ADOPTION OF COMPUTER USE BY POLICE IN CRIME MANAGEMENT IN NAIROBI CITY COUNTY KENYA

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C160/38914/2016

A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF SECURITY, DIPLOMATIC AND PEACE STUDIES IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF ARTS DEGREE IN LEADERSHIP AND SECURITY MANAGEMENT, KENYATTA UNIVERSITY

NOVEMBER, MAY 2018
DECLARATION

I hereby declare that this research work is my original work and has never been submitted in part or whole, anywhere for examination of a degree, publication or any other academic qualification. No part of this work should be reproduced or stored in any system at all without permission from the researcher. It is unequivocally prohibited to be used in part or whole without proper acknowledgment and permission from the researcher.

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This project proposal has been submitted for the review with our approval as University Supervisor.

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DEDICATION

I wish to sincerely acknowledge and offer my heartfelt gratitude to the following:

First and foremost, I offer my uttermost gratitude to Almighty God. He has been an unfailing source of wisdom, fortification and strength. He has been the wind beneath my wings. To my wonderful family, my cherished wife and lovely children: I wish to offer my profound appreciation and regards for your constant and unwavering support and encouragement. You have always cheered me to achieve the very best. You are my inspiration and the reason for my pursuits.

To Dr. John Kandiri and Dr. A.M. Sirera, the exemplary mentorship, advice, guidance, feedback, and uplifting encouragement you offered throughout this process has been outstanding. I cannot thank you enough. The counsel and suggestions you provided throughout this project was superb. I am and will always be immensely grateful to you. May God bless you abundantly. And finally to all the participants, I am immensely thankful for your most helpful contribution to this study.
ABSTRACT

The exponential advancement of technology globally has generated a great opportunity for law enforcement to augment their modus operandi in crime management and security. The National Police Service in Kenya can greatly benefit by optimizing their operations through integrating technology of apropos computer use in their work. This has the potential to augment the efficiency of law enforcement at a critical time when even criminal activities are advancing into technology. As such, this study involved the following objective: establish and highlight the effects of performance expectancy in adoption of computer use, ease of use, and perceived usefulness in adoption of computer use in the efforts of crime management. Additionally, the study sought to assess the extent to which subjective norms contributed in computer use in crime management. The personnel at Starehe Police Division were used for sampling of the target population. The study utilized the data collected to obtain quantitative statistics as well as descriptive analysis of the stipulated objectives in the targeted population. The study captured critical statistics of computer use in police work such as percentages, mean, frequencies, standard deviation, regression analysis, among others that were presented in tables, charts, graphs accordingly. The t-test results indicate the strength of each variable. The t-test results indicates that usefulness (t = 5.248) strongly influence the use of computers in crime management followed by perceived expectation (t =4.894), followed by ease of use (t = 4.836) while subjective norms was found to least influence the use of computers in crime management (t = 3.919). The conclusion of the study infer that there is existent of a significant moderating effect by the four moderating factors of P.E., P.U., E.O.U, and S.N. in adoption of computer use in crime management variables.

KEYWORDS: Crime Management, Computer Technology, Performance Expectancy, Perceived Usefulness, Ease of Use, Subjective Norm.
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<td>Automated emergency dispatch systems</td>
</tr>
<tr>
<td>CI</td>
<td>Chief Inspector</td>
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<tr>
<td>COMPSTAT</td>
<td>Computer Comparison Statistics</td>
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<tr>
<td>E.O.U</td>
<td>Ease of Use</td>
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<tr>
<td>GIS</td>
<td>Geographic information system</td>
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<td>GPS</td>
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<td>Information Computer Technology</td>
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<td>IP</td>
<td>Inspector</td>
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<tr>
<td>NACOSTI</td>
<td>National Commission for Science, Technology and Innovation</td>
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<td>NPS</td>
<td>National Police Service</td>
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<tr>
<td>SATNAV</td>
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OPERATIONAL DEFINITION OF TERMS

Computer: A device that can be instructed to carry out an arbitrary set of logical operations automatically such as input of instructions and output of information, file management inter alia.

Crime Management: It entails crime prevention, detection and investigation.

Information Technology: Application of computers to store, study, retrieve, transmit and manipulate data.

Subjective Norm: It is the perception that a consumer has of considering other people's views and values, which in turn influences their views and values.
CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Information technology and computers are now an indispensable component and arsenal in the fight against crime (Hendrix, Taniguchi, Strom, Aagaard & Johnson, 2016). Automation, effective information sharing, record keeping and interconnectivity in the police service can and have been facilitated through modernization of communication, record keeping, and archiving methods through 21st century technological advancements (Custers & Vergouw, 2015). Extensive and comprehensive systematic assessments of technological systems in the police service have not been adequately carried out to determine their impact (Koper, Lum, & Willis, 2014, p. 212). Arguably, the scant evaluations and studies on returns of investment of information Computer Technology (ICT) in the police force seem to show promising results even though the benefits are difficult to enumerate in a manner that yields convenient cost-benefit calculations (Koper et al., 2014). As such, it can be challenging to ascertain with accuracy trends over time.

Rising global threats with criminals who have extensive networks across regions and continents demand for prompt amends to have integrated systems that are readily available to curb and mitigate criminal activities (Fatih & Bekir, 2015). One pragmatic solution is integration of computer use in police work. It enables law enforcement officers to network, centralize data, share intelligence information and therefore provide efficiency in solving, preventing and detecting and enforcing the law (Danner, 2017). Perversely, technology has also been manipulated and utilized for intricate and
widespread illegal activities such as fraud, identity theft, embezzlement and so on (Fatih & Bekir, 2015). Criminals have mastered sophisticated ways of complex and intricate activities in proportion to the level of advancement in information communication and technology. This becomes problematic and unsustainable when police officers do not readily implement, utilize and become literate with the most current technological systems, to stay in step with the needs of the 21st century criminal activities (Koper et al., 2014).

In general to succeed in the fight against crime there is a need for continuous, current, and comprehensive adoption of information communication technology (ICT), according to Quarshie (2014). Therefore, implementation of feasible technological processes and automations from outmoded functions would be imperative and critical to facilitate security efforts. Integration of automated systems can be a crucial platform that improves the infrastructure of police force (Custer & Vergouw, 2015). Demands of increasingly sophisticated criminal activities, makes it absolutely imperative to adopt modernized ways of countering their activities (Onyemauche, Nwosu, & Mbanusi, 2015). In this case, there are factors that play a role in influencing implementation and successful optimal outcomes.

In crime management, information computer technology is an important instrument for policing in functions such as recovery, analysis and interpretation of information about criminal offences (Osterburg and Ward, 2007). Technology and computer usage also facilitate creation, storage, retrieval and application of investigation related information (Gottschalk, 2007). As we peer into the future, radical ideologies that conceive brutal crimes, opportunists that take advantage of available personal data in the cyber world,
and sophisticated professional criminals are on the rise with no sign of slowing down (Weisburd & Neyroud, 2015). Aggressive, proactive, strategic and deliberate counteractive security measures are therefore imperative. It is therefore imperative for the police service and security key stakeholders, to universally get acquainted with the necessary computer technological advancements, and transition from antiquated and outdated methods. This is critical in the endeavors of staying ahead of the curve in their noble mission of crime fighting (Hendrix et al., 2016). This would result in greater efficiencies, improved performance level, and increased morale by law enforcement agencies.

On a global scale, countries like the United States of America, technology and computer use in the law enforcement has been utilized extensively (Joh, 2016)). The availability of resources, a strong infrastructure and transparency in resource allocation has afforded the legal-judicial system to implement advanced processes and functions that are automated and computerized (Danner, 2017). There are more concerted efforts towards proactive policing, crime prevention and predictive policing (Thompson, 2016). A few examples of advanced but fundamental computer and technology use in the United States include crime mapping, automated dispatch systems, among others (Weisburd & McEwen, 2015). According to the authors, technology and computer use in crime mapping has shown great potential in enforcing proactive and preventive measures. As a result, agencies are able to keep track of developing situations and become vigilant in stemming out potential crimes. Identifying hotspots has enabled law enforcement to make informed decisions on how to allocate proper manpower and tools to deal with situations at hand. The use of technological tools such as automated emergency dispatch systems (AEDS)
has apparently enhanced efficiency in responding to duty calls via strategic assignments rather than random dispatching (Danner, 2017). Additionally, relevant information is transmitted back and forth in real time from the field to the dispatcher and vice versa (Joh, 2016). Technology has enabled interconnectivity and centralization of data, whereby information sharing, record keeping etcetera is facilitated through automated computer systems and processes. Interconnectivity enables such things as transmission of information from one agency to another, or from the field to the central office instantly (Hendrix et al., 2016). Centralization facilitates retrieval of information and data mining without monopolization of records in one location, such as the case of a manual occurrence book.

In the African region, Seychelles leads with the highest percentage of usage of internet at 57.3% (Pew Research Center, 2017). This interconnectivity has led to better policing thereby improving security in the country with low crime rate index (United Nations [UN] Data, 2017). This can in turn be tapped and redirected to impact law enforcement work through feasible adoption in the security sector. In developing countries such as Kenya, this is a matter that requires more study (Oduor, Acosta, & Makhanu, 2014). An evaluation of how technology has facilitated efficiency would beg questions such as, are there essential functions that have long been in archaic and outmoded mode such as the manual occurrence book that can be automated for better streamlined work flow and increased efficiency in crime management (Oduor et al., 2014). This is a critical issue considering the great technology advancements in existence, as well as the investments that have been put forth by the government of Kenya.
In Kenya, there is a gap of strategic implementation of computer technology use (Makabira & Waiganjo, 2014). For instance, the policing efforts are disproportionately focused on reactive actions and manual record keeping. In the instance of a manual occurrence book, there is a deficit in the efforts of accessing critical information in a quick manner, and transmitting it in a centralized efficient way (Odour et al., 2014). This can be attributed partly to limited resources (Quarshie, 2014). However, there are other factors that have a hand in influencing and moderating adoption. As such, there is a critical need to engage in deliberate and strategic implementation of appropriate technological infrastructure.

Here in lies the gap in research on strategic ways of facilitating implementation. It is therefore important to examine these factors in police work and security, in light of the critical potential role computer technology plays in crime management in a 21st century global economy. These include a) moderating variables that affect technology acceptance and eventual utilization; b) role of perceptions and attitudes in adoption and usage.

1.2 Statement of the Problem

Challenges encountered by law enforcement personnel in their line of duty are myriad (Alpert et al., 2014). Rising global threats of terrorism and cyber-crime with criminals having extensive networks across regions demand for prompt need to have computer integrated systems that are readily available to mitigate these criminal activities. The police need to implement and utilize the most current technological systems to stay in step with the needs of the current 21st century in crime management. The use of computers in the NPS was introduced in late 2000. However, despite significant resources being spent on computerizing the services each year, optimal implementation
and usage in contributing to the organization’s goals on crime management are not clear (National Police Service Commission, 2015).

Comprehensive computer usage assessment in the NPS has not been adequately carried out to determine their effectiveness and impact. Overall, few studies have been carried out on computer adoption in the Kenyan law enforcement. There is deficit and a dearth of empirical work on strategic implementation to facilitate computer technology acceptance, in the efforts of successful adoption of computer use in the NPS. The study therefore seeks to establish the Adoption of Computer use in Crime Management by Police and the Moderating Effects of P.E, P. U., E. O. U. and S.N in Nairobi City County Kenya.

1.3 Purpose of the Study

The purpose of the study was to establish Computer use in Crime Management in Starehe Police Division

1.4 Objectives of the Study

i.) To establish the performance expectancy of a computer use in crime management in Starehe Police Division

ii.) To evaluate the Ease of use of a computer in crime investigation in Starehe Police Division

iii.) To determine the perceived usefulness of a computer in crime prevention in Starehe Police Division

iv.) To assess the extent at which subjective norms explain the attitude of computer usage in crime management

Comment [P7]: 1. Revision of the problem statement to clearly articulate the statement of the problem being addressed.

Comment [P8]: Outcome driven verbs used for objectives.
1.5 Research Questions

i.) What is the performance expectancy of a computer use in crime management in Starehe Police Division?

ii.) How is the Ease of Use of a computer applicable in crime investigation in Starehe Police Division?

iii.) What is the perceived usefulness of a computer in crime prevention in Starehe Police Division?

iv.) To what extent does the subjective norms explain the attitude of a computer use in crime management?

1.6 Justification of the Study

The research was imperative and salient because it would help inform leadership and key decision makers in the policy formulation concerning computers use in the law enforcement. By clearly showing the effects of technology in the police service, it was intended to provide a good argument of equipping the service with the right and adequate tools to enforce law and security in the century of technology. Secondly, cyber-crime offences are on the rise with criminals having increasingly sophisticated knowledge on computer technology. There was a need to therefore understand the importance of strategically staying ahead of the knowledge curve through systematic implementation of appropriate technology. Thirdly, a well-equipped and proficient police service provides confidence to the public of its professional legitimacy to match the critical duty they are called to fight crime.

Gaining first-hand information and empirical data provides a concrete platform from which to get relevant and current information. As such, findings on adoption of computer
use can be utilized to inform decision makers in policies that would improve crime management by facilitating efficiency in police functions in various ways. This include record keeping through automated systems, inter-connectivity, and enhanced information sharing between personnel and stations through the pragmatic adoption of computer use in police work.

1.7 Scope of the Study

This research sought to study the adoption of computer use by police in crime management in Nairobi City County Kenya. The locale for the study was the Starehe police Division of Nairobi County. This was utilized for sampling and data collection.

1.8 Limitation of the Study

During data collection, a sample of a few chosen police officers was requested to fill in the questionnaire on behalf of the population. A prime limitation to the study was the nature and sensitivity of police work, which by default calls for discretion and confidentiality. As such, it was anticipated that participants would not readily provide information. To overcome this challenge, the researcher sought to explain to the respondents the purpose and the importance of the study to the National Police Service, in gaining knowledge on the use of computer in the service.

1.9 Assumptions of the Study

This research was conducted with the following assumptions:

1. The police use of computer in crime management in Starehe Police Division would be a replicate of computer use all over the country.
2. The police officers in Starehe would be willing to provide the information accurately and truthfully.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

Though various studies concede that quantifying the effects of technology adoption such as improved performance, reduced crime, among others, is a complex issue, it can be argued that work flow, work load, back logs, inconsistencies, errors, among others can be improved (Custers & Vergouw, 2015; Lindsay, Jackson, & Cooke, 2013). The efficiency of goal attainment in effective adoption of computer use is dependent on a number of factors. These factors are two-fold and will be grouped into influencers and determinants (Lindsay et al., 2013). Influencers can be from an internal source (within) or from an external source (without) (Marangunić & Granić, 2015; Koper et al., 2014). Determinants are either motivators (positive) or inhibitors (negative).

Influencers include incentives, peer/colleague influence, perceptions, attitudes, self-efficacy or determination from within, supervisor’s involvement, among others (Custers & Vergouw, 2015; Lindsay et al., 2013). Determinants include resource availability and distribution, ease of use of the technology, customization of technology to the role, investment decisions to deploy resources, training infrastructure, among others.

Koper et al. (2014) contend that research in industrialized countries that have extensive resources of technology in law enforcement, reveal that there is still a dearth of proper compliance and utilization to the full extent. A study by Custers and Vergouw (2015) also points out that strategic optimization of the invested technology in police agencies is lacking in attaining superlative results of enforcing the law. Factors affecting adoption of technology is illustrated in figure 2.1 below.
Figure 2.1. Determinants and In Influencers of Effective adoption of computer use (Koper et al., 2014).

2.2 Review of Literature of Related Studies

This section reviews and analyzes studies addressing the trend of utilization and the effect of computers in law enforcement.

2.2.1 Effects of Computer Technology in Crime Prevention

Crime prevention is a critical policing function by law enforcement that can harness technology to mitigate and curb serious threats in the society (Koper et al., 2014). Technology can assist law enforcement in policing in a proactive manner while minimizing reactive actions. For instance, crime mapping can inform the decision-making process of deploying officers to zones that have been identified as hotspots upon
surveillance and monitoring (Joh, 2017). Even though predictive policing tools are in their infancy in crime prevention, (Thompson, 2016) contends that they show effectiveness even in the current limited application thus far. According to the Thompson, the main barrier in predictive policing is the lack of clear legal demarcation in its utilization, to ensure it is used within the appropriate legal and ethical codes (2016). Questions abound such as the legitimacy of predictive policing and whether prejudice and negative attitudes by law officials against groups that are associated with crime play a role in the prediction process: This is what Joh (2016) calls automated suspicion. The existing discrepancies and limitation in this area notwithstanding, it is presumed that technology can play a central role in prevention in such areas as detecting locations with a high probability of criminal activities, hence reducing crime rates.

ICT can also provide accountability in the process of record keeping. For instance, computer comparison statistics (COMPSTAT), management tools in law enforcement, helps supervisors review activities and duties by subordinate officers from automated record keeping (Dunham & Alpert, 2015). This incentivizes the officer to comply with policies, protocols and active record keeping. Studies indicate that there is a decrease of crime over time, due to the dynamic proactive measures taken and the work ethics enforced (Dunham & Alpert, 2015).

In advanced countries like the United States of America, law enforcement agencies use automated emergency dispatch systems (AEDS). This is a tool that aids in finding and dispatching the closest officers to a potential threat, instead of random deployment to assignments (Dunham & Alpert, 2015). This serves to contain a situation before it gets
out of hand. A distinct limitation of this kind of technology in policing is the need for specialized knowledge in the technical aspects. The more sophisticated a technological tool is in its function, the more expertise know-how it is likely to require in operating, managing, maintaining and upgrading it (Dunham & Alpert, 2015).

2.2.2 Effects of Computer Technology in Crime Investigation

Crime investigation utilizes a number of technological tools. Computer forensics is one of the tools used for investigating crimes. This policing tool assimilates expertise in investigative law and computer science (Chen, 2013). It aids in the retracing, recovery, and analyzing of activities and data obtained from things or activities that leave footprints. This includes such things as embedded global position system (GPS), geographic information system (GIS) in vehicles, satellite navigation software(satnav), phone communications, cyber and computer activities, transactions, among others (Dunham & Alpert, 2015). Other tools include camera surveillance, dactyloscopy or fingerprinting, automated fingerprint identification system (AFIS), mobile data centers in laptops, automated field reporting systems, inter alia. These tools enable law officers to carry out activities for investigation such as network analyses, database coupling, data mining, automated reporting and record keeping in real-time (Custers & Vergouw, 2015). This in turn promotes efficiency and cost effectiveness in transmitting information from one location to another (Koper et al., 2014). Additionally, officers from a remote location can communicate with colleagues at a central agency and transmit needed information to support their decisions in filtering, tracking, and quickly apprehending suspects (Dunham & Alpert, 2015).
2.2.3 Effects of Computer Technology in Crime Detection

Technological tools that are utilized in the preventive as well as investigative work simultaneously assist in detecting criminal activities or movements. Examples include closed circuit television (CCTV) systems for surveillance, software for movement analysis that assist in monitoring fugitive, shot spotters that identify and pinpoint exact location for gunshots, alert issuing software in social media platforms among others (Joh, 2016). A widely used tool for detective work is CCTV to monitor zones and aid in detecting suspicious activities and possibly deterring potential threats (Ozer, 2016). In countries like the United Kingdom the automatic license plate reader (ALPR) assists in conducting surveillance to detect criminal activities (Ozer, 2016). In Kenya, the Automatic Number Plate Recognition (ANPR) control system control all ANPR equipment and assist in archiving/retrieving recognized license plates. ALPR and traffic monitoring systems enter information into databases to detect any irregularities, like stolen vehicles, as well as entering data for future reference and information sharing with other agencies (Joh, 2016; Ozer, 2016).

2.2.4 Subjective Norms in Computer Technology Adoption

Research shows that technology adoption can be and is indeed influenced by subjective norms. Subjective norm is the aspect that the end-user considers other people's views and values, and is thus subjective to their perception (Bhattacherjee & Lin, 2015). These are people whose views are held in high regard by the subject or end-user. The subjective norm can either be supportive towards the end goal of adoption and implementation. Alternatively, it can be non-supportive. In short, users are influenced by external attitudes and stimuli. The normative beliefs determine the strength of the subjective norms in an
individual. This refers to how an individual perceives the expectation of relevant people around him or her and the incentive to acquiesce or comply with those expectations (Barnett, Pearson, Pearson & Kellermanns, 2015). Normative belief thus serves as a motivator or demotivator for compliance towards successful eventual adoption. The subjective norm can be determined by colleagues or managerial team. In the case where mandatory requisites for technology usage are in place, the end-user's normative belief will strongly influence intention towards adoption and usage, even when it is contrary to attitude. Additionally, there are internal factors that are influencers in adoption of technology. These are values that emanate from the respective end-user such behavioral intention, personal world-view, self-efficacy and competency (Marangunić & Granić, 2015). Behavioral intention is user's attitude towards, and willingness to adopt and effectively use the technology. Attitudes in this case, entail the user's perception towards an interface, or a devise’s usefulness, in addition to its ease of usage. Attitude is informed by upheld beliefs and evaluations done of the consequences and end-results of usage. Attitude in turn determines behavior motivation, a strong indicator of optimum technology adoption. Research suggests that attitude is a vital element towards acceptance, eventual usage and the successful outcome, in addition to the impact of technology in the respective police work. It is worth reiterating that subjective norms affects attitude and the intention.

Teo (2009) argues that perceived usefulness (PU), perceived ease of usefulness (PEU), and attitudes towards computer usage (ATCU) are interrelated. PEU potentially affects PU. In his research, the author shows that subject norm (external stimuli) fairly or moderately affects the PEU. Subjective norm is counted as an external variable to
technology acceptance model (TAM), while PU and PEU are substantial factors of influence in TAM. Appropriate sustainable strategies are thus needed to ensure successful implementation of innovative interfaces, applications, customized police work apps that positively and significantly improve police work. These strategies potentially foster positive attitudes that in turn foster performance.

There are other important factors that ought to be considered simultaneously with subjective norm, since they affect adaptation and the strength of the outcome in the work force. These include the technology system design; competency or proficiency of systems; implementation process and orientation; social-cognitive culture in the work force; organizational structure; managerial or leadership influences; resource and financial availability. According to Barnett et al. (2015) the aforementioned factors tend to indirectly influence subjective norms.

2.3 Theoretical Framework

This study will seek to utilize the constructs of the Theory of Technology Accepted Model (TAM), theory of reasoned action and its derivative in user acceptance and Unified Theory of Acceptance and Use of Technology (UTAUT).

2.3.1 Theory of Technology Acceptance Model

The Theory of Technology Acceptance Model (TAM) is a suitable framework upon which to explicate the adoption of technology in an organization (Marangunić & Granić, 2015). Developed by Davis (1986), it is built upon some key concepts. These include the concept of: a) an individual’s perception of whether the technology is easy or difficult to use; b) the end-users’ perception of benefits derived from utilization. These two contribute to the attitude an individual develops for the technology. Both the attitude and
the ease of use determine willingness of utilization or behavioral intentions for usage (B) by an end-user, or consumer (Marangunić & Granić, 2015). Positive perceptions such as user friendliness, and anticipated benefits of increased productivity, will influence the attitudes towards affinity, and greatly favor the chances of utilization. The purpose of this model is to demonstrate the dynamics that factor in utilization of optimal technology, which could play a role in determining the eventual adoption in the police service. Ease of usefulness and presentation of the benefits of technology would influence implementation. The relevance of the TAM theory to the conceptual framework specifically for this paper can be explained thus: the concepts of the theory (perceived usefulness and perceived ease of use) play a big role on predicting, explaining and determining how effective, viable and sustainable the use of computer as an independent variable is to the dependent variables of crime prevention, detection, investigation and personnel performance (Wallace & Sheetz, 2014). This is illustrated in figure 2 below.
2.3.2 Theory of Reasoned Action and its derivative in user acceptance

A classical social psychology theory, Theory of Reasoned Action (TRA) by Fishbein and Ajzen, which expounds on the theory of attitude, serves as a supportive predictor of an individual's compliance to a behavior (Kim & Crowston, 2011; Yzer, 2013). According to the theorists, TRA is influenced by the factor of behavioral intention (BI). BI is influenced by an individual’s attitude or beliefs towards an object and his or her perception of the subjective norms regarding the behavior (Yzer, 2013). Subjective norms include peer pressure that influences an individual’s behavior. This means that other people’s views impact the views, attitudes and behaviors of others. BI is defined as the readiness to engage in a behavior due to the anticipated end-results (Kim & Crowston, 2011; Yzer, 2013).
TRA has previously been utilized as a framework in the efforts of ICT implementation. In these instances, subjective norms (e.g. workplace culture, colleague’s attitudes) and an individual’s attitude were found to be key determining factors of peoples’ intentions to utilize technology (Kim & Crowston, 2011; Koper et al., 2014). The importance of internal influencers and determinants such as attitudes, perceptions and subjective norms is that they factor on how implementation, execution, and consistent compliance is performed to the superlative benefits of a law enforcement agency (Marangunić, & Granić, 2015). As such, TRA will be utilized in the study to evaluate the adoption of technology by police officers. The interactions between these factors are illustrated below.

**Figure 2.3: Theory of Reasoned Action and its derivative user acceptance (Kim & Crowston, 2011).**

As illustrated in figure 1, Kim and Crowston (2011) contend that the attainment of the intended goal, in this case the adoption of technology and complete compliance in its utility is partly influenced by external and internal influencers. These can either be positive or negative oriented. Consequently, these elements will in part impact the end goal of technology use. Other determinants such as resource deployment ease of technology usage *inter alia* also affect technology adoption. As such, there is a
connection between the theory of reasoned action and its derivative user acceptance and the conceptual framework of technology use in police work.

2.3.3 Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and use of Technology (UTAUT) was proposed by Venkatesh, Morris, Davis, & Davis in 2003. The theory seeks to explain the user intention to use information system, as well as the subsequent behavior of users. The UTAUT theory holds that there are four main factors that determine user behavior and eventually the user acceptance (VENKATESH ET AL., 2003). These factors are performance expectancy, effort expectancy, social influence and facilitating condition. The first three constructs create a behavioral intention to act and thus affect use behavior. The four constructs influence user behavior. In addition to the four constructs that directly impact user behavior, the moderators are gender, age, experience and voluntariness to use. Each moderator impacts one or four constructs (Venkatesh et al., 2003). The construct of the UTAUT theory is depicted in the figure below.
According to Venkatesh et al. (2003, p. 447) there are several core constructs to the Unified Theory of Acceptance and use of Technology (UTAUT) model. They include:

1. **Performance expectancy.** This is the degree to which an individual believes that using the system will help him/her to attain gains in job performance. Performance expectancy is the strongest predictor of user intention. The construct is moderated by gender and age.

2. **Effort expectancy.** Regards that the ease of use is actually a determinant of the use of a system or service. The effect of this construct will be most clearly moderated by age, gender and experience, where especially young women at early stages of experience are expected to be affected (Venkatesh et al., 2003).

3. **Social influence.** This signifies the degree to which an individual perceives that important others believe he or she could use the new system (Venkatesh et al., 2003).
The construct holds that an individual is influenced by the way she thinks others will view her having used the particular technology. This construct is affected by all indirect moderators: gender, age, voluntariness and experience.

4. Facilitating conditions. These are defined as the degree to which individuals believe that an organizational and technical infrastructure exists to support use of the system (Venkatesh et al., 2003, p. 453). Researchers have found that older workers attach more importance to receiving support than younger workers do, and more experienced workers find support through several channels within an organization.

In this research, it is important to note that the use of a computer which facilitates information technology is influenced by this theory. Before law enforcement officers utilize a technology, they have to see whether they meet the required performance. The ease of use of the technology also influences the adaptation of the technology by the users. The easier it is to use a computer to store, retrieve, transmit and manipulate data the more the police officers will use. The perception of others on the user of a computer to perform a task will also be a factor to consider. If the colleagues of the user perceive that the user of the system will be useful, then it will influence the adoption. The availability of infrastructure in the organization for the use of the computers should also be considered. Older police officers may attach more importance to receiving support than junior officers. More experienced police officers in computer use may require the support of the organization to advance their technology skills
2.4 Limitations in Technology

As salient as technology is, Danner (2017) contends that improvement to routines and practices is not always guaranteed from the strategic means used in adoption of technology. For the new kid on the block such as predictive policing using technology, there are no longitudinal studies over the course of substantial time, to demonstrate its pragmatic usefulness and sustainability in its implementation in enforcing the law (Thompson, 2016). For this reason, the adoption process should be congruent and germane to the relevant services.

2.5 Summary of Literature Review

Advanced technology has infiltrated everything in our daily work lives. For instance, electronic recording systems have tremendously facilitated sharing of information, interconnectivity, and preservation of data. In advanced countries like the United States, the availability of far more resources has given law enforcement the capability to implement and harness the power of advanced technological systems (Danner, 2017; Joh, 2016). These include adopting impressive systems for retracing human activities, surveillance, tracking and monitoring systems, software for mining and analyzing data, body worn cameras that can scan and transmit information in real-time to the station for facial recognition and tracking (Danner, 2017; Ribaux, Crispino, & Roux, 2015). Police officers can then strategically use these methods to support and give clarity to the very critical decision-making process. An officer is better informed by intelligence gathered on whether to further investigate a potential threat or archive the information for referral use in the future (Joh, 2016; Ribaux et al., 2015). This is positive advancement to the traditional police work of “filtering”. Filtering is the central work of law enforcement
where they can screen the general population to identify a suspect (Joh, 2016). These classic traditional police work entails observing, inquiring, interrogating, generating information from witnesses among others. Studies show that advanced technology has made police work cost effective, with advantages of improved preservation of data, consistency in reporting, and a strengthened legal system (Danner, 2017; Ribaux et al., 2015). All these help in preventing, detecting, investigating. The import of optimizing these critical functions of police work underscore the need for strategic implementation, through creative means of influencing perceptions, attitudes and behaviors that enhance technology acceptance and use.

2.6 Conceptual Framework

The diagram below shows the relationships in the variables of this research. The independent variable is adoption of computer use in police. The moderating factors included performance expectancy, ease of use, perceived usefulness and subjective norms. The performance expectancy focused on the workload, effectiveness, morale and competence. The determinants in Ease of use focused on crime mapping, Hot spot identification, intelligence gathering and criminal investigations. The variable of perceived usefulness focused on location of crime and networking among stakeholders. Subjective norm focused on management attitudes and work culture. The dependent variables were adopted and customized from the Technology Accepted model (TAM) and The Unified Theory of Acceptance Model (UTAUT).
Figure 2.5 Conceptual Framework Model Adopted from Technology Acceptance Model (Davis et al. 1989)
CHAPTER THREE
RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents the methodology to be used in the study. The chapter therefore, discusses the research design, the study variables, the site of the study, the target population, the sampling techniques and sample size, research instruments, validity and reliability of the instrument, the pilot study, data collection procedures, data analysis, presentation, data management and ethical consideration.

3.1 Research Design

The study adopted a cross sectional survey design. Survey designs constituted the framework that enabled the researcher to study the target population by selecting and studying samples chosen from the population in order to discover the relative incidence, distribution and interrelations among variables (Kerlinger & Lee, 2000). In this study, the information on the performance expectancy, ease of use, perceived usefulness and subjective norms of computer adoption in crime management were collected from a given sample of the population at only one point in time with selected individuals asked to respond to a set of standardized and structured questions about what they thought or felt. The design enabled the researcher to collect data and have the ability to understand a population from a sample.

3.2 Study Variables

This study had several variables: performance expectancy, ease of use, perceived usefulness and subjective norms as the independent variables and computer use in crime management as the dependent variable. The independent variables were adopted from the
Technology accepted Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT).

This study was carried out at Starehe Police Division. The division has 5 police stations and 3 distinct police categories. The three categories are a) Kenya Police; b) Traffic Formation; and c) Criminal Investigation. Each of the three categories constitutes of senior rank officers, middle rank officers and lower rank officers. The division was suitable because a) it covers a wide geographical region; b) it has a variation of ranks of police officers. Starehe Police Division is located in an area where there are informal settlements of Mathare, as well as the suburbs of Muthaiga. The wide ranging expansive nature of this division made it an ideal choice for the study.

3.3 Target population

According to Mugenda and Mugenda (2003), target population entails members of real or hypothetical set of people, objects or events the researcher wishes to generalize the results of the research. The study targeted police officers from Starehe police Division. The officers consisted of officers drawn from the three categories namely, Kenya police officers, Traffic personnel, and DCI officers. The officers comprised of Gazetted Officers, Members of Inspectorate, Non-Commissioned Officers and constables as targeted population.

3.4 Sampling Techniques and Sample Size

Stratified random sampling was used in the study. The population was divided into groups based on shared distinctive characteristics (Wilson, 2014). In the study, the strata were divided based on the ranks derived from the three categories in the target population. The senior rank in the target population were the Senior Superintendent of
Police (SSP'S) and the Superintendent of Police (SP’S), the middle management was made up of Chief Inspectors (CTS), Inspectors (IP’S). The lower rank was made up of the Senior Sergeants (S/SGTS), Corporals (CPL’S) and Constables (PC’S). This method ensured equitable representation of the population in the sample. As such, all the subgroups were proportionally represented. Inclusion of participants was contingent on an officer being stationed in the 5 police stations and from the three categories at the Starehe Division. Exclusion of participants was based on preclusion of the aforesaid factors.

3.5. **Sample size determination**

For a sample to be representative, of the population, the sample size must be calculated taking into account the Population (N), confidence level (Usually 95%, but the higher the level the larger the sample size) and margin of error (.05 is a good margin). The formula used was propounded by Yamane’s 1967 (as cited in Singh & Masuku, 2014).

\[
n = \frac{N}{1 + N(e)^2}
\]

*Yamane’s Equation* (Singh & Masuku, 2014).

Where 

- \( n \) = sample size
- \( N \) = Population size
- \( e \) = sampling error/precision error (0.05)

**Senior Rank Stratum N = 3**

\[
n = \frac{3}{1 + 3(0.05)} = 3
\]

**Middle Rank Stratum N = 29**
Lower Rank Stratum $N = 702$

$$n = \frac{29}{1 + 29(0.05)} = 27$$

$$n = \frac{702}{1 + 702(0.05)} = 255$$

### Table 3.1 Stratified Sampling

<table>
<thead>
<tr>
<th>STRATA</th>
<th>Sample Size (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior Rank</td>
<td>3</td>
</tr>
<tr>
<td>Middle Rank</td>
<td>27</td>
</tr>
<tr>
<td>Lower Rank</td>
<td>255</td>
</tr>
<tr>
<td>Total Sample Size</td>
<td>285</td>
</tr>
</tbody>
</table>

Table 3.2 Rank and Number of Police Officers at Starehe Police Division office as of 2017 (Source: Starehe Police Division Office, 2017)

<table>
<thead>
<tr>
<th>Category</th>
<th>Kenya Police</th>
<th>Traffic Formation</th>
<th>Criminal Investigations</th>
<th>Total</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior</td>
<td>2</td>
<td>NIL</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Middle</td>
<td>23</td>
<td>3</td>
<td>3</td>
<td>29</td>
<td>27</td>
</tr>
<tr>
<td>Lower</td>
<td>615</td>
<td>56</td>
<td>31</td>
<td>702</td>
<td>255</td>
</tr>
<tr>
<td>Total</td>
<td>640</td>
<td>59</td>
<td>35</td>
<td>734</td>
<td>285</td>
</tr>
</tbody>
</table>
3.6 Research Instrument and Testing

3.6.1 Data Collection Method

Questionnaires were used in the study. This is because the study was concerned with variables that cannot be directly observed such as feelings of respondents. The sample size was also quite large and given the time constrains, questionnaires were seen to be the ideal tool for collecting data. The target population (police officers) was also largely literate and the expectation was that there would no difficulties responding to questionnaires. It had five sections. Section A required the police officers to provide their general demographic information. Section B required the police officer to respond to close ended questionnaire concerning the effect of computer usage on performance expectancy. Section C focused on the ease of use of a computer. Section D focused on the perceived usefulness of a computer use in crime prevention. Section D focused on the subjective norms of a computer use in crime management.

3.6.2 Validity and Reliability of the Research Instrument

Validity is the extent to which results can be accurately interpreted and generalized to other populations. It is the extent to which research instruments measure what they are intended to measure (Onen, 2007). Content validity is the key type of validity for this study. Content validity focuses on the degree to which the instrument fully assesses or measures the construct of interest. The validity of the questionnaire was ascertained by seeking expert opinion from my supervisor.

Reliability is the extent to which the questionnaire produces the same results on repeated trials (Barnett, 2000). It is the stability or consistency of scores over time. A test-retest approach was used in this research. 10 police officers from Embakasi Police Division
were randomly selected to respond to the questionnaire in a pilot data collection. They responded on two occasions without any prior notice. Pearson correlation was conducted to determine relationships.

3.7 Pretest

A pretest was carried out at Embakasi Police Division was used to collect data for testing reliability and validity of the questionnaire. This was done to ensure that any difficulties that could potentially arise during the main data collection activity were highlighted and mitigated. 10 Police Officers were selected at random to respond to the questionnaire on two different occasions.

3.8 Sampling Procedure

The research proposal was developed over a period of six months under the guidance of a supervisor. Once the proposal was ready, permission was sought from Kenyatta University and National Commission for Science, Technology and Innovation (NACOSTI) to proceed with the study. Once the permission was granted, I then proceeded to collect my data. The quantitative data was collected from a sample of 285 respondents from a population of 734 using a questionnaire. The assistance of three field assistants was enlisted largely due to the factor of time limit and the large sample size. The three assistants were given an orientation of the crucial requisites of handling, issuing and retrieving the questionnaires to the various locations, securely, confidentially and non-coercively. The assisting role of the assistants was to deliver the sealed questionnaires to the supervisors at the police divisions and retrieve them back in the given time frame. My role as a researcher was to communicate, direct, train, oversee and supervise. Ample
communication was done to seek consent and ensure comprehension of the questionnaire’s purpose and guidelines with the various police units through the supervisors. The data collected was analyzed using descriptive analysis and presented using pie charts.

3.9 Data Analysis and presentation

Data analysis details how the collected data was eventually analyzed; what tools were used; what software packages were employed; whether data was collected in the field, as observations were made, or later from recordings (Pajeras, 2007). The study combined both qualitative and quantitative approach (Bernard, 2017). Qualitative analysis involved the use of thematic analysis. Quantitative analysis involved the use of descriptive analysis. The descriptive analysis was utilized to articulate the finding in a meaningful way from the raw data using charts and graphs. Data was also presented via frequencies, standard deviation inter alia (George & Mallery, 2016). Data was collected using the likert scale: 1.-Strongly Disagree, 2.-Disagree, 3.-Neutral, 4.-Agree, 5.-Strongly Agree from each respondent. The mean and standard deviation of each variable were analysed with the help of statistical package for social science (SPSS).

3.10 Ethical Considerations

The main objective of observing ethics in educational research is to protect research participants and to maintain integrity of the research and professionalism (Ethics Standards of the American Educational Research Association, 2001.). Clearance was sought from Kenyatta University Graduate School, the Office of the Inspector General and NACOSTI to carry out the research. No police officer was coerced by force or by
reward into giving out information. The information sought was treated with utmost confidentiality.
CHAPTER FOUR

DATA ANALYSIS AND PRESENTATIONS

4.1 Introduction

This chapter discusses the data analysis collected from the participants in this study. It delineates the data derived from 185 responses received out of the 285 questionnaires and the analysis thereof. A total of 185 responses from the participants were received from the targeted potential respondents. A majority of the participants completed all the questions that were required. The data and information gathered from the field work was analyzed using the SPSS software. This chapter solely focuses on presenting the gathered data in a meaningful way that reflects the objectives and the research questions.

4.2 Response rate

This study targeted a sample of 285 police officers in Starehe Police Division. However, 185 responses were returned and used for analysis. This made a response rate of 64.91 percent. According to the American Association for Public Opinion Research (AAPOR) (2000), the policy for minimum acceptable response rate is 60% (Johnson & Owens, 2003). As such, the aforementioned response rate in the study was perceived to be fairly ample enough to serve the purpose of the study. This is also in line with the work by Fincham (2008). It is however worth noting that in his research, Fincham concedes that there is no consensus of a standardized policy in scholarly journals across the board in regards to the standard permissible response rate (2008). For instance, research work by Mugo, Njagi, & Chemwei, (2017) stipulate that the scholarly work of Bryman (2012) cites Mangione (1995) to be asserting that the acceptable response rate ought to be 70–85%. The relatively low turnout experienced on return of questionnaires was attributed to...
the electioneering period which made police offices in Starehe Police Division more committed to other delegated assignments. The details are explicated in the subsequent paragraphs.

4.3 Demographic information

The demographic information is critical in gaining the general overview of the respondents in order to gauge whether the response was a representative of the entire population. The demographics that were of key significance to the researcher were; gender, age, position in police service, number of years in police service, department, duration worked in the department, education level and computer literacy.

4.3.1 Gender of the respondents

The majority of the respondents were male constituting of 120(64.9%) in number and 65(35.1%) were females. This is an indication that the male gender is the predominate group in the National Police Service. However, the percentage of females which constitute of 35.1% meets the threshold for gender representation in the workforce, as presented in figure 4.1
4.3.2 Age of the respondents

The study established that majority of the respondents ranged between the ages of 31–40 years71(38.4%), followed by the range between 21–30 years67(36.2%). The rest of the age ranges in the study were officers between 41–50 years 22(11.9%); those aged above 50 years 14 (7.6%); and finally, those aged below 21 years being 11 (5.9%) as illustrated in Figure 4.2.
4.3.3 Position in police service

The sampling was done across various ranks among the police officers in Starehe Police Division. Most of the respondents 152(82.2%) were in lower (subordinate) position, 29(15.7%) were from middle (inspectorate) position while the minority 3(2.1%) were from the senior (Gazetted) position. The responses are presented in figure 4.3. This indicates that the opinions of officers across all the ranks were captured in the study.

![Position of the respondents in police service](image)

Figure 4.3: Position of the respondents in police service

4.3.4 Respondents’ years served in police service

Most of the respondents 61 (33.0%) had served for between 11–20 years, 44 (23.8%) had served for 6–10 years, 39 (21.1%) had served in the police service for less than five years while 41 (22.1%) had served for over 20 years, as indicated in figure 4.4. The results indicate that most of the respondents had served in police service for more than five years.
which imply that they have enough experience to give informed opinion on the use of computers in crime management.

![Bar chart showing years served in police service](chart.png)

**Figure 4.4: Response on the years served in police service**

### 4.3.5 Departments the respondents work

The majority of the respondents 145(78.4%) were from Kenya police service, 17(9.2%) were from traffic formation while 23(12.4%) were from directorate of criminal investigation, as indicated in figure 4.5.
Figure 4.5: Department that the respondents works

4.3.6 Years worked in the current department

Most of the respondents 61(33.0%) had worked in their current department for less than five years, 44(23.8%) had worked for between 6–10 years, 39(21.1%) had worked in the present department for between 11–20 years while 40(21.7%) had worked for over 20 years, as illustrated in figure 4.6
4.3.7 Level of Education

Figure 4.7 indicate that most of the respondents 89(48.1%) had secondary education, 69(37.3%) had diploma, 23(12.4%) had bachelor’s degree while a minority 4(2.2%) had post graduate degree. The information is presented in figure 4.7.
4.3.8 Respondents’ Computer Literacy

The study sought to establish respondents’ computer literacy. It was established that majority of the respondents 133 (71.9%) were computer literate while 52 (28.1%) were not. The responses are presented in figure 4.8.

![Pie chart showing 72% Yes and 28% No for computer literacy]

**Figure 4.8** Respondents Computer Literacy

4.4 Performance Expectancy of Computer Use in Crime Management in Starehe Police Division

The first objective of the study was to establish the performance expectancy of a computer use in crime management in Starehe Police Division. The respondents were provided with Likert scale rate questionnaires; SD—strongly disagree, D—disagree, N—neutral, A—agree, and SA—strongly agree. The data was analyzed using descriptive statistics; frequencies and percentages and presented in frequency table based on the objectives.
The majority of the respondents 64 (34.6%) agreed and 56 (30.3%) strongly agreed that computers has allowed them to work more effectively. The computers have also made the work of the police officers easier, as indicated by 67 (36.2%) of the respondents who agreed and 65 (35.1%) who strongly agreed with the statement. Similarly, 66 (35.7%) of the respondents agreed and 62 (33.5%) strongly agreed that the computers have assisted them cope with the amount of information police needs to do their job properly. These finding are in unanimity with literature work on computer use in police work. For instance, there is a consensus in empirical literature that computer use facilitates automation, interconnectivity, ease of information archiving and retrieval which in turn improves performance expectancy through increased efficiency in conducting any police work (Okuku, Renaud, & Valeriano 2015; Joh, 2016;Otieno, Were, & Moronge, 2017).

On statement that the computer has required them to follow unnecessary steps to get things done, majority of the respondents 56 (30.3%) strongly disagreed and 54 (29.2%) disagree with the statement. There is agreement in scholarly work that this is the case: Computer usage minimizes work load (Danner, 2017; Fatih & Bekir, 2017). The manual process of record keeping among others requires more steps and takes more time.

The study established that the use of a computers makes others motivated, as evidenced by 73 (39.5%) of the respondents who agreed and 55 (29.7%) who strongly agreed. On statement that the National Police Service will facilitate me in using the computers, the proportion of the respondents who agreed with the statement and those who disagreed were almost similar, 31 (16.8%) strongly disagreed, 32 (17.3%) disagreed while 48 (25.9%) agreed and 43 (23.2%) strongly disagreed. Most of the respondents 68 (36.8%)
agreed and 54 (29.2%) strongly agreed that computers have helped departments clear up work faster. The responses are presented in table 4.1.

**Table 4.1: Response on Performance expectancy of a computer use in crime management**

<table>
<thead>
<tr>
<th>Statement</th>
<th>SD</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>A computer has allowed me to work more effectively.</td>
<td>31</td>
<td>16.8</td>
<td>12</td>
<td>6.5</td>
<td>22</td>
</tr>
<tr>
<td>A Computer has made my work easier.</td>
<td>18</td>
<td>9.7</td>
<td>17</td>
<td>9.2</td>
<td>18</td>
</tr>
<tr>
<td>A computer has helped me cope with the amount of information police need to do their job properly</td>
<td>16</td>
<td>8.6</td>
<td>19</td>
<td>10.3</td>
<td>22</td>
</tr>
<tr>
<td>A computer has required me to follow unnecessary steps to get things done.</td>
<td>56</td>
<td>30.3</td>
<td>54</td>
<td>29.2</td>
<td>28</td>
</tr>
<tr>
<td>The use of a computer makes others motivated</td>
<td>20</td>
<td>10.8</td>
<td>17</td>
<td>9.2</td>
<td>20</td>
</tr>
<tr>
<td>The National Police Service will facilitate me in using the computers.</td>
<td>31</td>
<td>16.8</td>
<td>32</td>
<td>17.3</td>
<td>31</td>
</tr>
<tr>
<td>A computer has helped my department clear up work faster</td>
<td>26</td>
<td>14.1</td>
<td>15</td>
<td>8.1</td>
<td>22</td>
</tr>
</tbody>
</table>

The respondents were asked whether they have other computer expectations on computer performance, majority of the respondents 133(71.9%) had no more expectation on computer performance while 52(28.1%) mentioned a number of expectations. The respondents were further presented with open ended question to indicate other expectations on computer performance; the statements were summarized and presented in
form of statements. The respondents expect more training among the police officers to enhance computer performance, the national police service should invest in ICT infrastructure to enhance performance, the respondents also expect investment in internet to cover all police stations to enhance communication. Indeed literature show that it is imperative that high priority be placed on strategically and pragmatically training the law enforcement with the necessary skills to optimally utilize computers and related technology in managing crime (Bocaniala et al., 2011).

**Table 4.2 Other expectation on computer performance**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>52</td>
<td>28.1</td>
</tr>
<tr>
<td>No</td>
<td>133</td>
<td>71.9</td>
</tr>
<tr>
<td>Total</td>
<td>185</td>
<td>100.0</td>
</tr>
</tbody>
</table>

As illustrated in table 4.2, the open-ended question of whether the officers had other expectations on computer performance, 52 participants responded in the affirmative. Given the chance to specify, a small portion delved in to what other expectations they had. The responses entailed information similar to that which was included in the table for the close-ended question. They included expectations of increased speed and reduced work load.

**4.5 The Ease of Use of Computers in Crime Investigation in Starehe Police Division**

The second objective was to examine the perceived usefulness of a computer in crime prevention in Starehe Police Division. The study established that the computers have made the compilation of police case file easier, since 69(37.3%) of the respondents
agreed and 55 (29.7%) strongly agreed. It was also established that computers have made the written statements of the witnesses more legible, as indicated by 68 (36.8%) of the respondents who agreed and 57 (30.8%) of the respondents who strongly agreed. Studies show that use of technology catalytically improves work through automation and simplifies technical issues (Joh, 2016).

Majority of the respondents 71 (38.4%) agreed and 66 (35.7%) strongly agreed that the use of computers made the storage of sensitive information as evidence easier. Also, the use of computer has made the investigation of cybercrimes easier, as indicated by 69 (37.3%) of the respondents who agreed and 74 (40.0%) who strongly agreed with the statement.

Most respondents 71 (38.4%) agreed that the use of computer has safeguarded the information of criminals being investigated, and 57 (30.8%) strongly agreed with the statement. Similarly, the use of computer has made the storage of investigation data safe, as indicated by 69 (37.3%) of the respondents who agreed and 77 (41.6%) who strongly agreed. Apart from safe custody of investigation data, it was established that the use of computers has enabled easier access of information of criminal records. Sensitivity, accuracy and efficiency are critical hall marks of police and security work. Studies concede that this is effectively augmented through computer use in line with the responses in this study (Danner, 2017; Otieno et al., 2017)

The study established that it is easier to remember how crime is analyzed using a computer, as indicated by 66 (35.7%) of the respondents who agreed and 60 (32.4%) of respondents who strongly agreed. Most of the respondents, 66 (35.7%) strongly disagreed
and 57 (30.8%) disagreed with the statement that computer operating system is rigid and inflexible to interact with.

Table 4.3: Ease of use of Computers crime investigation

<table>
<thead>
<tr>
<th>SD</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>%</td>
<td>F</td>
<td>%</td>
<td>F</td>
</tr>
<tr>
<td>-----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>A computer has made the compilation of a police case file easier</td>
<td>24</td>
<td>13.0</td>
<td>14</td>
<td>7.6</td>
</tr>
<tr>
<td>A computer has made the written statements of the witnesses more legible</td>
<td>14</td>
<td>7.6</td>
<td>19</td>
<td>10.3</td>
</tr>
<tr>
<td>A computer has made the storage of sensitive information as evidence easier</td>
<td>10</td>
<td>5.4</td>
<td>12</td>
<td>6.5</td>
</tr>
<tr>
<td>A computer has made the investigation of cybercrimes easier</td>
<td>11</td>
<td>5.9</td>
<td>14</td>
<td>7.6</td>
</tr>
<tr>
<td>A computer has safeguarded the information of criminals being investigated</td>
<td>12</td>
<td>6.5</td>
<td>16</td>
<td>8.6</td>
</tr>
<tr>
<td>A computer has made the storage of investigation data safe</td>
<td>10</td>
<td>5.4</td>
<td>9</td>
<td>4.9</td>
</tr>
<tr>
<td>A computer has enabled easier access of information of criminal records concerning a criminal by a prosecutor</td>
<td>19</td>
<td>10.3</td>
<td>11</td>
<td>5.9</td>
</tr>
<tr>
<td>It is easy for me to remember how crime is analyzed using a computer</td>
<td>19</td>
<td>10.3</td>
<td>13</td>
<td>7.0</td>
</tr>
<tr>
<td>A computer operating system is rigid and inflexible to interact with</td>
<td>66</td>
<td>35.7</td>
<td>57</td>
<td>30.8</td>
</tr>
</tbody>
</table>

Most of the respondents 147(79.5%) had no other information on ease of use of computers in crime investigation while 38(20.5%) provided additional information on ease of use of computers in crime investigation. The respondents opined that computers have made it add to destroy the evidence once entered into the system, the use of
computers has reduced the workload of physically going through the files to obtain required information. The computers have allowed access of information from different location easily through the internet. The use of passwords has enhanced safety of police information. Research concedes with findings that computer and technology in law enforcement has enabled automated archiving, protected and secure storage and interconnectivity which are essential to the highly sensitive work involved in crime management (Custers & Vergouw, 2015; Hendrix et al., 2016).

Table 4.4: Response on other information on ease of use

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>38</td>
<td>20.5</td>
</tr>
<tr>
<td>No</td>
<td>147</td>
<td>79.5</td>
</tr>
<tr>
<td>Total</td>
<td>185</td>
<td>100.0</td>
</tr>
</tbody>
</table>

As shown in table 4.4 above, 38 participants answered yes to the open-ended question asking the participants to provide any other information on the ease of use in computer use in their course of work. The response provided pointed to the need for making computer use user-friendly in regards to carrying the necessary functions of police work. Most of the participants who checked yes did not provide further explanation.

4.6 The Perceived Usefulness of Computer in Crime Prevention in Starehe Police Division

The third objective was to examine the perceived usefulness of a computer in crime prevention in Starehe Police Division. The study established that using computer technology in locating crime will enable police officers accomplish their tasks more
easily, as evident by 63 (34.1%) of the respondents who agreed and 66 (35.7%) who strongly agreed. Majority of the respondents 65 (35.1%) and 78 (42.1%) strongly agreed that tracing hotspot areas in crime mapping using a computer software would improve their job performance.

Most of the respondents 71 (38.4%) agreed and 66 (35.6%) strongly agreed with the statement that tracing hotspot areas in crime mapping using a computer software would improve their job performance. Similarly, 69(37.3%) agreed and 78(42.1%) strongly agreed that using computers would make it easier to do their job. Furthermore, 62(33.5%) agreed and 82(44.3%) strongly agreed that they find computer technology useful in their job. The responses are summarized in table 4.5.

**Table 4.5: Perceived Usefulness of a Computer in crime prevention in Starehe Police Division**

<table>
<thead>
<tr>
<th>SD</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>%</td>
<td>F</td>
<td>%</td>
<td>F</td>
</tr>
<tr>
<td>Using a computer technology in locating crime would enable me to accomplish my task more quickly</td>
<td>17</td>
<td>9.2</td>
<td>14</td>
<td>7.6</td>
</tr>
<tr>
<td>Tracing hotspot areas in crime mapping using a computer software would improve my job performance</td>
<td>12</td>
<td>6.5</td>
<td>9</td>
<td>4.9</td>
</tr>
<tr>
<td>Tracing hotspot areas in crime mapping using a computer software would improve my job performance</td>
<td>10</td>
<td>5.4</td>
<td>11</td>
<td>5.9</td>
</tr>
<tr>
<td>Tracing hotspot areas in crime mapping using a computer software would improve my job performance</td>
<td>13</td>
<td>7.0</td>
<td>6</td>
<td>3.2</td>
</tr>
<tr>
<td>Using a computer would make it easier to do my job</td>
<td>9</td>
<td>4.9</td>
<td>6</td>
<td>3.2</td>
</tr>
<tr>
<td>I find computer technology useful in my job</td>
<td>13</td>
<td>7.0</td>
<td>12</td>
<td>6.5</td>
</tr>
</tbody>
</table>
Majority of the respondents 152 (82.2%) had no other information on perceived usefulness on the use of computers in crime investigation, 33 (17.8%) provided additional information on perceived usefulness of computers in crime investigation as; integration of computers with mobile phones to enhance communication in remote sites, the use of computer technology to automatically send signals to the nearest police post, restructuring police commands to take advantage of computer technology.

Table 4.6: Other information on perceived usefulness

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>33</td>
<td>17.8</td>
</tr>
<tr>
<td>No</td>
<td>152</td>
<td>82.2</td>
</tr>
<tr>
<td>Total</td>
<td>185</td>
<td>100.0</td>
</tr>
</tbody>
</table>

For the open-ended question asking participants to provide any other information on perceived usefulness of computer use in crime prevention, 33 participants checked the yes answer. However, the respondents skipped proving specific explanation to the yes answer.

4.7 The Extent in which Subjective Norms explain the attitude of Computer Usage in Crime Management

The fourth objective of the study was to explore the extent at which subjective norms explain the attitude of computer usage in crime management. Majority of the respondents 58 (31.4%) agreed and 50 (27.0%) strongly agreed that people whose opinions they value will encourage them to use a computer in crime management. Also, 69 (37.3%) agreed and 51 (27.5%) strongly agreed that people who are important to them will support them to use computer technology to detect crime. Empirical literature work indicates that
subjective norm influences attitudes and eventual usage of new and novel policies and practices such as the adoption of computer use in crime management (Bhattacherjee & Lin, 2015). Ease of compliance is impacted by the views of other important and significant personnel involved in the decision making and implementation process.

The study established that the computer use makes crime analysis more interesting, as indicated by 77 (41.6%) of the respondents who agreed and 59 (31.9%) who strongly agreed with the statement. Likewise, 65 (35.1%) agreed and 67 (36.2%) strongly agreed that they like using computer in the course of their duties. It was also evident that the public expect police officers to have computer knowledge, as indicated by 68 (36.8%) of respondents who agreed and 63 (34.0%) who strongly agreed with the statement. The responses are presented in Table 4.7

**Table 4.7: Response on extent in which subjective norms explain the attitude of computer usage in crime management**

<table>
<thead>
<tr>
<th></th>
<th>SD</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>%</td>
<td>F</td>
<td>%</td>
<td>F</td>
</tr>
<tr>
<td>People whose opinions I value will encourage me to use a computer in crime management</td>
<td>15</td>
<td>8.1</td>
<td>23</td>
<td>12.4</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>58</td>
<td>31.4</td>
<td>50</td>
<td>27.0</td>
<td></td>
</tr>
<tr>
<td>People who are important to me will support me to use a computer technology to detect crime</td>
<td>11</td>
<td>5.9</td>
<td>26</td>
<td>14.1</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>69</td>
<td>37.3</td>
<td>51</td>
<td>27.5</td>
<td></td>
</tr>
<tr>
<td>The computer use makes crime analysis more interesting</td>
<td>14</td>
<td>7.6</td>
<td>9</td>
<td>4.9</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>77</td>
<td>41.6</td>
<td>59</td>
<td>31.9</td>
<td></td>
</tr>
<tr>
<td>I like using a computer in the course of my duty</td>
<td>14</td>
<td>7.6</td>
<td>14</td>
<td>7.6</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>65</td>
<td>35.1</td>
<td>67</td>
<td>36.2</td>
<td></td>
</tr>
<tr>
<td>I feel the social pressure to use my technological capabilities to solve most emerging crimes</td>
<td>14</td>
<td>7.6</td>
<td>19</td>
<td>10.3</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>74</td>
<td>40.0</td>
<td>45</td>
<td>24.3</td>
<td></td>
</tr>
<tr>
<td>I am expected of me by the public to have computer a knowledge</td>
<td>15</td>
<td>8.1</td>
<td>17</td>
<td>9.2</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>68</td>
<td>36.8</td>
<td>63</td>
<td>34.0</td>
<td></td>
</tr>
</tbody>
</table>
The respondents’ opinions on extent in which subjective norms affect computer usage were few since majority 156(84.3%) had no additional opinions while 29(15.7%) presented their opinion. They suggested that; the increase in cybercrime has made me appreciate the use of computers in crime investigation and that the global trends in the use of computers in crime investigation has made them use computers in crime investigation.

Table 4.8: Response on other information on subjective norms

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>29</td>
<td>15.7</td>
</tr>
<tr>
<td>No</td>
<td>156</td>
<td>84.3</td>
</tr>
<tr>
<td>Total</td>
<td>185</td>
<td>100.0</td>
</tr>
</tbody>
</table>

As shown in table 4.8 above, there were 29 participants who checked the yes box for providing any other information on subjective norms. None of the respondents provided further explanation to the question.

4.8 Regression Model Summary

The model summary presents the extent to which the independent variables predict the change in the dependent variable. The R square was 0.710, indicating that the independent variables; perceived expectations, ease of use, usefulness, and subjective norms contribute 71.0% change in the use of computers in crime management. Therefore, the remaining percentages are predicted by other factors that were not considered in this study.
4.8.1 Analysis of Variance

The ANOVA indicates the extent in which the data fit into the model. The analysis variance was utilized to statistically test the means of the four variables for statistical significance. The ANOVA results were significant (F = 52.571, P = 0.000) indicating that the data fit into the regression model. The statistical tool of ANOVA was able to verify and confirm the observed data.

ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>148.927</td>
<td>4</td>
<td>37.232</td>
<td>52.571</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>14.808</td>
<td>180</td>
<td>.082</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>163.735</td>
<td>184</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ANOVA Model. Source: Field Data (2017)

Coefficients of independent variables

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>.373</td>
<td>.100</td>
<td>3.740</td>
</tr>
<tr>
<td></td>
<td>Perceived expectation</td>
<td>.311</td>
<td>.031</td>
<td>.326</td>
</tr>
<tr>
<td></td>
<td>Ease of use</td>
<td>.201</td>
<td>.038</td>
<td>.192</td>
</tr>
<tr>
<td></td>
<td>Usefulness</td>
<td>.323</td>
<td>.035</td>
<td>.330</td>
</tr>
<tr>
<td></td>
<td>Subjective norms</td>
<td>.257</td>
<td>.032</td>
<td>.268</td>
</tr>
</tbody>
</table>

Source: Field Data, 2017
The model was therefore presented as:

\[ y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon \]

\[ y = 0.373 + 0.326 X_1 + 0.192 X_2 + 0.330 X_3 + 0.268 X_4 + \epsilon \]

**Coefficients of Independent Variable (Mertler & Reinhart, 2016)**

4.8.2 Interpretation of Coefficients of independent variables

The coefficient indicates the extent in which each independent variable contributes to the change in the dependent variable. Perceived expectations were significant (\( \beta = 0.326, p = 0.00 \)), ease of use (\( \beta = 0.192, p = 0.001 \)), usefulness was significant (\( \beta = 0.379, p = 0.000 \)) and subjective norm was also significant (\( \beta = 0.192, p = 0.002 \)).

The t-test results indicate the strength of each variable. The t-test results indicates that usefulness (t = 5.248) strongly influence the use of computers in crime management followed by perceived expectation (t = 4.894), followed by ease of use (t = 4.836) while subjective norms was found to least influence the use of computers in crime management (t = 3.919).

The findings revealed that performance expectations, ease of use, perceived usefulness and subjective norms influence the use of computers in crime management. It can therefore be deduced that the four variables have a critical moderating role on adoption of computer use in crime management.
4.9 Performance Expectancy of Computer Use in Crime Management in Starehe Police Division

The study shows that use of computers has allowed police officers in Starehe Police Division to work more effectively. The computers have also made the work of the police officers easier. Similarly, majority of the respondents agreed that the computers has assisted them cope with the amount of information police needs to do their job properly. The findings concur with Custers & Vergouw (2015) who established that technology adoption plays a role in improved performance, reduced crime, inter alia.. It can be inferred that the performance expectancy of the computer affects adoption of computer use in the efforts of crime management.

4.10 The Ease of Use of Computers in Crime Investigation in Starehe Police Division

The study established that the computers have made the compilation of police case file easier. It was also established that computers have made the written statements of the witnesses more legible. Majority of the respondents strongly agreed that the use of computers made the storage of sensitive information as evidence easier. Also, the use of computer has made the investigation of cybercrimes easier. The findings agree with the assertion by Joh (2017) that Technology such as computer use can assist law enforcement in policing in a proactive manner while minimizing reactive actions. For instance, crime mapping can inform the decision- making process of deploying officers to zones that have been identified as hotspots upon surveillance and monitoring.

Most respondents agreed that the use of computer has safeguarded the information of criminals being investigated. Similarly, the use of computer has made the storage of
investigation data safe. Apart from safe custody of investigation data, it was established that the use of computers has enabled easier access of information of criminal records. The findings concur with (Dunham & Alpert, 2015) who contend that technology can play a central role in prevention in such areas as detecting locations with a high probability of criminal activities, hence reducing crime rates. Technology can also provide accountability in the process of record keeping. For instance, computer comparison statistics (COMPSTAT), management tools in law enforcement, helps supervisors review activities and duties by subordinate officers from automated record keeping. The study established that it is easier to remember how crime is analyzed using a computer, as indicated by majority of the respondents who agreed. Most of the respondents disagreed with the statement that computer operating system is rigid and inflexible to interact with.

4.11 The Perceived Usefulness of a Computer in Crime Prevention in Starehe Police Division

The study established that using computer technology in locating crime enables police officers accomplish their tasks more easily. Majority of the respondents agreed that tracing hotspot areas in crime mapping using computer software would improve their job performance. Most of the respondents agreed with the statement that tracing hotspot areas in crime mapping using computer software would improve their job performance. Similarly, the use of computers makes it easier to do their job. Furthermore, most respondents agreed that they find computer technology useful in their job. The study agrees with (Dunham & Alpert, 2015) who proposed that computers aids in the retraction.
recovery, and analyzing of activities and data obtained from things or activities that leave footprints. This includes such things as embedded global position system (GPS), geographic information system (GIS) in vehicles, satellite navigation software(satnav), phone communications, cyber and computer related transactions. Other tools include camera surveillance, dactyloscopy or fingerprinting, automated fingerprint identification system (AFIS), mobile data centers in laptops, automated field reporting systems. These tools enable law officers to carry out activities for investigation such as network analyses, database coupling, data mining, automated reporting and record keeping in real-time (Custers & Vergouw, 2015). This in turn promotes efficiency and cost effectiveness in transmitting information from one location to another (Koper et al., 2014).

4.12 The Extent in which Subjective Norms explain the Attitude of Computer Usage in Crime Management

Majority of the respondents agreed that people whose opinions they value encourage them to use a computer in crime management. The findings are in line with assertion by Marangunić & Granić (2015) who concede that the end-user considers other people’s views and values and is thus subjective to their perception. Also, people who are important to them will support them to use computer technology to detect crime. The study established that the computer use makes crime analysis more interesting, as indicated by majority of the students agreed with the statement. Similarly, Barnett et al. (2015) argues that how an individual perceives the expectation of relevant people around him or her, acts as an incentive to acquiesce or comply with those expectations. Normative belief thus serves as a motivator or demotivater for compliance towards

Comment [P64]: CONCLUSIONS MOVED FROM CHAPTER 5 TO CHAPTER 4.
successful eventual adoption. Likewise, most police officers like using computer in the course of their duties. It was also evident that the public expect police officers to have computer knowledge.
CHAPTER FIVE
SUMMARY OF RESULTS AND RECOMMENDATIONS

5.1 Summary of Results

Computer use is of critical importance in police work. Moderating elements of performance expectation, perceived usefulness, ease of use and subjective norms, facilitate sustainable adoption and use of computer. They are central components and as such should be highly regarded as key factors in implementation of computer use in police. This goes hand in hand with equally important findings, albeit supportive information to the objectives of this particular study. This findings infer that computer use has:

a) Allowed police officers in Starehe Police Division to work more effectively;
b) Made the work process easier;
c) Aided personnel to cope with the amount of information police requires to do their job properly;
d) Motivated police officers in their service;
e) Assisted departments to clear up work faster.

Another finding from the study was that the use of computers eliminated unnecessary steps to get things done. This translates to efficiency, which is critical when time is of the essence. Indeed, the use of computers has made the compilation of case files easier. Additionally, computers have made written statements of witnesses and others more legible and eased storage of sensitive information and evidence in crime investigation. As such, use of computer serves as a reliable means to safeguard records and critical information of cases being investigated.

The study established that using computer technology in locating crime enables police officers to accomplish their tasks more easily. Similarly, the study found that tracing hotspot areas in crime mapping using computer software would improve job
performance. Finally, the use of computers eases the work log, thus the consensus that personnel find computer technology useful in their job.

However, implementing any systemic change in the police infrastructure by integrating computer requires judicious and astute strategy in the process of doing so. Moderating factors that influence the process were thus found to have strong determining effect in adoption of computer use. A study by Hendrix, Taniguchi, Strom, Aagaard, & Johnson, (2016) shows there is a need for strategic application of technology that is customized to the work flow, policies and protocols of a police unit, instead of haphazard implementation that agencies do. To optimally realize this, the moderating factors cannot be underestimated as vital factors in this endeavor.

5.2 **Recommendations**

The national police service apart from investing on the computer infrastructure ought to deal with the perception of the police officers on the use of computers in crime management. This is because the study indicates that perception is influenced by the moderating factors of performance expectancy, perceived usefulness, ease of use and subjective norm. This in turn impacts adoption and eventual optimal use of computer technology in crime management. This can be done by adopting apropos, pragmatic and feasible systems, interfaces and functions in the computers, such that officers can readily and sustainably implement computer use in their work. It is in the best interest of national security for the National Police Service to put efforts in facilitating computer literacy in engaging and innovative ways as part of the training process, as well as continued education in police officers. This in turn impacts the factor of ease of use of computer. The study established that the ease of use of computers has a strong influence on
implementation and optimum performance. The National Police Service should invest in a) user friendly interfaces; and b) easy to assimilate applications, in addition to modern computer software and hardware. This will enhance perceived usefulness in implementing 21st century police technology. Perceived usefulness boosts the readiness and enthusiasm which positively influences user behavior and intention of use among personnel. This can translate into effective and successful execution of computer use in crime management. Superiors and supervisors should disseminate information that incentivizes officers to efficaciously bring forth compliance in computer use. This refers to subjective norm, whereby adoption is significantly influenced by another person whose views are held in high regard. This can be promulgated and publicized through well place channels of communication utilized between the management and the subordinates.

5.3 Areas for Further Studies

1. Similar study to be conducted on technology acceptance over diverse target population covering a larger geographical area for generalization of the findings.

2. Study to be conducted on the perception of police office on the use of computers in crime management.

3. Future studies to be conducted on the status of ICT infrastructure in National police service.

4. Conduct a study of whether technology in law enforcement has manifestly led to efficiency and innovation in fighting crime in Kenya.

5. Conduct a study to quantify benefits of technology in police work to establish cost-benefit of adoption.
REFERENCES


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APPENDIX I: QUESTIONNAIRE

You are requested to complete this questionnaire as honestly as possible. The data obtained from this questionnaire will be used solely for academic purpose and will be handled with utmost confidentiality.

SECTION A: GENERAL INFORMATION

✓ Please indicate your choice by ticking () on spaces

1. Please indicate your gender: Female ☐ Male ☐

2. Please indicate your age: Below 21 years ☐ 21–30 years ☐ 31–40 ☐ years
   41–50 years ☐ Above 50 years ☐

3. Please indicate your rank/level in police service: Senior (Gazetted) ☐ Middle (Inspectorate) ☐ Lower(Subordinate) ☐

4. For how many years have you served in the Police Service?
   Below 5 years ☐ between 6–10 years ☐ between 11–20 years ☐ over 20 years ☐

5. Which department do you work in?

<table>
<thead>
<tr>
<th>Kenya Police Service</th>
<th>☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic formation</td>
<td>☐</td>
</tr>
<tr>
<td>Directorate of Criminal Investigations</td>
<td>☐</td>
</tr>
</tbody>
</table>

6. How long have you been working in the Department?
Below 5 years □ Between 6–10 years □ Between 11–20 years □ Over 20 □ years

7. What is the highest level of education that you have attained?
   Secondary □ Diploma □ Degree □ Postgraduate □

8. Are you computer literate? Yes □ No □

SECTION B: PERFORMANCE EXPECTANCY

Please answer each question to indicate the extent to which you agree or disagree with the following statements

1. Strongly Disagree, 2–Disagree, 3–Neutral, 4–Agree, 5–Strongly Agree

<table>
<thead>
<tr>
<th>PERFORMANCE EXPECTANCY</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A computer has helped me cope with the amount of information police need to do their job properly</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2. A computer has required me to follow unnecessary steps to get things done.</td>
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<tr>
<td>3. The use of a computer makes others motivated</td>
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</tr>
<tr>
<td>4. The National Police Service will facilitate me in using the computers.</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. A computer has helped my department clear up work faster</td>
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<td></td>
</tr>
</tbody>
</table>

Any other expectations on computer performance?

YES □

NO □

If yes, please specify.

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71
SECTION C: EASE OF USE

Please answer each question to indicate the extent to which you agree or disagree with the following statements

1.-Strongly Disagree, 2-Disagree, 3-Neutral, 4- Agree, 5-Strongly Agree

<table>
<thead>
<tr>
<th>Ease of Use</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A computer has made the compilation of a police case file easier</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2. A computer has made the investigation of cyber crimes easier</td>
<td></td>
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</tr>
<tr>
<td>3. A computer has safeguarded the information of criminals being investigated</td>
<td></td>
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</tr>
<tr>
<td>4. A computer has made the storage of investigation data safe</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>5. A computer has enabled easier access of information of criminal records concerning a criminal by a prosecutor</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>6. It is easy for me to remember how crime is analyzed using a computer</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>7. A computer operating system is rigid and inflexible to interact with</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Any other information on the ease of use of a computer in crime investigation?

YES  
NO  

If yes, please specify.

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
**SECTION C: PERCEIVED USEFULNESS**

Please answer each question to indicate the extent to which you agree or disagree with the following statements

1.-Strongly Disagree, 2-Disagree, 3-Neutral, 4- Agree, 5-Strongly Agree

<table>
<thead>
<tr>
<th>Perceived usefulness</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Using a computer technology in locating crime would enable me to accomplish my task more quickly</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2. Using a social media e.g. what sup, face book etc in a computer to network stakeholders to prevent crime would enhance effectiveness on my job</td>
<td></td>
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</tr>
<tr>
<td>3. Using a computer would make it easier to do my job</td>
<td></td>
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</tr>
<tr>
<td>4. I find computer technology useful in my job</td>
<td></td>
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<td></td>
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</tbody>
</table>

Any other information on the perceived usefulness of a computer?

YES [ ]

NO [ ]

If yes, specify

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SECTION D: SUBJECTIVE NORMS

Please answer each question to indicate the extent to which you agree or disagree with the following statements

1.-Strongly Disagree, 2-Disagree, 3-Neutral, 4- Agree, 5-Strongly Agree

<table>
<thead>
<tr>
<th>Subjective norms</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. People whose opinions I value will encourage me to use a computer in crime management</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2. People who are important to me will support me to use a computer technology to detect crime</td>
<td></td>
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<tr>
<td>3. The computer use makes crime analysis more interesting</td>
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<tr>
<td>4. I like using a computer in the course of my duty</td>
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<tr>
<td>5. I feel the social pressure to use my technological capabilities to solve most emerging crimes</td>
<td></td>
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</tr>
<tr>
<td>6. I am expected of me by the public to have computer knowledge</td>
<td></td>
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</tr>
</tbody>
</table>

Any other information that most people who are important to you think on the usage of a computer by you? Yes ☐ NO ☐

If yes, specify

__________________________________________________________________________________________________________
__________________________________________________________________________________________________________
__________________________________________________________________________________________________________
__________________________________________________________________________________________________________
SECTION E: COMPUTER USE (INDEPENDENT VARIABLE) EFFECT ON CRIME MANAGEMENT (DEPENDENT VARIABLE)

Please answer each question to indicate the extent to which you agree or disagree with the following statements

1.-Strongly Disagree, 2-Disagree, 3-Neutral, 4- Agree, 5-Strongly Agree

<table>
<thead>
<tr>
<th>COMPUTER USE EFFECT ON CRIME MANAGEMENT</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Performance expectancy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. A computer has allowed me to work more effectively.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. A Computer has made my work easier.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B. Ease of use</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1. A computer has made the written statements of the witnesses more legible</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. A computer has made the storage of sensitive information as evidence easier</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>C. Perceived usefulness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Using a computer technology in locating crime would enable me to accomplish my task more quickly</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX II: CONSENT LETTER

Mr. Emmanuel Rono
P.O Box 43844-00100
NAIROBI
Nov, 2017

THE INSPECTOR GENERAL
THE NATIONAL POLICE SERVICE
P.O BOX 30083-00100
NAIROBI

RE: REQUEST FOR CONSENT TO CONDUCT AN ACADEMIC RESEARCH

I am currently pursuing a Master’s program in leadership and security Management offered by Kenyatta University at the Kenya Police Service Collage Loresho. It is a requirement for an award of the program that the Student must carry out a research in security related area. I am intending to conduct a research on the **Adoption of Computer use by Police in crime Management** in the National Police Service

It is therefore my request that you grant me permission and facilitation in order to proceed and carry out research accordingly. The data collected will purely be for academic purposes and the findings and the recommendations may be utilized in the National Police Service as points of references for reforms and development.

EMMANUEL K. RONO
KENYA POLICE COLLEGE, LORESHO
APPENDIX III. BUDGET FOR THE RESEARCH

A. Production of the project

Data entry of 120 pages of project @ 50/= per page 6000/=  
Printing draft copy for defense 7 copies @ 10/= *60 4200/=  
Spiral Binding draft copy for defense 7 copies @50 350/=  
Printing of final 7 copies @ 10*120 8400/=  
Hard cover Binding @ 400 * 7 2800/=  
Sub Total 21,750

B. Transport and Subsistence

Travelling and Subsistence 50,000  
Sub- total 50,000

C. Incidental Expenses

Internet access @ 250 per week (12 weeks) 3,000/=  
Mobile phone expenses @ 3000 per month for 6 months 18,000/=  
Research assistants @ 10,000/= 30,000/=  
Purchase and training - SPSS Program 20,000/=  
Sub Total 81,000/=  
TOTAL BUDGET 142,750/=  
Contingencies (10%) 14,275/=  
Grand total 157,025/=
APPENDIX IV: PERFORMANCE CHART

<table>
<thead>
<tr>
<th>S/NO</th>
<th>TASK</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>JAN</td>
</tr>
<tr>
<td>1</td>
<td>Literature review</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Presentation of the concept paper</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Proposal Presentation</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Revision of The Proposal</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Defense of the Proposal</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Field Work</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Presentation of Final Work</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Graduation</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX V: RESEARCH AUTHORIZATION LETTER FROM GRADUATE SCHOOL

KENYATTA UNIVERSITY
GRADUATE SCHOOL

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

Our Ref: C160/38914/2016

DATE: 19th January, 2018

Division of Science, Technology and Innovation
P.O. Box 30623-00100
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR EMMANUEL KIPLIMO RONO REG. NO. C160/38914/2016

I write to introduce Mr. Emmanuel Kiplimo Rono who is a Postgraduate Student of this University. He is registered for M.A degree programme in the Department of Security and Correction Science.

Mr. Emmanuel intends to conduct research for a M.A Project Proposal entitled, “Computer use in Crime Management – A Case of Starehe Police Division, Kenya”.

Any assistance given will be highly appreciated.

Yours faithfully,

MRS. LUCY N. MBAABU
FOR: DEAN, GRADUATE SCHOOL
APPENDIX VI: RESEARCH AUTHORIZATION LETTER FROM NACOSTI

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471, 2213489, 2219420
Fax: +254-20-318245, 318246
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote
Ref No. NACOSTI/P/18/31817/22933

Date: 25th June, 2018

Emmanuel Kiplimo Rono
Kenyatta University
P.O. Box 43844-00100
NAIROBI

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Computer use adoption in crime management- a case of Siarere Police Division, Kenya” I am pleased to inform you that you have been authorized to undertake research in Nairobi County for the period ending 22nd June, 2019.

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

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit a copy of the final research report to the Commission within one year of completion. The soft copy of the same should be submitted through the Online Research Information System.

DR. MOSES RUGUTT, PHD, OGW
DIRECTOR GENERAL

Copy to:
The County Commissioner
Nairobi County.

The County Director of Education
Nairobi County.
APPENDIX VII: RESEARCH PERMIT

THIS IS TO CERTIFY THAT:
MR. EMMANUEL KIPLIMO RONO
of KENTATTA UNIVERSITY, 0-30300
KOBUJOI, has been permitted to conduct
research in Nairobi County

on the topic: COMPUTER USE ADOPTION
IN CRIME MANAGEMENT- A CASE OF
STAREHE POLICE DIVISION, KENYA

for the period ending:
22nd June, 2019

Permit No : NACOSTI/P/18/31817/22933
Date Of Issue: 25th June, 2018
Fee: Receivd: Ksh 1000

Applicant's
Signature

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

Director General
National Commission for Science,
Technology & Innovation

CONDITIONS
1. The License is valid for the proposed research,
research site specified period.
2. Both the Licensee and any rights thereunder are
non-transferable.
3. Upon request of the Commission, the Licensee
shall submit a progress report.
4. The Licensee shall report to the County Director of
Education and County Governor in the area of
research before commencement of the research.
5. Excavation, filming and collection of specimens
are subject to further permissions from relevant
Government agencies.
6. This License does not give authority to transfer
research materials.
7. The Licensee shall submit two (2) hard copies and
upload a soft copy of their final report.
8. The Commission reserves the right to modify the
conditions of this Licence including its cancellation
without prior notice.

REPUBLIC OF KENYA

National Commission for Science,
Technology and Innovation

RESEARCH CLEARANCE
PERMIT

Serial No. A 19134
CONDITIONS: see back page