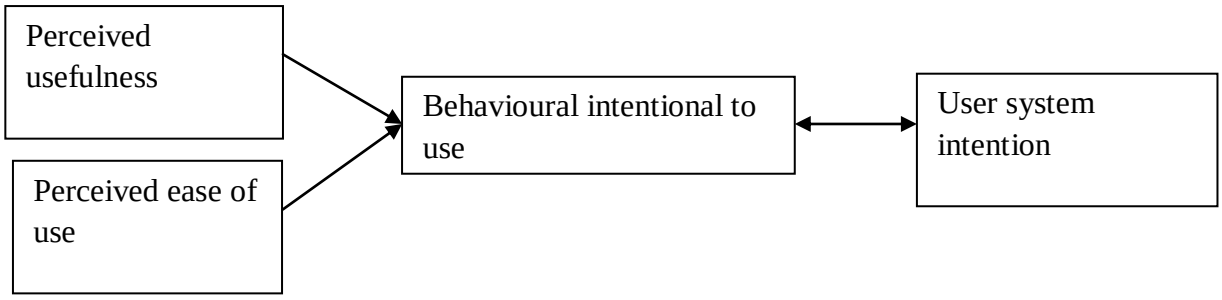

Figure 2. 1: Technology Acceptance Model by Davis (1989)

The variables under studies as studied by Chen, YI-ming, Bao jian (2009) were behavioural intention to use, Perceived usefulness, Perceived ease of use, Subjective norm, Perceived risk, perceived expense and job pressure.

Lindsay *et al*, (2009) conducted studies using Adapted technology acceptance model for mobile policing. Its relevance was to examine the factors affecting officer acceptance benefits. The purpose was to investigate the main factors that influences the usage of mobile technologies amongst police officers'. A qualitative, partially ethnographic design was followed to allow an in-depth exploration of this issue. The study was based on a mixed-methods longitudinal evaluation study of the implementation of mobile technologies within a UK police force over a nine-month period. The technology acceptance model (TAM) and the subsequent TAM2 and TAM3, were then reengineered to provide a suitable theoretical model for a mobile policing context. The study identified four main categories of officer acceptance factors; officer performance, security/reliability/usability, management style and cognitive. Evidence from the study showed a key shortfall in all three versions of the TAM in that they focused on the user perspective and did not confirm the broader organisational factors within the implementation and social contexts of mobile policing. It recommended the use of high-

level nature of the adapted model for mobile policing in other organisations, regardless of the type of mobile device implemented, to address the barriers to acceptance. This study sought to investigate the main factors that influence the usage of mobile phone technologies applications of social networking on crime prevention amongst police officers' in Nairobi city.

2.3.2Diffusion of Innovation Theory (DOI)

It is the most popular model for understanding information technology adoption in an organisation. It focuses on individual aspect of leadership, characteristics and attitude towards the change. It also focus on internal characteristics of organisational structure in terms of centralization, complexity, formalization, interconnectedness and organisational slack size. It also focuses on the external characteristics of the organisational system openness. All these influence the organisation innovativeness in technology. Diffusion of innovation is an improvement from an organization's perspective and it is more focused on the technology side ignoring social context of information technology.

2.4 Behavioural Intention to Use Technology

Behavioural intention to use is a measure of the strength of one's intention to perform a specified behaviour Davis et al (1989). An individual attitude is defined as an individual's positive or negative feelings (evaluative affect) about performing the target behaviour. Ones attitude and subjective norm directly affect behavioural intention.

2.5 Perceived usefulness (PU)

Lindsay et al (2011) reviewed the technology acceptance model (TAM), the TAM2 model and TAM3 model, where the latter two were extensions of the original TAM, and unified theory of acceptance and use of technology (UTAUT). The theory suggested that when users are presented with a new piece of technology, a number of factors influencing decision about

how and when they will use the technology. To explain this, two perceived attributes or measures were used: perceived usefulness (PU) and perceived ease of use (PEOU).

Perceived usefulness refer to the degree a person or user believes that using a specific application system will increase his or her job performance within an organization context. Perceived usefulness is believed to have link to individual or user attitude and intention. The police work requires use of various technology systems to increase their output and although the technology devices are with the said officers little knowledge exist on their perceived usefulness in crime prevention. Many researchers have looked at perceived usefulness from the technology user belief and attitude. Police believes in use of mobile technology may influences their behavioural intention on it and how it affects crime prevention. It is worth to note those social networking sites are easily accessible to many of these officers and the general public who are their clients. Both voluntarily use these social forum and they ought to be intrinsically motivated to make the perception the use of the social network useful in reducing crime. It is in this content that the extent of the perceived usefulness of the mobile phone by the police officers attitude was assessed to predict their intention in using it for crime prevention.

2.6 Perceived Ease of Use (PEOU)

Perceived ease of use refers to the degree a person believes that using target system would be free of effort. It determines the user acceptance of particular information system. Ease here implies the "freedom from difficulty or great effort" as cited by Dhume, *et al*, (2012). The police officers in order to perform their work daily use the mobile phone in wide range of official activities all directly and indirectly focused on crime prevention. The perceived ease of use is assumed to mean internet self efficacy in social networking site usage. The officers require believing in their capability to deal and manage different crime situations by being able to navigate and evaluate the content of social network site offered by the phones. The

perceived ease of use and usefulness was found to affect the effectiveness of e-learning and students found it easy to use; develop better attitudes toward it. The perceived ease of use on mobile technology affect the perceived usefulness which has impact on the user attitude and subsequent behaviour which this study explored in policing field.

2.7 TAM 2 and 3

Technology acceptance model 2 was proposed by Venkatesh and Davis (2000) and it extends the original TAM to include additional key determinants of TAM's PU constructs. It incorporates social influences such as subjective norm, voluntariness, image and experience and cognitive instrumental processes. The job relevance, output quality and result are cognitive instrumental processes which are considered. Subjective norm acknowledges the influence of peers on whether they should perform the behaviour in question; voluntariness accounts the effect of mandatory and non-mandatory usage on usage intentions; image is the degree to which a technology may affect the status of an individual; and experience suggests that the direct effect of a subjective norm may subside over time with increased system experience. Job relevance determines what tasks can be performed with a given system; output quality posits that individuals will always assess how well a system performs tasks, and result demonstrability relates to how tangible the results are as a result of using a technology (Venkatesh and Davis, 2000). Lindsay et al (2011) noted TAM2 is limited in that it only explores the basis of the PU component and ignores the PEOU construct, providing a less-holistic view of factors that can be addressed to maximise usage. PEOU terms are "computer self-efficacy", "perception of external control", "computer anxiety" and "computer playfulness". "Perceived enjoyment" and "objective usability" determinants are referred to as "adjustments", whereby beliefs are shaped on the level of experience with a system (Venkatesh, 2000). Computer self-efficacy" relates to the level of belief of an individual has the ability to perform a task. TAM3 was noted to be more comprehensive as it

provides interventions to boost PEOU as well as PU but it is argued that these focus on individual and not in the wider implementation context in an organisation.

Lindsay et al (2014) empirically tested the relevance of a model mobile technology acceptance model (M-TAM) and its transferability to other police forces in the United Kingdom (UK). The evidence from the study supported the notion that the M-TAM developed in previous research (Lindsay, 2011) is transferable to other police forces with differing types of mobile devices in place. He stated that the model should provide a valuable tool for forces worldwide intending to embark on a programme of 'mobilisation' of their information processes.

2.8 Implementation context.

Studies indicated the most influential factors affecting the adoption of mobile devices lie beyond the original TAM (Davis 1989) and exist within wider implementation context. These factors included TAM original constructs, officer acceptance, officer performance, security/reliability/usability, management style and cognitive factors. The officer performance factors include sharing information, knowledge and communication, officer efficiency, data input information accessing information to mobile phone social applications which influences the officer perceived usefulness of the applications. The officer perceived ease of use is influenced by security factors such as mobile phone reliability, its security, interface, officer level of its skills, training, attitude and technical support. The management style constitutes the officer level of information on mobile phone application use, involvement, health and safety. It also influences the officer level of skills, training and technical support and contributes to the officers' behavioural intention in using these mobile phone technologies. Other external factors (social context) influencing officers behaviour are officer perception on mobile phone usage, public perception on the use of the mobile phone,

peer influence and organization culture. This behavioural intention of the officer then determines the usage of the mobile phone in policing.

The study assessed how these intrinsic and external factors influence the usage of the mobile phone applications by police officer in crime prevention in Kenya.

The model view is based on predictive nature of cause-effect relationships of a deterministic approach as stated by Jokonya O, (2015). The police organization whose sole mandate is to create peaceful and orderly environment conducive for the existence of all other human function is equally affected by the rapid dynamism in technology affecting the modern society.

2.9 Summary of Literature Review and Theoretical Framework

The current review of literature found only most of the studies that have tested the effect of technology acceptance model on adoption and use of mobile technology by the police happened in developed nation and more so in UK where mobile technology adoption is in effect. As indicated by Bashir and Madhavaiah, (2014) that the theory of perceived usefulness and perceived ease of use, mediate the effects of external variables, such as training, system characteristics, development process, on intention to use the system it is important to consider these variables in any technological acceptance model to have reliable and valid result. Many studies done on other fields such as business entities, academic institutions among others results revealed there was profound impact of perceived ease of use and perceived usefulness on individual user attitude and behavioural action on a given individual on technology adoption in any institution or organization. Other factors such as social influence, perceived ease of use, perceived risk, trust, security, culture and other beliefs affect individual attitude and intention have been explored into and are widely referenced and represent customers psychological processes. The perceived ease of use, perceived usefulness, perceived risk, social influence, trust and culture on mobile phone to police

officers attitude has little knowledge on it and not been explored which this study seeks to do. Most of these studies were done in developed countries and Africa as a continent has limited studies on use of information technology in crime prevention. This is examined by establishing the nexus between the key variables to the problem variable through applying the adapted technology acceptance model. Lindsay et al, (2011) stated that TAM provides a powerful and robust predictive model and it is therefore hereby used as a guide in this study.

2.10. Conceptual Framework

According to Orodho (2009) a conceptual framework explains the relationship between the study variables. Jabareen (2008) contends that a variable is a measurable characteristic that takes varied values among subjects. An independent variable is that factor which affects or regulates a dependent variable (Jabareen, 2008). A dependent variable is a variable reliant on another variable such as independent variable. In this case, perceived usefulness, perceived ease of use and subjective norms are our independent variables while mobile phone usage in policing forms the dependent variable.

According to Kaplan (2002), conceptual framework is a researcher's own position on the problem that gives direction to the study. A Conceptual frame work is a hypothesized model identifying the concepts under study and their relationships. According to Mugenda and Mugenda (2012), the purpose of a conceptual framework is to help the reader to quickly see the proposed relationship between the independent and dependent variables.

The perceived ease of use means internet self efficacy in social networking site usage. This was based on assumption that officers believe in their capability to deal and manage different crime situations by being able to navigate and evaluate the content of social network site offered by the phones.

Perceived usefulness was used in this study to mean the degree a person or user believes that using a specific application system would increase his or her job performance within an organization context. It was assumed police work requires use of various technology systems to increase their output.

Subjective norms were used in this study to explain the work norms in service that are inspired by working conditions and pear influence.

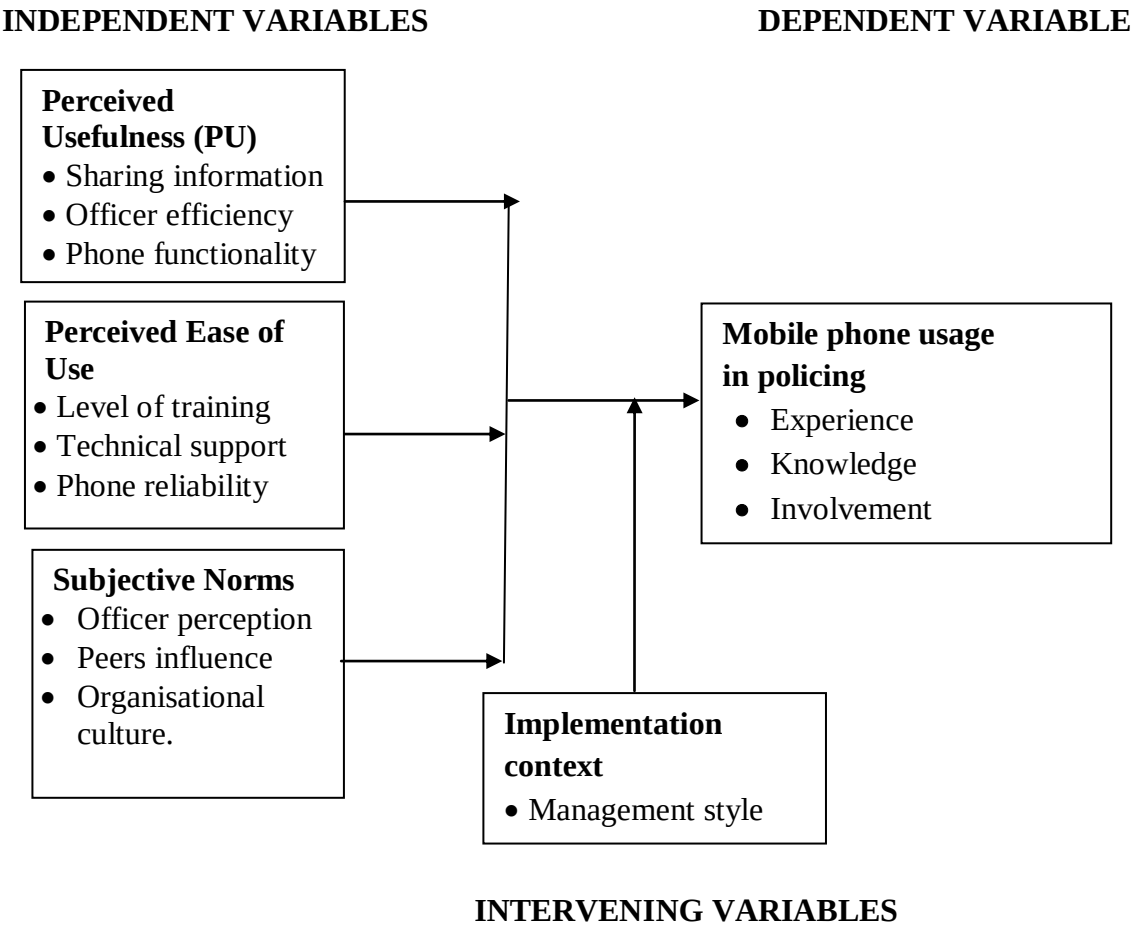

Figure 2. 2: Conceptual framework

Source: Adapted M-TAM by Lindsay *et al* (2014)

CHAPTER THREE:

RESEARCH METHODOLOGY

3.1 Introduction

The chapter presents the methodology that was used in accomplishing the study on police officers perceived usefulness, perceived ease of use and subjective norm of mobile technology in crime prevention. It describes the research design used, variables under study, the study site, target population, the sampling techniques, sample size, data collection, exploration and analysis, management and ethical considerations.

3.2 Research Design

Descriptive research design was chosen to integrate all the study components to answer the research problem. This research design guided how the data was collected and analyzed. To study the police officers' perceived usefulness and ease of use of mobile phones in crime prevention, it required the data to be collected from the sampled target that used the mobile phones in crime prevention situations. It generates reliable sample for a study with valid findings which is later to generalize for the study population. On similar studies the design gave valid and reliable findings with minimal errors and variables variation. It is best suitable for establishing the attitudes, actions and influence that affect relation of the studied variables. The research design was deemed the best in addressing the stated study objectives. Kerlinger and Lee (2000) contended that a survey is suitable to systematically collect information at a particular time, with the aim of describing existing situations. A descriptive research design was be adopted in order to describe the use of mobile application in crime prevention by the central police officers.

3.3 Study Variables.

The independent variables under the study are the perceived usefulness (PU), perceived ease of use (PEOU) and subjective norms of mobile phones by the police officers as independent variables and their influence in crime prevention as the problem/dependent variable. This is basically because the crime prevention context is everybody responsibility but the police are the lead agent in crime prevention approaches.

3.4 Study Site.

The geographical location of the study was Central Police Division, Nairobi City County. The division is cosmopolitan and at the centre of the capital city of Kenya and experiences all kinds of crimes. It was selected because it provides an appropriate study area and is deemed busy with exposure to all natures of crime and police officers working there are deemed to own and use more so ahead of others in the mobile phones in crime prevention.

3.5 Target Population.

The targeted population for this study was 782 police officers who work at various Kenya police service and divisional criminal investigation sections and units within the said police division working under various sections within the division and police stations. This is because the studies focused on all police officers working in the study area and actually are either directly or indirectly involved in crime prevention.

3.6 Sampling Techniques and Sample Size.

The study applied the stratified sampling for all the ranks including CPL, SGT, S/SGT, IP and CI who works in OCPD, OCS and D.C.I.O'S offices, and random sampling to the officers in the rank of police constables. This sampling technique was appropriate to the study because the police organization is hierarchical and has cadres forming stratum. These cadres form a funnel and have different roles they do play in the services all geared toward command and control of all police operations. Each strata participant was sampled through

simple random sampling. A sample is a small sub-group or group that is obtained from a population and it is a representative of the whole population with all its characteristics (Mugenda & Mugenda, 2012). According Mugenda and Mugenda, (2012), 10-30% of the population is enough to represent the study population. The researcher took 20% of the total population to represent the study population which translated to a sample size of 155 police officers that were drawn from the 782 target population. Their matrix was calculated on 20 % and was hereby reflected in the table 3.1 below:

Table 3. 1: Sample Matrix for the Study

Rank	**Number of officers**	**Sample size (20 %)**
PC	**485**	**97**
CPL	**235**	**47**
S/SGT & SGT	**31**	**6**
IP	**20**	**4**
CI	**10**	**2**
ASP	**1**	**-**
SSP	**2**	**1**
TOTAL	**782**	**155**

Source: Nairobi Central Police/DCI Division Registry.

3.7 Research Instruments

The primary data was collected by administering self-administered questionnaires to the respondents. This enabled the informants furnish detailed information relevant to this study. The instruments were designed according to the study objectives. They were in the following parts: Part A capturing respondent general information, Part B probed the respondent on their perceived ease of use on mobile phone. Part C inquired on the factors influencing police officers intent to use the mobile phone. Part D sought the respondent's extent in which subjective norm influences their behaviour towards use of mobile phones in crime prevention. Part E inquired from respondent on police officer management style influence on

use of mobile phones applications systems such as Facebook, Whatsapp, short text messages, twitter and emails in crime prevention approaches based on elements of adapted technology acceptance model.

The questions were administered in closed form likert scale to enable the researcher capture the gaps in police officers perceived utilization of the mobile phone that exist in the field through this primary source of data collection. The scale rated from 1 to 5 based on the respondent conviction.

3.8 Validity and Reliability

The researcher applied construct validity by clearly defining and operationalizing the study objectives. The content validity was captured by covering all aspects of the study objectives in the data collected. Reliability of the data was checked by subjecting the questionnaire instruments on pre-test to respondent on a different but similar environment to check consistency in the results.

. Construct validity is evaded by presence of correlation between the measurements and the in related areas. According to Lawshe (1975), the expression for computing content validity can be written as shown below;

$$CVR = (n_e - N/2)/(N/2)$$

Where CVR: Content Validity ratio

n_e : number of experts indicating the question is essential.

N: Total number of experts presented to rate the tool

The CVR is in the ratio of +1 to -1. The positive value indicates the at least half of experts rated the question to be essential. The content validity of the question was by determined by

examining the average CVR across all questions in the questionnaire subjects to experts in the field of the study.

3.9 Pilot Study

A pilot study denotes the pre-testing or 'trying out' of draft research tools by the researcher in the field prior to actual data collection (Mugenda and Mugenda, 2012). Piloting of data collection instruments is the most important stage of questionnaire design because it reveals what works and what doesn't, such as vague questions and unclear instructions (Nachmias and Nachmias, 1996). The pilot also helps to establish how the instrument assisted a researcher draw up coding frameworks for open-ended questions (Orodho, 2009). During the Pilot study, questionnaires were administered twice to the same group at an interval of two weeks. The pilot study to test the instruments that was used for data collection was used at Kisii Police Division. Kisii Police Division is equally a busy police division which is prone to all nature of such crimes experienced in Central Police Division in Nairobi. This helped the researcher identify the gaps that were likely to be in the tools and accordingly took appropriate adjustments measures.

3.10 Data Collection Procedures

Due to number of questionnaires to be administered, the researcher recruited and trained research assistants to help in data collection. The research assistants were interviewed by the principal investigator, prior experience on data collection will be given priority during recruitment process. The researcher used research assistants duly trained on the study topic to assist in data collection. The training also focused on methods of data collection, with emphasis on ethical principles, how to create rapport with respondents and how to manage complete questionnaires.

Due care and arrangement with the Division Criminal Investigation Officer (DCIO) and the Officer Commanding Police Division (OCPD) was made to provide a quiet place conducive for the respondent to fill the questionnaire with confidentiality and out of interaction. The questionnaires were self-administered, the respondents were randomly selected and requested to participate in the study. On agreeing to participate, the researcher added over the questionnaire to the respondent to fill. Filled questionnaire were collected and checked for completeness. The questionnaires were collected and safely kept by the researcher for accountability, analysis and confidentiality.

3.11 Data Analysis and Presentation.

Data generated from open-ended questions were coded to facilitate computer input. The data was entered into Ms. Excel and transferred to Statistical Package for Social Science (SPSS) for analysis. The study data was organized, cleaned and edited before being analyzed. The data collected was analyzed using descriptive statistical techniques and procedures. The quantitative data was analyzed using frequencies and percentages by use of SPSS package. Descriptive statistics such as minimum, maximum, means and standard deviation were also used in the analysis. The data was presented in both chart and tabular form after analysis.

The qualitative data was analyzed thematically after being interpreted of their meanings. The themes were organized based on the research objectives. The data was thereafter presented in narrative, tabular and chart forms. The study also used regression model to explain the relationship between perceived usefulness, perceived ease of use and subjective norms on mobile phone usage in crime prevention by the police.

3.12 Data Management and Ethical Considerations

Permission was sought from national council of science and technology information, (NACOSTI), Kenyatta University for data collection and deputy inspector general Kenya

Police Service and director directorate of criminal investigation. A copy of the approval letters were then given to the officer commanding police division and divisional criminal investigation officer central Nairobi informing them the purpose, and importance of the research and requested for their permission to collect data. On approval, the researcher proceeded to the study site to collect the data.

Participants were requested to volunteer to participate in the research process and were informed accordingly their right to remain anonymous by not indicating their names for confidentiality purposes. Those who volunteered to participate were requested to give consent letter which stated the purpose and value of being honest while answering the questions. They were also informed how the collected questionnaire content of their answers would be handled for accountability and in avoidance of contamination and voluntary withdrawal from participation.

The collected data was entered into Ms Word software and a master copy reserved before any data manipulation was done. The questionnaires are kept in locked in safely.

CHAPTER FOUR

DATA ANALYSIS, RESEARCH FINDINGS AND INTERPRETATION

4.0. Introduction

This chapter presents the analysis of the research data, research findings and interpretations. The research findings are presented using frequencies tables and charts. An attempt has been made to explain the outcome based on the respondents' data and the stipulated research objectives.

4.1. Response rate

A sample of 155 was to be drawn from population of 782. The questionnaire was self administered. The respondents were required to fill and return the questionnaire. The researcher gave 155 questionnaire to the respondents from which 149 were returned which translate to 96% of the questionnaires as shown in figure 4.1. Australian Vice-chancellors' Committee & Graduate Careers Council of Australia (2001) regarded 'an overall institutional response rate for the Course Experience Questionnaire (CEQ) of at least 70% [to be] both desirable and achievable

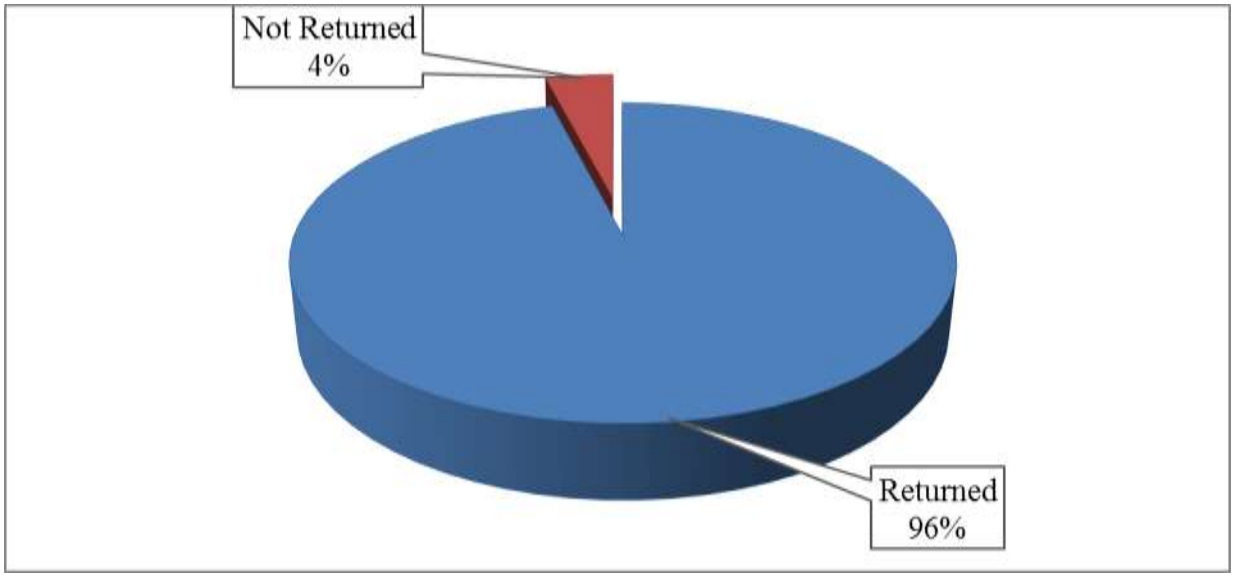

Figure 4. 1: Response Rate

4.2. Respondents socio-demographic information

This section provides a profile of the respondents from the Central Police Division in Nairobi County who participated in this study. This information is presented on a number of basic characteristics which includes respondents' gender, age bracket, and the level of education, length of service, job rank, the section of service and the length of the period of service in their respective sections. This information provides a general understanding about the population under the study. An analysis of these variables provides a predominant comprehension of the respondents experience with regard to the mobile phone integration in crime prevention.

Table 4. 1: Respondents by Gender, Age and the Level of Education

Category		**n**	**%**
Gender	Male	108	72.5
	Female	41	27.5
	Total	149	100.0
Age	19-24 Years	9	6.0
	25-34 Years	44	29.5
	35-44 Years	58	38.9
	45-54 Years	33	22.1
	55-64 Years	5	3.4
	Total	149	100.0
Level of Education	Post-graduate	2	1.3
	Graduate	22	14.8
	Diploma	21	14.1
	Secondary	104	69.8
	Total	149	100.0

Majority of the respondents in this study comprised of males who represented 72.5% of the respondents. The studied group comprised of mostly post-youth aged between 35-44 years. This implies that most of police officers serving at the Central police division had slightly high working experience. The study also found that majority had only attained a secondary level of education with only 30% of the police officers having post secondary level of education.

4.3. Respondent's work information

Work experience plays a major role in individual personal and career growth. The study also examined the police work experience based on length of service, rank, and department of police served by the respondent during the study period. The findings are summarized in table 4.2.

Table 4. 2: Police officers Period of service, Rank, section and the length of service in their respective sections

		n	%
Length of service	1-5 years	23	15.6
	6-10 years	25	17.0
	11-15 years	8	5.4
	16-20 years	41	27.9
	over 21 years	50	34.0
	Total	147	100.0
Rank	Police constable	99	66.4
	Corporal	25	16.8
	Sergeant	2	1.3
	Senior Sergeant	4	2.7
	Inspector	14	9.4
	Chief inspector	5	3.4
	Total	149	100.0
Section	Administration and support services	6	4.1
	Investigation	74	50.7
	Intelligence unit	5	3.4
	General duties units	61	41.8
	Total	146	100.0
Experience in section	1-5 Years	53	43.8
	6-10 Years	27	22.3
	11-20 Years	31	25.6
	21-30 Years	8	6.6
	Above 30 Years	2	1.7
	Total	121	100.0

Majority (61.9%) of police officers had at least 16 years working experience with most of them indicating that they had over 21 years experience. The findings are in consistent with Venkatesh and Davis (2003) on TAM 2 which incorporated experience as it affects the subjective norm on technology use.

Majority (66.4%) of the respondents held a position of police constable at the time of study. 16.8% comprised corporal while the rest comprised of Sergeant (1.3%), Senior Sergeant (2.7%), inspector (9.4%), and chief inspector (3.4%).

Most of the respondents were investigative police (50.7%) and general service units (41.8%) who formed more than 90% of the population studied. The rest were administration and support services (4.1%) and Intelligence unit (3.4%)

The findings of the study on police experience on the section worked during the study period implied that police officers changed categories over times. Despite the high working experience on professional experience, most of the police had 1-5 years experience in the working section/categories during the study period as shown in table 4.2. The factor of experience as found here affects the individual attitude and subsequent behaviour in use of technology and is in consistent with other previous researches by Lindsay et al, (2014) on the adapted technology acceptance model.

4.4. Use of Mobile Phone in Crime Prevention

The adoption of mobile phone has revolutionized every single aspect of the administration and governance globally. This study sought to establish the extent to which police officers recognize ease of use of the mobile phone in crime prevention. The study evaluated level of agreement on various aspects of mobile technology adoption in day-today police work using 5-level likert scale.

The study found that most respondents had learnt to use mobile phone applications quickly as implied by a mean and standard deviation of (4.331, 0.5326); the police felt that mobile application provided the information that they needed to respond to call of service as implied by a mean score of (4.256, 0.8117) which included information on suspect, wanted person and other matter of interest in policing (3.723, 1.110). The findings are consistent with

Lindsay et al, (2009) studies which found the mobile technology has positive impact on policing and knowledge sharing.

When making decisions about crime problems, most police officers argued that they consulted more on previous experience as opposed to the mobile phone application (4.124, 1.104). On likelihood of adopting mobile phone application on conducting police daily work task, the respondent tended to agree on incorporation with relative proportion inclining to indecisiveness as shown by a mean and standard deviation (3.607, 1.104). These findings are summarized in table 4.3 This finding are in line with Lindsay et al (2009) study observation that it may be due to lack of police institution providing an avenue for keeping its staff up to date on events.

Table 4. 3: Responses on Police officers usage of the mobile phone in crime prevention

	n	Mean	Std. Deviation
I did learn to use mobile phone applications quickly	133	4.331	.5326
The Mobile phone application provide information I need to respond to calls for service	121	4.256	.8117
The Mobile phone application provided info on suspects, wanted persons and other matters of interest in policing	137	3.723	1.110
When making decisions about crimes problems, I tend to rely on my own experience rather than the mobile phone application	137	4.124	.7220
I'm likely to adopt use of mobile phone application to conduct my daily police tasks	140	3.607	1.104

Police officers were further asked to delineate other ways in which mobile phone affects their role in crime prevention. According to the study findings, it was realized that majority of the police officers outlined that the mobile phone was helpful in that it assists in cases of tracking the suspects through their gadgets, the approach had eased the passage of information about suspects and also in the research of information and records. However, majority of the officers stated that the use of mobile phone was making them prone to criminals thus endangering their life's while on duty due to the aspect of some officers

leaking information to criminals through the mobile gadgets thus making it difficult to get hold of them. They also argued that communication and sharing information about crime by sharing images of wanted persons in various WhatsApp groups and Facebooks social media platforms had proved effective together with calls receptions though the same platform was alluded to be practically used by suspects and criminals to shield themselves from being caught.

4.5. The ease of mobile phone use by Police officers in crime prevention

The study further assessed police officers' effortlessness to use the mobile phone in crime prevention. To evaluate this facet of service delivery amongst the police officers, respondents were asked to rate their level of proficiency in the use of mobile applications in policing matters in a Likert scale of four where (*1= Non user, 2= Below Average, 3= Average, 4= Proficient and 5= Very proficient*). From the analysis, it was revealed that majority of the police officers outlined that they were proficient in the use of Emails, short text messages and Facebook from their responses high mean score and standard deviations of *(3.976,0.9624), (3.978,1.136)* and *(3.978,1.199)* respectively. The twitter and the WhatsApp use proficiency level was rated at a higher average level with respective means scores of *(3.748, 1.2220)* and *(3.573, 1.255)* as presented in table 4.4.

Table 4. 4: Police officers rating of their proficiency mobile phone applications in policing matters

	n	**Mean**	**Std. Deviation**
Email usage	83	3.976	.9624
Short text messages	135	3.978	1.136
Facebook	138	3.978	1.199
Twitter	138	3.573	1.255
WhatsApp	139	3.748	1.222

The frequency of engagement with various mobile applications in one's daily endeavours serves to facilitate the process of furnishing the proficiency. The researcher examined the rate of usage of mobile applications such as email, short messages texts, face to face, twitter and

WhatsApp by police officers in different approaches of crime prevention in their daily duties execution. The apprehension of the offenders, maintenance of law and order, enforcement of all other laws and preservation of peace were stated as the frequently executed duties in crime prevention with a high mean score and the standard deviation of *(3.89,1.178), (3.407, 1.240), (3.462, 1.238)* and *(3.336, 1.267)* respectively. Protection of life and property was outlined as the moderately executed duty in light of mobile phone applications such as twitter, WhatsApp, short messages text, Facebook and email with a means score of *(3.150, 1.193)* as indicated in table 4.5.

Table 4. 5: Frequency of mobile phone application usage in crime prevention duties

	n	**Mean**	**Std. Deviation**
Maintenance of law and order	140	3.407	1.240
Apprehension of offenders	144	3.389	1.178
Protection of life and property	140	3.150	1.193
Preservation of peace	140	3.336	1.267
Enforcement of all other laws	132	3.462	1.238

The ease of integration of the mobile application technology in execution of duties by the police officers is an indicator of the effective use of the approach technicalities of crime prevention. The study investigated the use of the technology application and its effects in different aspects of curbing crimes by the police officers from their consent. With regard to technical application of the mobile technology, majority of the respondents agreed in light of the stipulated Likert scale that the mobile application allowed them to submit reports in a timely manner with a high mean score and a standard deviation of *(4.223, 0.692).* The essence of mobile application being easy to use, even at quarters and in the field together with the mobile application having helped police officers to be more productive were highly agreed with by the respondents from the respective aspects mean scores and standard deviations of *(4.215, 0.7151), (4.119, 0.7259)* and *(4.061, 0.8142).* The findings are in consistent with earlier studies by Smith and Zook, (2011) which found the communication

platform offers enhanced clients engagement which depicts police officers get more involved in crime prevention through mobile technology adoption by the police institution. The logic of the mobile applications having enhanced the officers job satisfaction was rated at a moderate level with a mean score of *(3.896, 0.9034*) as presented in table 4.6.

Table 4. 6: Police Officers consent on the outlined attributes of Mobile technology integration in crime prevention

	n	**Mean**	**Std. Deviation**
Mobile phone applications have enhanced my job satisfaction	134	3.896	.9033
The mobile phone applications have helped me be more productive	130	4.062	.8141
The mobile phone applications are easy to use	130	4.215	.7151
The mobile phone application is easy to use even at lines, quarters and in the field	134	4.119	.7259
Mobile phone application allowed me to submit reports in a timely manner	130	4.223	.6962

The survey respondents were asked to qualitatively outline other assistances attributed to the use of mobile phone applications in their duties execution endeavours of crime prevention. The qualitative analysis revealed that majority of the respondents stated that the technology has empowered their knowledge and skills of tracking criminals and also networking with officers in terms of gathering real time intelligence data and acting upon receiving any reported information. Officers further outlined that the mobile applications such as Facebook had assisted a lot in profiling of suspects and tracing the accomplices, apprehension of wrong doers and ease in relaying of vital information alongside the proper coordination and the ability to assess what was happening on the fields. The relay of information from the informants and also studying the mode of any criminal by ascertaining their location at any given time, communication and reporting process has been effectively eased through the mobile application technology. The findings are consistent with Sago (2013) studies where

positive relationship between frequency of use of social media and its perceived usefulness, enjoyment and perceived ease of use was found.

4.6. Effects of officer's personal norm on use of mobile phone in crime prevention

The study sought to establish the extent to which the police officers are influenced by the personal norms on the use of mobile phone in crime prevention. To address this objective, police officers were asked to indicate the frequency with which they used the mobile phone to relay information to other officers through face to face model of communication, police radio, email, short message texts, Facebook, twitter and WhatsApp. The engagement of the mobile phone in relaying information via face to face approach, police radio, WhatsApp and short text messages were outlined as the most frequently used method of communication amongst the officers with mean scores of *3.496, 3.302, 2.976* and *3.223* respectively. The use of the Facebook, twitter and email mobile applications were rated as the rarely used mode of communication by the police officer in their execution of duties pertaining the prevention of crimes from their responses mean perspective of *2.574, 2.233* and *2.562* respectively as shown in table 4.7.

Table 4. 7: Frequency of mobile phone applications use in communication-information with other officers

	n	Mean	Std. Deviation
Face to face	129	3.496	.5880
Police radio	126	3.302	.5834
Email	121	2.562	.8553
short text message	130	3.223	.7289
Facebook	122	2.574	.8992
WhatsApp	126	2.976	.8243
Twitter	120	2.233	1.019

To ascertain the use of mobile application by officers in service delivery in light of the outlined mobile applications technology, the survey participants were asked to rate their

consent regarding different aspects of the interaction with the respective mobile applications in a Likert scale of 5 levels. The weighted means responses regarding this attributes were ranked as presented in table 4.8.

Table 4. 8: Police Officers consent on the attributes of mobile phone integration in crime prevention

	n	Mean	Std. Deviation
I found using mobile phone applications enjoyable	126	4.397	.6207
Mobile phone application use made me comfortable in work	130	3.923	.8682
Mobile phone application use made socialization with colleagues easier	126	4.468	.5167
Mobile phone application use kept me informed and easily assisted in making decision	126	4.333	.6325
Use of mobile phone reduced time spent in police pocket phone	130	4.092	1.007

From the analysis, it was realized that majority of the police officers agreed that they found using mobile applications enjoyable with a high mean score and a standard deviation of *(4.397, 0.621).* The essence of the mobile application easing the socialization between colleagues police officers, keeping the officers informed and assisting in making decisions alongside the reduction of the time spent in police pocket phone were also agreed with by the respondents evident from their mean scores of *4.468, 4.333* and *4.092* respectively. Only the implication of mobile application having made police officers comfortable in their work was agreed with to a slightly lower extent as the aspect clinched a slightly lower mean score of *3.923.*

Qualitatively, the police officers were asked to outline the technicalities that they felt the police organization could adopt to enhance the use of the mobile technology by its officers to benefit in crime control approaches. Majority of the respondents stated that the organization ought to develop an application that would only be installed specifically by all police officers

charged with crime control deliberation and every police officer be equipped with a smart phone to facilitate the operation compatibility of the respective app with their gadgets. Respondents outlined that there was also need to train the police officers on the use of mobile application so as to facilitate online information sharing and furnish officers knowledge and skills of dealing with crime scenarios and enhance confidentiality through bring everyone on boarding via a set of binding parameters of operations. Predominantly, the survey participants stated that there was a need of creating a database integrating all police stations in that the retrieval of reports on various crimes operant and any vital information regarding the same could be easily accessed through the crime units own servers whereby the information relayed will be secure and confidential.

4.7. Effects of officers' Management styles on use of mobile phone in crime prevention

Management approaches dictates the deliberations of any institution and the effectiveness of the improvised measures of combating crimes. The study investigated the Police officers management styles influencing use of mobile phone in crime prevention. This was evaluated in terms of the aspects of the management styles whose responses were averaged in line with their computed means from the Likert scale ratings. Majority of the police officers agreed that they would recommend mobile phone applications use to their colleagues with a high mean score and standard deviation of *(4.256, 0.8698).*The intention to use the mobile applications frequently in policing matters and the intention to know more on use of mobile applications were also agreed with by most of the police officers from the responses mean perspectives of *4.055* and *4.262* respectively. Most of the police officers were not sure on the facet of having been using the mobile phone application due to technical support by the police management evident from the slightly above average mean score and standard deviation of *(3.184, 1.214)* as presented in table 4.9. The findings are consistent with Koper et al, (2015) studies which found mobile information technology may have little if any

measurable impact on officers ability to reduce crime in the field and call for emphases on their training, strategic use of IT in order to have positive behaviour towards use of the system.

Table 4. 9: Police officers Management styles influencing use of mobile phone in crime prevention

	n	Mean	Std. Deviation
I intend to use mobile phone app frequently in policing matters	127	4.055	.7695
I intend to know more on use of mobile phone applications	126	4.262	.8688
I use phone application due to technical support by police management	125	3.184	1.214
I would recommend phone app use to my colleagues	125	4.256	.8698

The respondents were asked to outline other ways through which the police organization management may improve the implementation of the use of mobile phone in its crime prevention plan. According to the survey, most of the respondents stated that the police organization ought to come up with a new application that would be accessible to the police officers only to enhance their privacy in preventing crimes, in-servicing or training the police officers on the mobile applications usage to facilitate the efficiency of service delivery regarding crimes prevention. This was in agreement to Oduor et al, (2014) study's findings calling for training to both police officers and general public for effective system implementation. Respondents further suggested the equipping of the police officers with machine that detect and analyze the communication of criminals within their area of jurisdiction so as to enhance the tracking systems, the government should increase funds allocated to the police officers and crime department in particular to facilitate police management improve the implementation of mobile phone integration through development of an online platform where the officers in charge can monitor any crime activity and respond to cases reported instant alongside generation of instant reports based on the respective cases

reported. Police officers are also required to be equipped with smart phones and every police station be serviced with free Wi-Fi alongside the integration of data sharing with government and mobile phone services providing companies to enable the police officers access data that will enable police have identity of all individuals

In order to make conclusion on the objectives of the study, the researcher tested the main difference of the responses from hypothesized mean of 4. The variables were 5-likert scale, the researcher used hypothesized mean of 4 such that difference above 4 indicated

Table 4. 10: One-Sample Statistics for the objectives of study

	N	Mean	Std. Deviation	Std. Error Mean
Police usage of mobile phone on crime prevention	120	4.0188	.54922	.05014
Usage of mobile application by police	75	3.7493	.87493	.10103
Frequency of use of mobile phone application	132	3.3152	1.10519	.09619
Efficiency on adoption of mobile phone application	130	4.0969	.55920	.04905
Frequency of use of mobile technology in internal police communication	114	2.7851	.61116	.05724
Attitude on use of mobile technology	126	4.2365	.50432	.04493
Intention and future use of mobile technology	120	3.9500	.59196	.05404

The study tested the significance of the variables using one-sample t-test. The study was conducted at α=0.05. Table 4.10 above provides descriptive statistics associated with one-sample t-test. The study found that the means of the variables ranged between 2.7851 to 4.2365 with a standard deviation of between 0.044 and maximum of 0.101. The attitude towards use of mobile phone was rated high by many police. On the other hand, the use of mobile phone applications was rated average with a mean of 3.7493 and standard deviation of 0.10103 indicating varied responses among the respondents.

The table 4.10 summarizes the mean and standard deviations computed from the variables of the study.

Table 4. 11: One-Sample Test statistics for the study variables

	Test Value = 4					
	t	df	P_value	Mean Difference	95% C.I of the Difference	
					Lower	Upper
Police usage of mobile phone on crime prevention	0.374	119	0.709	0.019	-0.081	0.118
Usage of mobile application by police	-2.481	74	0.015	-0.251	-0.452	-0.049
Frequency of use of mobile phone application usage	-7.119	131	0.000	-0.685	-0.875	-0.495
Efficiency on adoption of mobile phone application	1.976	129	0.050	0.097	0.000	0.194
Frequency of use of mobile technology in internal police communication	-21.225	113	0.000	-1.215	-1.328	-1.102
Attitude on use of mobile technology	5.264	125	0.000	0.237	0.148	0.325
Intention and future use of mobile technology	-0.925	119	0.357	-0.050	-0.157	0.057

The study tested the significance of variables in the study at α=0.05, the computed significance/p-value were compared with tabulated, α=0.05. The variable were considered insignificant if since the P_value=> α=0.05. The study found that police usage of mobile phone on crime prevention was insignificant at α=0.05 since the P_value=0.019< α=0.05. These findings contradicted Cole and Reeves (2003) findings that use of technology among the police increased the efficiency of data capturing, reporting, dissemination and sharing. The intention and future use of mobile technology was also found insignificant at α=0.05 since the P_value=I0.2510I> α=0.05. The study by Byrne and Marx (2011) observes the actual adoption of the technology is difficult to estimate. Byrne and Marx argue that the technology has both advantages such as frequent changes thus the intention to use may change with time.

Other variables tested in this study were usage of mobile application, frequency of use of mobile phone application usage, efficiency on adoption of mobile phone application, frequency of use of mobile technology in internal police communication, and attitude on use of mobile technology. The study found usage of mobile phone application by police was significant at α=0.05. The frequency of usage of mobile application, efficiency on adoption of mobile phone application, frequency of use of mobile technology in internal police communication, and attitude on use of mobile technology were also found to be significant α=0.05.

Generally we conclude that the finding of the study were consistent with Alaghbandrad, Nobakht, Hosseinalipour, & Asnaashari (2011), cultural matters, training, regulations, user friendliness, financial issues and the lack of a common standard for ICT adoption may affects the use and frequency of use of the technology, training or standardize knowledge difference among the user of applications may discourage the efficiency of the adoption of the application. The finding of the study contradict the findings of Alaghbandrad et al (2011) as the study showed significance on attitude on use of technology, efficiency of adoption, and frequency of use of the technology.

4.8. Use of Mobile Phone in Crime Prevention

To test the relationship between use of mobile phone and crime prevention, the study found that the perceived usefulness, perceived ease of use and subjective norms of mobile phone applications explains 28.7% of crime prevention.

Table 4. 12: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.536(a)	.287	.270	.988

a Predictors: Individual Police norms Police mobile technology usage effort, Usage of mobile b Dependent Variable: prevention of crime

The study further tested the ability of regression model to predict crime prevention at α=0.05, the study found that the model significantly predicted the crime prevention

ANOVA (b)

Table 4. 13: Significance of regression model

	Sum of Squares	df	Mean Square	F	Sig.
Regression	47.951	3	15.984	16.381	.000(a)
Residual	119.041	122	.976		
Total	166.992	125			

a Predictors: (Constant), Individual Police norms Police mobile technology usage effort, Usage of mobile b Dependent Variable: prevention of crime

Only Police mobile technology usage effort among variables contributing to the model were found significant at α=0.05

Coefficients (a)

Table 4. 14: Coefficients of regression model

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-1.101	.684		-1.610	.110
Usage of mobile technology	.521	.228	.229	2.284	.024
Police mobile technology usage effort	.554	.184	.291	3.008	.003
Individual Police norms	.231	.225	.113	1.027	.306

a Dependent Variable: prevention of crime

The variable contributing to the model can be fitted as shown below.

Crime prevention =-1.101+0.521(Usage of mobile technology) +0.554(Police mobile technology usage effort) + 0.231(Individual Police norms).

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1. Summary

The findings of the study can be summarized into four sections according to the objectives of the study; establish the extent to which the police officers recognize ease of use of the mobile phone in crime prevention; determine the factors that strongly influence the police officers intent to use the mobile phone in crime prevention; assess the extent police officers are influenced by personal norms on use of mobile technology in crime prevention; to explore the factors that affects the implementation of mobile technology in crime prevention.

5.1.1. Respondent basic information

The study employed interview method to examine the effectiveness of mobile phone use in crime prevention at the Central Police Division in Kenya. The study participants comprised of police officers from the Central police division in Kenya hailing from different sections, ranks and with different period of service in their respective sections. Majority of the police officers were male while the age category of the respondents was dominated by participants with 35 to 44 years. The secondary school level of education predominantly constituted majority of the police officers enrolled for the study with most of the participants having served in the police officers capacity for a period of more than 21 years. Police constables rank, investigation unit and general duties section contributed the major number of the survey participants while the length of service of the service of the officers in their respective sections was realized to be approximately 1-5 years.

5.1.2 Establish the extent to which the police officers recognize ease of use of the mobile phone in crime prevention

Police officers ease of use of mobile phone in crime prevention was assessed in terms of their ability to proficiently use the mobile phone applications, their experience in using the respective apps and the likelihood of them adopting the mobile phone in execution of their daily police duties. Majority of the police officers argued that they easily learnt to use mobile phone applications quickly and also the respective mobile apps provided them with the information needed to respond to the call of service. Most of the officers reported that they tend to rely on their own experience than using the mobile applications while a number of the outlined their intention to adopt the mobile phone application in conducting their daily police tasks. Officers also noted that the use the mobile phone was helpful in that it assists in cases of tracking the suspects through their gadgets; the approach had also eased the passage of information about suspects and also in the research of information records.

On the other hand, a good number of the police officers stated that the use of mobile had affected their role in crime prevention in the aspects of; making them prone to criminals thus endangering their life's while on duty due to the aspect of some officers leaking information to criminals through the mobile gadgets. They also noted that communication and sharing information about crime by sharing images of wanted persons could be done using social media. WhatsApp groups and Facebooks social media platforms had proved effective together with calls receptions though the same platform was alluded to be practically used by suspects and criminals to shield themselves from the being caught. Use of technology in crime prevention explored by other scholars is based more use of the telephone, the two-way radio, and the automobile.

5.1.3 Factors that strongly influence the police officers intent to use the mobile phone in crime prevention

Demand for police information has been vastly increased, with many institutions such as insurance companies, public health and welfare agencies, schools, and private companies relying on the police to assist them in risk management. These factors prompt the police to use technology to capture share just in Case. The police officers intention to use the mobile phone in crime prevention was evaluated in terms of their proficiency in using emails, short text messages, twitter and Facebook mobile applications. This study found that integration of the mobile applications in execution of crime prevention tasks by the police officers was mainly propagated by effectiveness of mobile application on submission of reports in a timely manner and ease to use, even at quarters and in the field alongside boosting their productivity. Knowledge and skills empowerment on criminal tracking while networking with officers in terms of gathering real time intelligence data and acting upon reported information was overriding factors influencing the police officers.

5.1.4 The extent police officers are influenced by personal norms on use of mobile phone in crime prevention

The extent of the personal norms effect on the police officers embracing the mobile phone was examine in light of the frequency of using the face to face model of communication, police radio, email, short message texts, Facebook, twitter and WhatsApp. Most of the police officers reported their engagement of the mobile phone in relaying information via face to face approach, police radio, WhatsApp and short text messages as the most frequent technicalities of deliberation. The use of the Facebook, twitter and email mobile applications were realized to employed to a less extent by the police officer in their execution of duties pertaining the prevention of crimes. Majority of the police officers noted that they found using mobile applications enjoyable and had eased the socialization between colleagues

police officers alongside enhancing them in making informed decisions. However, majority of the police officers disagreed with the implication of mobile phone application having made them comfortable.

With regarding to the proposition the police organization ought to impose to enhance the use of the mobile phone by its officers to benefit in crime control approaches. Majority of the participants noted that the organization ought to develop an application that will be installed specifically by all police officers charged with crime control deliberation and every police officer be equipped with a smart phone to facilitate the applications operation compatibility with their gadgets. They also proposed that there was need to train the police officers on the use of mobile applications so as to facilitate online information sharing and furnish officers knowledge and skills in dealing with various crimes. Predominantly, the survey participants stated that there was need of creating a database integrating all police stations in that the retrieval of reports on various crimes operant and any vital information regarding the same could be easily accessed through the crime units own servers whereby the information relayed will be secure and confidential.

5.1.5 Factors that affects the implementation of mobile phone in crime prevention

The hindrance to effective implementation of mobile phone in crime prevention was evaluated in terms of the aspects of the police officers management style. Majority of the officers argued that they would recommend mobile phone applications use to their colleagues and also stated that they intended to use the mobile applications frequently in policing matters more to their desire to know more on use of mobile applications. On the other hand, most of the police officers were not sure on the attribute of having been using the mobile phone application due to technical support by the police management.

The officers posited that in order to improve the implementation of the mobile phone application in the police organization plan to prevent crime, the police officers organization management should come up with a new application that will be accessible to the police officers only to enhance their privacy in handling crimes cases, in-servicing or training the police officers on the mobile applications usage to facilitate the efficiency of service delivery regarding crimes prevention, equip police with smart phones and every police station be serviced with free Wi-Fi alongside the integration of data sharing with government and mobile phone services providing companies to enable the police officers access data that will enable police have identity of all individuals. Byrne and Marx (2011) observed that adoption of mobile technology is hampered by lack of policy enforcement. Clarke (2004) also observed technological changes and its diverse in nature discourages the adoption. In the case of this study access to internet facilities and compatible mobile phone remains a challenge in the Kenyan scenario.

5.2 Conclusion

From the findings of this study, we conclude that the mobile phone applications have revolutionized the crime prevention unit of the police to an extent though it still requires to be implemented fully. The use of the mobile phone in crime has been propelled by invention of various applications such as the Facebook, twitter, emails, short text messages and the WhatsApp social media platforms. This approach has eased the police officers tasks of crime prevention to a slightly great extent but still there is more that needs to be done pertaining the police officers usage of phones, personal norms (cognitive acceptance), effortlessness and the police organization management style so as to effectively enhance the crime prevention via this platform. Police effort to use mobile technology was found to have significant effects on crime prevention.

5.3 Recommendation

From the findings of the study, we recommend the following;

- Police officers need to be equipped with smart phones, in-serviced and training on the mobile applications usage so as to enhance efficiency in crime prevention deliberations.
- The police organization management ought to create a database integrating all police stations or develop a mobile application for the police personnel and a specific crime unit domain in that the retrieval of reports and access of the reported cases can be easily and securely shared in a secure platform.
- The police organization management needs to provide technical and financial support to the police officers to motivate them in an effort of improving their productivity and accountability.
- Further research on general public on their perceived usefulness of the mobile phone applications use in efforts to prevent crime ought to be done as crime prevention is a concerted effort by all the parties involved.

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APPENDICES

APPENDIX I: QUESTIONNAIRE FOR POLICE OFFICERS

My name is Paul Muchugia Wambugu, a student currently undertaking a Masters Degree in Leadership and Security Management at Kenyatta University. In line with the course requirements, I'm conducting a study about the use of mobile phone use in crime prevention at Central police division, Nairobi County and this questionnaire seeks to collect data for the execution of the study. Your individual answers will be kept completely confidential. The questions are to determine your use of mobile phone applications in crime prevention. So please be open and honest. DO NOT WRITE YOUR NAME ANYWHERE ON IT.

PART A: Background Information.

1. **Sex/gender (Please select from one from the following categories):**

Male [ ] Female [ ]

2. **Age (in years)**

19-24 [ ] 25-34 [ ] 35- 44 [ ] 45-54 [ ] 55- 64 [ ]

3. **Level of education (e.g. ticks appropriately).**

Post Graduate [ ] Graduate [ ] Diploma [ ] Secondary [ ]

Primary [ ] Others levels please specify…….

4. **Length of service**

1-5 years [ ] 6-10 years [ ] 11-15 years [ ] 16-20 years [ ]

Over 21 years [ ]

5. **Rank (What is your rank in the police service?)**

Police constable [ ] Corporal [ ] Sergeant [ ] Senior Sergeant [ ] Inspector [ ]

Chief inspector ( ) Ass/superintendent [ ] Superintendent [ ] Senior Superintendent [ ]

6. **Section. (Which section do you work?)**

Administration and support services [ ] Investigation [ ] Intelligence unit [ ] Traffic [ ]

General duties [ ] others please specify…….

7. How long have you worked in this section in years/months?.....

PART B: Police officer usage of mobile phone in crime prevention

1. To what extent do you agree with the following statements?

S/no.		Strongly agree (5)	Agree (4)	Not sure (3)	Disagree (2)	Strongly disagree (1)
a.	I did learn to use mobile phone applications quickly.					
b.	The mobile phone applications provide information i need when i respond to calls for service.					
c.	Mobile phone applications provide information on suspects, wanted person and other matters of interest in policing.					
d.	When making decisions about crime problems, i tend to rely more on my own experience than using mobile phone applications.					
e.	I'm likely to adopt the use of mobile phone applications in conducting my daily police work tasks.					

2. What other ways does the use of mobile phone affects your role in crime prevention?.....
.....
.....

PART C: Police officer effortlessness use of mobile technology in crime prevention

Tick the mobile phone applications rating in policing matters as prescribed in the table below.

Very proficient (I can use mobile phone well and also teach my peers)

Proficient (I use mobile phone all the time and know most of its features)

Average (I use the mobile sometimes, but only for basic tasks)

Below average (I have little knowledge of how to use mobile phone)

Non user (I do not know how to use these mobile phones applications)

1) Describing your overall mobile phone use on the following applications.

Rate/Application	**Very proficient** (5)	**Proficient** (4)	**Average** (3)	**Below average** (2)	**Non user** (1)
Emails,					
Short text messages,					
Face book					
Twitter,					
WhatsApp					

2) How frequently do you use the mobile phone application e.g email, short message text, Face book, Twitter and WhatsApp in crime prevention duties?

S/no	Duty	Most frequently (5)	Frequently (4)	Moderately (3)	Least frequently (2)	Not used (1)
a.	Maintenance of law and order					
b.	Apprehension of offenders					
c.	Protection of life and property					
d.	Preservation of peace					
e.	Enforcement of all other laws.					

3). **To what extent do you agree with the following statements?**

S/no.		Strongly agree (5)	Agree (4)	Not sure (3)	Disagree (2)	Strongly disagree (1)
a.	The mobile phone applications have enhanced my job satisfaction.					
b.	The mobile phone applications have helped me to be more productive.					
c.	The mobile phone applications are easy to use.					
d.	Mobile phone application use is easy even at lines, quarters and in the field.					
e.	Mobile phones application allowed me to submit reports in a timely manner.					

4) In general how else has the use of mobile phone applications assisted you in performing your crime prevention duties?.....

PART D: Police officer personal norm (cognitive acceptance) influencing mobile phone use in crime prevention

1). How frequently do you use the mobile phone applications to communicate information to other officers?

	Most frequently (4)	Frequently (3)	Rarely (2)	Never (1)
Face to face				
Police radio				
Email				
Short text message				
Face book				
WhatAspp				
Twitter				

2) To what extent do you agree with the following statement?

S/no.		Strongly agree (5)	Agree (4)	Not sure (3)	Disagree (2)	Strongly disagree (1)
a.	I found using mobile phone applications enjoyable.					
b.	Mobile phone application use made me comfortable in work.					
c.	Mobile phone applications use made socialization with colleagues easier.					
d.	Mobile phone applications use kept me informed and easily assisted in making decision.					
e.	Use of mobile phone reduced time spent in police pocket phone.					

3. In your own opinion how do you think the police organization should do to enhance the use of mobile phone by its officers to benefit in crime control approaches?.....
.....

PART E: Police officer management style influencing use of mobile phone in crime prevention

1) To what extent do you agree with the following statements?

S/no.		Strongly agree (5)	Agree (4)	Not sure (3)	Disagree (2)	Strongly disagree (1)
a.	I intend to use mobile phone applications frequently in policing matters.					
b.	I intend to know more on use of mobile phone applications.					
c.	I use the mobile phone application due to technical support by police management.					
d.	I would recommend mobile phone application use to my colleagues.					

2). In what other ways do you think the police organization management may improve the implementation on use of mobile phone in its plan to prevent crime?

.....

.....

.....

.....

Thank you for your feedback and kind cooperation.

APPENDIX II: WORK PLAN

ACTIVITIES	APR 2016	MAY 2016	JUN 2016	JUL 2016	AUG 2016	SEP 2016	OCT 2016	NOV 2016	DEC 2016	JAN 2017	FEB 2017	MAR 2017	APR 2017
PROPOSAL PREPARATION													
PILOT STUDIES													
DATA COLLECTION & ANALYSIS													
REPORT SUBMISSION													

APPENDIX III: PROPOSED BUDGET

S/No	ITEM	COST (KSHS)	TOTAL (KSHS)
1	Stationery	10,000	10,000
2	Printing	6,000	16,000
3	Binding proposal	5,000	21,000
4	Binding final report	8,000	29,000
5	Travelling	10,000	39,000
6	Allowances to research assistants	2@1000 X 10	59,000
7	Questionnaires	5,000	64,000
7	Miscellaneous	8,000	72,000
	Total	**72,000**	**72,000**

APPENDIX IV: LETTER OF AUTHORIZATION

PAUL MUCHUGIA WAMBUGU,
P.O Box 14490-00800,
WESTLAND,
NAIROBI
8th November, 2016
Email: Muchugia1971@gmail.com

The DIG KPS,
P.O Box 30083-00100,
NAIROBI.

The DCI
P.O Box 30036-00100,
NAIROBI.

Dear Sir,

RE: RESEARCH PROPOSAL

I am the above named student from Kenyatta University Registration Number C160/32992/2015 pursuing master degree in security and leadership management course at Kenya Police Staff College- Loresho.

I seek authority to carry out a research on "***Factors Influencing the Usage of Mobile Phone applications Such As Short Text Messages, Whatsapp, Face Book, Emails and Tweeter By Police Officers in Kenya Police Service and Directorate of criminal investigation In Crime Prevention at Central Division Nairobi City County".***

The research is intended to be carried out at Central police division, Nairobi City County incorporating police officers drawn from Central Police division under KPS and DCI.

Attached is a copy of approval from Kenyatta University.

Yours faithfully,

Paul MuchugiaWambugu

Encl.

APPENDIX V: LETTER OF RESEARCH APPROVAL

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 4150

Internal Memo

FROM: Dean, Graduate School

DATE: 13th December, 2016

TO: Paul M. Wambugu
C/o Security & Correction Science

REF: C160/32992/2015

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

We acknowledge receipt of your revised Research Proposal as per our recommendations raised by the Graduate School Board of 2nd November, 2016 entitled **"Effectiveness of Mobile Phone in Crime Prevention Within Central Division, Nairobi City County"**.

You may now proceed with your Data Collection, Subject to Clearance with Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking Forms per semester. The form has been developed to replace the Progress Report Forms. The Supervision Tracking Forms are available at the University's Website under Graduate School webpage downloads.

Thank you.

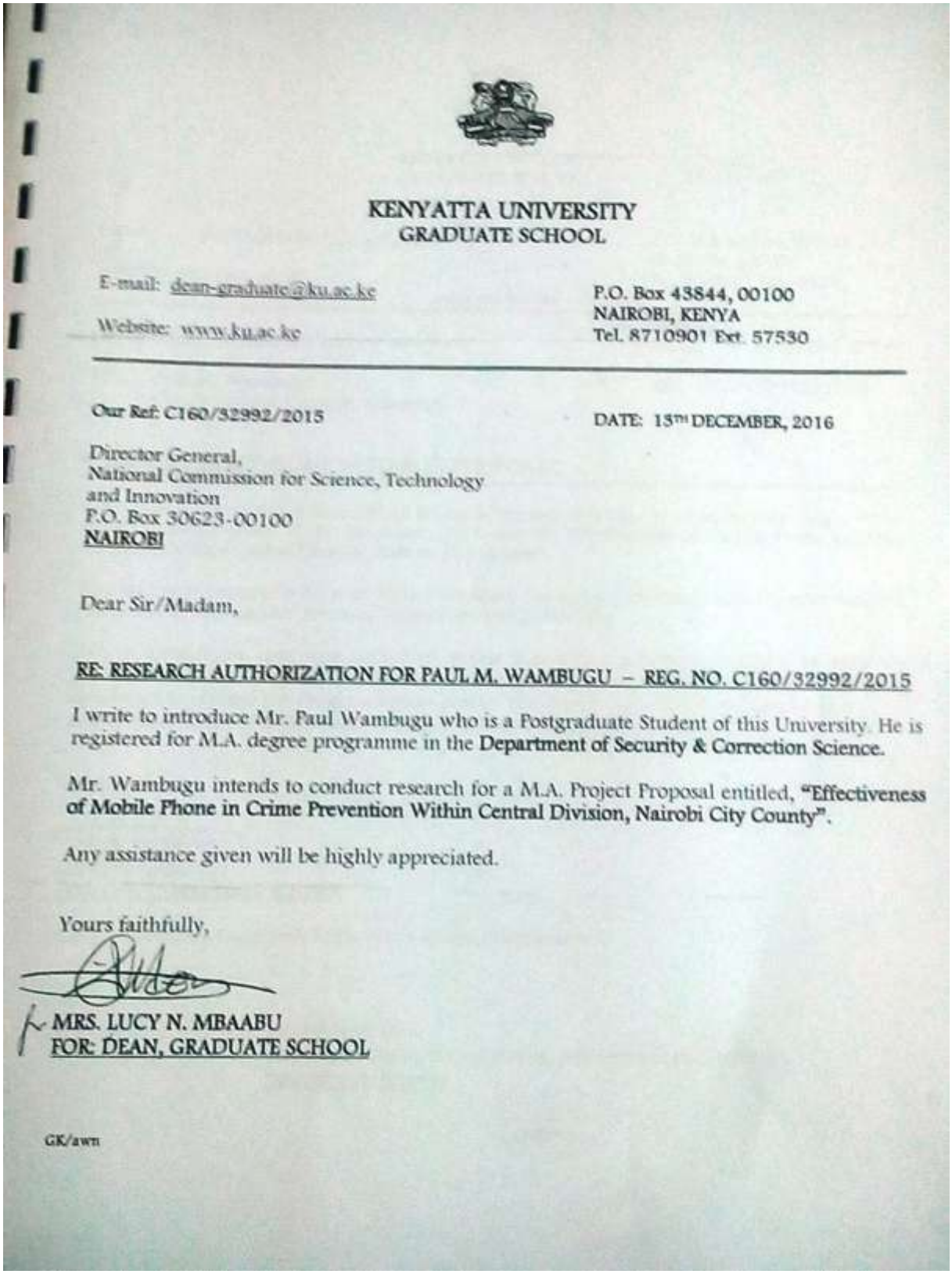
GIDEON KAIMENYI
FOR: DEAN, GRADUATE SCHOOL

C.c. Chairman, Department of Security & Correction Science

Supervisors:

Dr. John Kandiri
C/o Department of Computing and Information Technology
Kenyatta University

APPENDIX VI: PERMISSION TO SEEK FOR STUDY PERMIT



KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530

Our Ref: C160/32992/2015

DATE: 15TH DECEMBER, 2016

Director General,
National Commission for Science, Technology
and Innovation
P.O. Box 30623-00100
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR PAUL M. WAMBUGU – REG. NO. C160/32992/2015

I write to introduce Mr. Paul Wambugu who is a Postgraduate Student of this University. He is registered for M.A. degree programme in the **Department of Security & Correction Science.**

Mr. Wambugu intends to conduct research for a M.A. Project Proposal entitled, **"Effectiveness of Mobile Phone in Crime Prevention Within Central Division, Nairobi City County".**

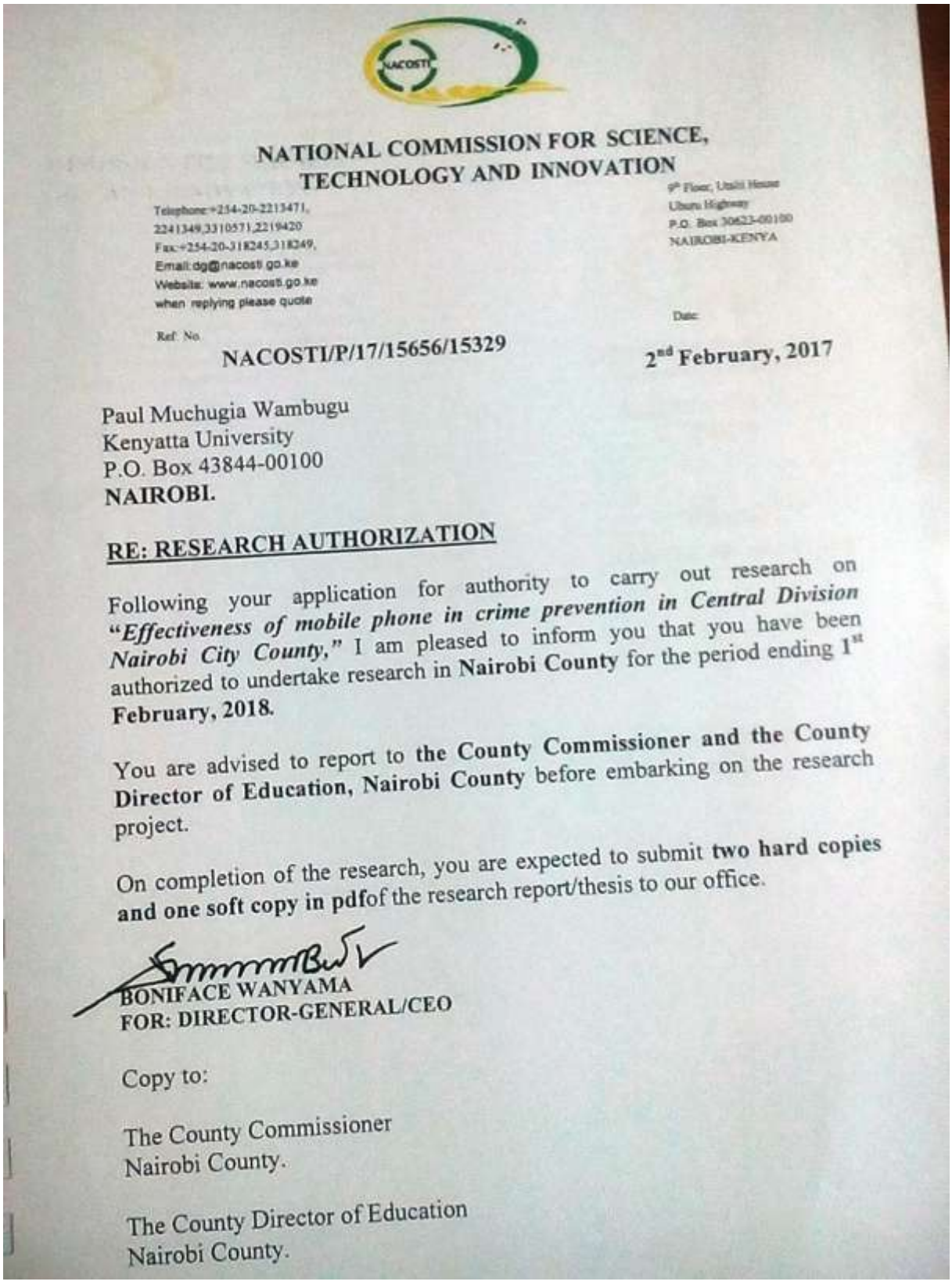
Any assistance given will be highly appreciated.

Yours faithfully,

MRS. LUCY N. MBAABU
FOR: DEAN, GRADUATE SCHOOL

GK/awn

APPENDIX VII: RESEARCH AUTHORIZATION LETTER



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471, 2241349,3310571,2219420
Fax: +254-20-318245,318249,
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
when replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No. NACOSTI/P/17/15656/15329

Date: 2nd February, 2017

Paul Muchugia Wambugu
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Effectiveness of mobile phone in crime prevention in Central Division Nairobi City County,"*** I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for the period ending 1st **February, 2018.**

You are advised to report to **the County Commissioner and the County Director of Education, Nairobi County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

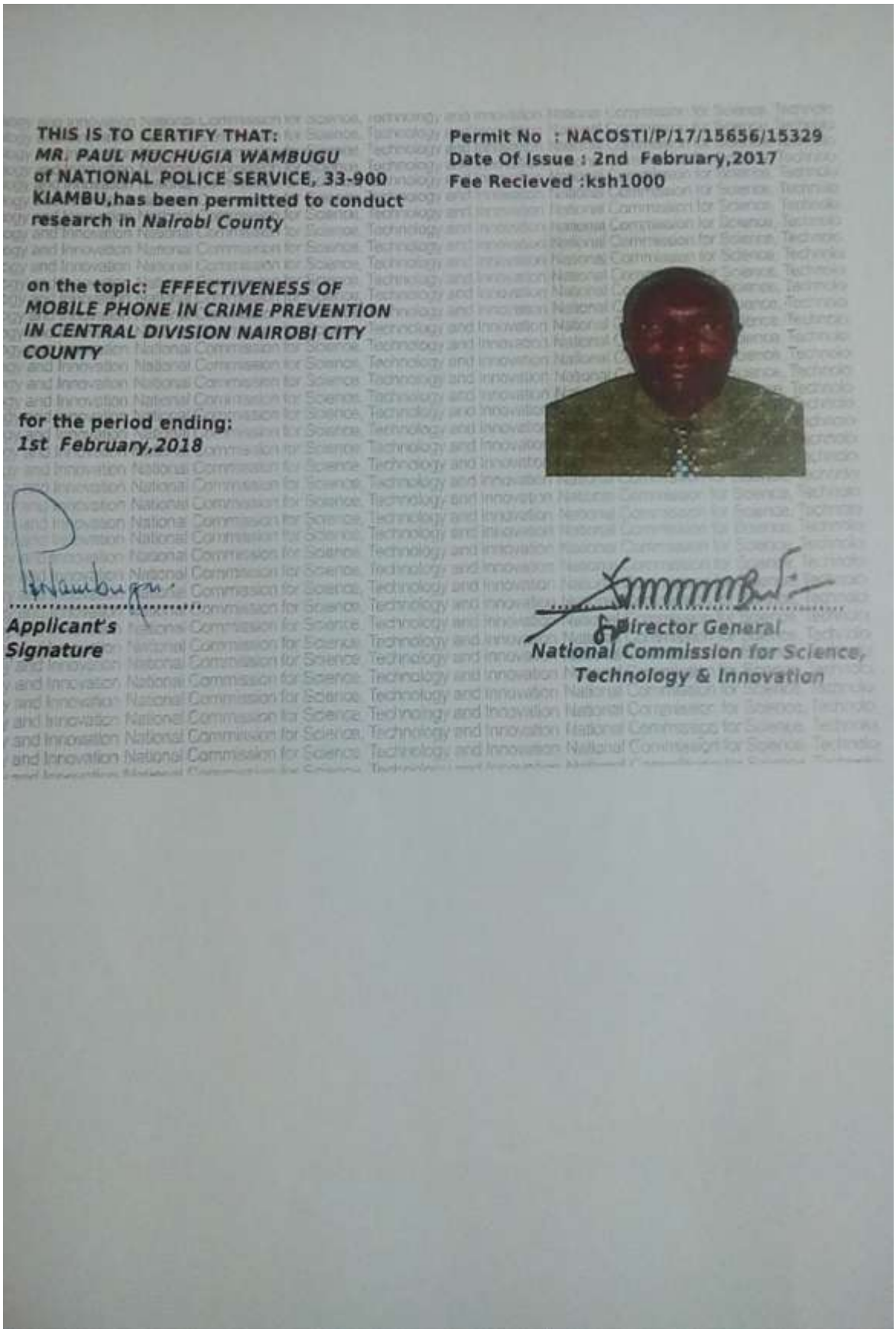
BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nairobi County.

The County Director of Education
Nairobi County.

APPENDIX VIII: RESEARCH PERMIT



THIS IS TO CERTIFY THAT:
MR. PAUL MUCHUGIA WAMBUGU
of NATIONAL POLICE SERVICE, 33-900
KIAMBU,has been permitted to conduct
research in *Nairobi County*

Permit No : NACOSTI/P/17/15656/15329
Date Of Issue : 2nd February,2017
Fee Recieved :ksh1000

on the topic: *EFFECTIVENESS OF MOBILE PHONE IN CRIME PREVENTION IN CENTRAL DIVISION NAIROBI CITY COUNTY*

for the period ending:
1st February,2018

.....
Applicant's Signature

.....
Director General
National Commission for Science, Technology & Innovation

CONDITIONS

1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit.
2. Government Officer will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2) hard copies and one (1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice

REPUBLIC OF KENYA

National Commission for Science, Technology and Innovation

RESEACH CLEARANCE PERMIT

Serial No.A 12596

CONDITIONS: see back page