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Enhancement of Homeland Security in Kenya through E-Policing

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Declaration

I hereby declare that this research work is my original work and has not been submitted in part or full to any other institution for academic qualification or otherwise.

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This research work has been submitted for examination in partial fulfilment of the Post Graduate Diploma at University of Nairobi with my approval as the University supervisor.

Prof Maria Nzomo

Date **…….**

Sign **…….**

Director,

Institute of Diplomacy and international Studies (IDIS)

University Of Nairobi

Dedication

This research project has been dedicated to my family, for their support during my entire Post graduate Diploma course programme.

Acknowledgement

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Abstract

The key objective of this research study is to establish how the Internet and web technologies can be used in the fight against crime; assist the homeland security to reach a large population; open up communication for the public to assist homeland security in investigations; increase homeland security partnership with the community; and cut policing costs. The assumption is that the use of the Internet and web technologies in assisting the homeland security to reach a large population and open up communication for the public to assist homeland security in investigations will improve the fight against crime by 50%.

Three methods which include questionnaire, interview and literature search are used in collecting the required data. Data analysis is conducted using Microsoft Excel and Statistical Package for Social Sciences (SPSS). Some of the functions found in Excel and SPSS which include frequency counts, weighted mean, sub-totals and totals, and pivot tables are used to generate the required charts for easier interpretation.

The implementation of e-policing in administering police operations by Kenya Police Service still remains a far-fetched dream and great effort need to be put in order to achieve e-policing status fully. E-policing is more than just having a police web site. It is about putting the required applications and infrastructure in place in order to provide police services electronically online. E-policing system is a supplementary of the traditional way of policing, which includes telephone system and face-to-face system in provision of police services to the public. It cannot completely substitute these traditional systems.

The Kenya Police Web site does not have all important features/functions that are needed for e-policing which are found in most of the police web sites in the UK police authorities. These features include crime and witness appeal, ability to record serial numbers of property and online subscription for information on police operations.

There is need to implement an e-policing strategy for the Kenya Police Service. This will help identify weakness and problems for correction and modification for future e-policing projects. Best methods for providing police services to the general public in Kenya electronically online, whether just to put information on a web site or interact fully with the police will also be established.

Abbreviations

AIG – Assistant Inspector General

BBC – British Broadcasting Corporation

BT – British Telecommunication

CCK – Communication Commission of Kenya

CJS – Criminal Justice System

CJX – Criminal Justice Exchange

CMS – Content Management System

e-GIF – e-Government Interoperability Framework

FAQs – Frequently Asked Questions

GOK – Government of Kenya

ICT – Information and Communication Technology

IS – Inspector of Police

ISB – Invest to Save Budget

ISDN – Integrated System Digital Network

ISP – Internet Service Providers

ISS4PS – Information System Strategy for Police Service

IT – Information Technology

ITU - International Communication Union

MAG – Mobile Application Gateway

MPA – Metropolitan Police Authority

NDPB - Non-Departmental Public Body

NHS – National Health Services

OECD – Organisation for Economic Co-operation and Development

P3 – Police form 3

PC – Personal Computer

PDA – Personal Digital Assistant

PITO - Police Information and Technology Organisation

PP0 – Provincial Police Officer

SMS – Submission Management System

SPSS - Statistical Package for Social Sciences

UK – United Kingdom

UV – Ultra Violet

WAN – Wide Area Network

Chapter 1: Introduction

1.1 Overview

The Internet provides an easy-to-use technology solution for publishing and disseminating information (Kalakota & Whinston, 1997). It has actually touched all our working life and all our family life. According to Telkom Kenya 2005, by September 2004, there were 240,000 fixed telephone lines subscribers, 121,000 applicants on the fixed telephone waiting list, 11,500 public phones had been installed throughout the country. Safaricom 2005 further adds that there are over 5 million cellular mobile phone subscribers in Kenya. CCK 2005 state that by April 2004, there were 73 registered ISPs, 16 of which were active, approximately 1,030,000 Internet users and over 1000 cyber cafes and telephone bureaus in Kenya. James and Mutinda 2004 further states that there were about 520,000 PCs in active use in Kenya at the beginning of 2004. These statistics clearly shows that organisations both public and private in Kenya can actually offer their services electronically online.

An increasing number of Kenyans are spending more time on the Internet seeking news, information and entertainment (Kalyegira, 2006). With a large anticipated increase in the use of the Internet over the next decade in Kenya, there is need of government agencies taking advantage of the Internet to improve effectiveness, efficiency, convenience and quality of their services to the citizens.

The achievement of e-government is one of the main priorities of most governments in the world towards the realisation of national development (EUREXEMP, 2004). E-government is all about using a range of information technologies which include the Internet, Wide Area Network (WAN) and mobile computing by government agencies to transform government operations in order to improve effectiveness and efficiency. The Kenya Police Service is one of the government agencies that was earmarked for e-government (Gakiria, 2004).

1.2 E-policing

Police exist to prevent crime and disorder through a relationship with the public (New Westminster Police, 2003). According to Trusler (-), e-policing is the provision of homeland security services to citizens via web sites. It involves meeting government/public

expectations, making policing better, using knowledge, giving citizen choice, and putting the citizens first. E-policing is about ensuring the general public receive homeland security services in a cost effective and efficient manner.

E-policing is using a range of ICT products which include the Internet, WAN and mobile computing by homeland security agencies to deliver homeland security services to the public in order to improve effectiveness and efficiency of these services. The advantages of providing homeland security services using modern technologies include:

1. Give the general public increased access to the homeland security.
2. Give those living in rural area and hard to reach people, for example housebound, easy access to homeland security services.
3. Enhance community policing, thus solving easily the local problems of crime and disorder.
4. Support frontline policing in that police officers who sit at the help desk to attend to FAQs can be used somewhere else since answers to these questions can be obtained through web content.
5. Save on policing costs.
6. Support joined up government for example court files can be shared between the law enforcers and the judiciary.

To ensure e-policing work, the homeland security service should put in place the required applications such as the web site, web portal and user-friendlier web interface; and the required infrastructure such as airwave mobile application gateway, corporate database and intranet with fast access.

1.3 Problem Statement

Literature shows that there has not been a great deal of research into the impact of ICT on homeland security organisations (Chan et al, 2001), probably because of the difficulty researchers have in accessing information within homeland security establishments. Woods and Berry (2001) add that very little effort has gone in exploring the potential of the Internet to administer homeland security operations.

OECD (2003) further add that technology is changing society and business transactions so fast that organisations including the homeland security must be able to respond and harness the opportunities these changes bring at an equally fast pace. The Kenya Police Service is facing an option opportunity of providing homeland security services electronically online.

Heeks (2001) states that organisational change is likely to be emergent and continuous rather than rapid and discontinuous, technology-based organisational change, by gradually and continuously altering the structural conditions of policing, will eventually have an impact on the deeply embedded assumptions of homeland security practices.

According to Ministry of Information and Communication, Republic of Kenya (2006), e-policing in Kenya is still at its infant stage with the recent launch of the police Service web site. The only thing that is there to show e-policing in Kenya at the moment is the police web site. Several issues need to be addressed before Kenya police Service can fully take advantage of the fast growing use of the Internet and web technologies by Kenyans to provide its services online.

It is on this background that this research work is conducted to address the need of e-policing in provision of homeland security services to the general public.

1.4 Research Objectives

The objectives of this research are to:

1. Establish how the Internet and web technologies can be used in the fight against crime; assist the homeland security to reach a large population; open up communication for the public to assist homeland security in investigations; increase homeland security partnership with the community; and cut policing costs.
2. Critically evaluate the existing Kenya Police web site in terms of delivery of day to day homeland security services for example security alerts and traffic alerts, how the homeland security interact with the general public electronically in its quest to fight crime and disorder, and technologies used.
3. To determine the feasibility and effectiveness of e-policing in administering homeland security operations.

4. Develop an implementation strategic framework for the delivery of e-policing by Kenya Police Service based on the findings in (1), (2) and (3) above.

1.5 Research Question

This study seeks to answer the following questions.

1. How can the Internet and web technologies be used in enhancing homeland security?
2. Is the existing Kenya Police web site capable of delivering homeland security services to the general public electronically?
3. What are the views of Kenya Police establishments/units and the general public regarding the feasibility and effectiveness of e-policing in administering homeland security operations?
4. What implementation strategic framework for the delivery of e-policing by Kenya Police Service would be recommended to enhance homeland security?

1.6 Hypothesis

1. The use of the Internet and web technologies in assisting the homeland security to reach a large population and open up communication for the public to assist homeland security in investigations will improve the fight against crime by 50%.
2. The existing Kenya Police web site is not capable of delivering 90% of the homeland security services that can be provide electronically online to the general public.

1.7 Justification and Significant of the Study

The Kenya Police Service developed and implemented its web site in May 2006 to enable some homeland security services available to the general public easily and widely online. Very little is known about these homeland security services that are provided electronically online. This means that very few Kenyans have taken advantage of this new way of providing homeland security services. There is therefore the need to study in tandem the utilisation of e-policing in provision of homeland security services to enable Kenya Police Service reach out a large population in its fight against crime.

The development, implementation, management and maintenance of e-policing system by Kenya Police Service will enable improved and quality homeland security services available easily and widely online to a large population; provide an alternative way to the general public to access homeland security services, other than the traditional ways; and cut on policing costs.

Academically the research project will shed light on this gray area where research information gathered will add to Kenya's body of knowledge in the administration of homeland security services. The development of e-policing system implementation strategy will provide the theoretical framework for Kenya Police Service in its endeavour to provide homeland security services electronically online.

The issue of homeland security is one of the most important challenges facing Kenya, and the decisions made by policy makers today about the strategy and organization for addressing national threats will have profound consequences for national security, our economy and our way of life. It is particularly important that these decisions made by policy makers regarding homeland security are based on careful analysis before instituting far reaching changes.
The finding of this research therefore, forms the basis for recommendations among the policy makers and specialists in Homeland Security management, Diplomacy, and Internal Law.

1.8 Literature Review

With the increased availability and rapid development of computer hardware and software, the use of ICT is pervading in public organisations exponentially. The use ICT via homeland security/police websites need to be addressed. Since the police are the government's most controversial arm (Cordner & Scarborough, 2008), comprehensive, functional, and participative websites can assist homeland security in maintaining open and transparent relationships with the community as well as empowering citizens to participate and actively co-produce public safety. Thus, a comprehensive web presence can assist Kenya Police Service in achieving their strategic missions.

E-policing through online crime reporting is almost exclusively used in the UK where it is well developed. Very few studies on "e-policing" have been done elsewhere, which explains the lack of literature and evaluation studies on the subject. The few studies that are available

have examined the prevalence and utilisation of the e-government and policing in India (Mitra, 2004; Mitra & Gupta, 2007) and the Netherlands (Korteland & Bekkers, 2007). In Kenya this issue is largely under-researched. The policing components of prior research in Kenya are merely part of larger e-government projects (Holzer & Melitski, 2003) or research focused upon a specific website capability (Westbrook, 2008).

Although E-policing only provides virtual participation of the community in public safety, it may bring the community and the police closer together. Indeed, there are contrary views about the ability of technology to bring the community and the police closer together. For instance, Samuel Walker (2001) observed that technology in the Reform Era brought the police closer to the community as opposed to Wilson and Kelling's (1982) view that technology brought them apart. However, there seems to be a prevailing consensus that the e-policing strengthens social relationships. Therefore, the previous contentions about the contributions of technology on social distance seem unwarranted.

Electronic communications between the police and the public are underutilized in Kenya. Although the Kenya Police Service web site offers at least one e-mail contact address there is little available above that level. Figures are not more impressive in the rest of Africa. Online crime reporting for economic and/or minor crime is not available on Kenya Police Service web site. There are other applications for e-policing such as online registration for crime prevention programs such as Neighbourhood Watch which have not been incorporated in Kenya Police Service Website. In some cases, it is also possible to "tip off" police to crimes in progress, prostitution or traffic violations which is not the case in Kenya. Although there is no standard information architecture determining features and structure, or design protocols for presenting information in homeland security/police websites, at least the basic functionalities such as crime reporting for minor crime, lost and found items, and most wanted criminals should be captured.

In the United Kingdom the e-policing initiative came from a government white paper requiring local councils to have their services available electronically by 2005. PITO, a non-departmental organization under the responsibility of the Home Office was created for procurement of IT systems and hardware to the police Services. A data management system – the Portal, was developed as a single point of entry for information. The Portal has three

major modules which are Message broadcasting (e-mails, telephone, and text messages), Notification of minor crimes and Intelligence reports.

Online crime reporting is no longer seen as a big issue. However, communication is. Since its implementation, the level of information traffic has not changed, yet the portal has changed the public/police relationship by allowing online/real time communication between the police and the public. Whether people have computers at home or not is not an issue. There are Internet cafes, computers in public libraries, etc. The portal fits in with the current/future use of technology. The issue is more how the police can manage this relatively new source of information efficiently. As is the case for any technological adaptation, training and planning are required before implementation.

The UK case study suggested that technology such as Internet portals can connect the police with segments of the community in a two-way communication process. It was observed that the police had developed a new approach whereby the police authority was sending messages directly to the community or to some part of it (for example, a request for information and reply from citizens). The UK police have access to a communication network that can accommodate electronic messages in the form of illustrations, photographs, text messages and e-mails from concerned citizens or informed sources. From this case study, it can be established that:

1. There is now tangible evidence that unprecedented volumes of messages can be delivered by the Portal simultaneously.
2. Experience shows that Portal broadcasts achieve higher penetration than traditional methods.
3. Broadcasted messages can deliver specific information to targeted groups such as taxi drivers, pub landlords, nurses, etc.
4. Surveying shows that broadcast messages are well received by the public.
5. The Portal gives society many thousands of eyes watching compared to a two eyes in a police car.

1.9 Theoretical Framework

Two concepts are central to this study. First, the diffusion of an innovation can be defined as ‘a process in which an innovation is communicated through certain channels over time

among the members of a social system' (Rogers, 2003). Second, the adoption of an innovation can be defined as 'the voluntary and/or coercive process through which an organization passes from first knowledge of an innovation, to forming an attitude towards the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision' (Rogers, 2003). Organizations can adopt an innovation in varying degrees, ranging from copying an innovation without making any changes, to using an innovation as an inspiration (Dolowitz & Marsh, 1998).

In public administration two important bodies have contributed to knowledge on the spreading of innovations from one governmental unit to another. These are the business studies diffusion literature (e.g. Rogers, 2003) and the political science policy transfer literature (e.g. Stone 1999; Dolowitz & Marsh, 1998). Whereas the diffusion literature focuses on examining the diffusion of innovations among American states by using merely quantitative research methods, the policy transfer literature focuses on policy diffusion in Europe by using qualitative research methods (Newmark, 2002). Despite these differences, these two bodies of theory also have some similarities. They both explain the diffusion of an innovation by primarily referring to the influence of the nature of the innovation and the characteristics of the potential adopter. They only pay limited attention to the influence of the environment of an organization on its innovation adoption decision (Pollitt, 2002). A distinction can be made between two theoretical approaches of innovation diffusion: a functional approach and a cultural or constructivist approach (Pollitt, 2002; Greenhalgh *et al*. 2004). According to the functionalist approach which is dominant in the diffusion and policy transfer literature, adoption decisions are primarily driven by functional imperative of efficiency gains (Rogers, 2003; Dolowitz & Marsh, 1998). An organization's adoption decision is primarily based on a so-called 'logic of consequence': the assumption that organizations make choices among alternatives by evaluating their consequences in terms of prior preferences (March, 1994).

On the contrary, according to the cultural or constructivist approach, adoption decisions are not so much based on 'economical fitness', but on 'social fitness' or considerations of legitimacy, symbolism and fashion (DiMaggio & Powell, 1991; Kingdon, 1995). An organization's adoption decision is primarily based on a so-called 'logic of appropriateness': organizations have identities and/or fulfil roles by recognizing situations and following rules that match appropriate behaviour to the situations they encounter (March, 1994). Especially

for public organizations this is important, because public organizations are political organizations in which legitimacy is based on the way to which state organizations are able to handle all kinds of societal challenges and problems for which they have to gain support, like the fight against crime and improving the social quality of neighbourhoods (March & Olsen, 1989: 38; Stone, 2002). The identity of public organizations is derived from this role. Important for the adoption of innovations is the idea that innovations should not only provide for mere efficient solutions but appropriate ones for which external public and political support exists (March & Olsen, 1989: 160).

However, in order to fully understand diffusion processes in the public sector, it is important to combine the two approaches (March & Olsen, 1989; Tolbert & Zucker, 1983; Pollitt, 2002). Whereas the functionalist diffusion and policy transfer approach demonstrates the importance of innovation in terms of presenting a qualitative discontinuity with the past in terms of relative advantage in relation to specific, rather objective, adopter characteristics, the cultural or constructivist approach puts adoption in a broader perspective and emphasizes the different reasons and considerations for adoption that are much more related to the external environment. By adopting an innovation an organization tries to show its legitimacy in order to achieve conformity with changing patterns of meaning in its environment (DiMaggio & Powell, 1991).

A functionalist perspective prevails and the emphasis lies on the question how an innovation has spread, and not so much on the question why an innovation has spread. In public administration efficiency and effectiveness are not the only values that have to be taken into account in the assessment of an innovation (Pollitt, 2002: 482). Not only economic and performance considerations but also all kinds of social and political factors, values and considerations, that can also generate external pressure, play an important role in the adoption decision of an organization (Greenhalgh *et al*. 2004: 102). Hence, the primarily functionalist literature insufficiently acknowledges the fact that the cultural environment of an organization, which influences the legitimacy of organizations, can strongly influence the decision to adopt an innovation, especially in the public sector (Silverman, 1971; March & Olsen, 1989; Scott, 2001). The perceived functional and economic meaning of an innovation is just one of many meanings that should be taken into account. This implies a more cultural or even constructivist oriented approach to the diffusion of innovations in the public sector in

order to understand the different kind of meanings and the process of meaning creation that influence the adoption of an innovation (Pollitt, 2002; Greenhalgh *et al*. 2004).

1.10 Research Methodology

1.10.1 Research Population

1.10.1.1 Police Establishments

All police units, counties, divisions and stations are included in the research population. According to Police Review, 2013, there are 10 police units, 8 police regions, 47 police counties, 70 police divisions and 264 police stations and posts. The table below gives a summary of police establishments in Kenya.

S/No.	Region	No. of Divisions	No. of Stations
1	Nairobi	9	32
2	Coast	9	35
3	Central	7	25
3	Rift Valley	22	73
4	Nyanza	12	38
5	Western	8	20
6	North Eastern	3	10

Table 1.1 Police establishments in Kenya

The greatest concentration of police establishments is within the major cities, that are Nairobi city, Mombasa city and Kisumu city, and therefore these cities are selected to represent the entire police Service. This is further boasted by the fact that the police regional headquarters are based on these cities. All other counties, divisions and stations within these regions report directly on daily basis on their security situation to their respective regional headquarters. This means that any information about these divisions and stations can be obtained from these cities. The other important reason why these cities have been selected is that all the 10 police units which includes General Service Unit, Criminal Investigation Department, Traffic Police Department, Anti-stock Theft Unit, Kenya Police Air-wing, Kenya Railway Police,

Kenya Police Dog Unit, Tourism Police Unit and Kenya Airport Police Unit are to be found here unlike other cities/towns.

Nairobi city represents approximately 12.1% of the research population; Mombasa city represents approximately 13.3% of the research population; and Kisumu city represents approximately 14.4% of the research population. This represents approximately 39.8% of the research population. 60.2% of the research population is weeded out because it does not have all the 10 police units that are included in the research.

S/No.	City	No. of Police Stations	Remarks
1	Nairobi	32	43.2%
2	Mombasa	22	29.8%
3	Kisumu	20	27.0%
	Total	**74**	**100%**

Table 1.2 Selected Research Population on police stations

1.10.1.2 General Public

The general public is the clientele that receive homeland security services in one way or another. This includes all people from all walks of life that are rich, poor, educated, uneducated, employed and unemployed.

The greatest concentration of Kenyan population is within Nairobi city, Mombasa city and Kisumu city. It is also in these three major cities in Kenya that you will find people from all walks of life. Therefore these three cities are selected to represent the whole country.

1.10.2 Sample Population

Dixon and Leach (1984) proposed that adequacy and resource consideration should be used to determine research sample size. These two factors play a major role in determining the sample to be used in this research work. In the first population research group, 74 police stations from the three major cities in Kenya are selected. 70 police stations will be given questionnaires. 4 police stations of these 74 that have already computerised most of police

services are selected for interviews. The 4 police stations will also be provided with the questionnaire that will be given to zero or partly computerised police stations in order to provide control and comparison data.

In the second population group, a total of 100 people are included in this research population. This is due to limited amount of time allocated for this research. The table below gives a summary of the number of people from the general public from different walks of life that are selected for this research in the three cities.

S/No.	City	No. of people	Remarks
1	Nairobi	40	40%
2	Mombasa	30	30%
3	Kisumu	30	30%
	Total	100	100%

Table 1.3 Selected Research Population on general public

1.10.3 Data collection

Three methods are used in collecting the required data. These include:

1.10.3.1 Questionnaire

The research requires the gathering of opinions of police officers as well as the general public regarding the feasibility and effectiveness of e-policing in providing police services to the public. As such, two structured questionnaires with both open and closed ended questions are designed and served to the respective respondents. The questionnaires use a combination of closed questions formats such as multiple-choice and ranking, and a few open-ended formats. The first questionnaire is served to 74 police stations. It provides detailed information by probing the respondents and also provides for a chance for respondents to provide any relevant information.

The second questionnaire is administered to 100 people from various walks of life from the general public. It also provides detailed information relevant to this research.

1.10.3.1.1 Questionnaire for Police Stations

The first questionnaire which is to gather relevant information from police stations is divided into five sections. The questionnaire was settled for after thorough consultation with police officers from ICT department at police headquarters in Vigilante house. The five sections include the following:

Section A: Background Information

This section provides general e-policing status in various police stations. These include available ICT infrastructure, ICT personnel and training. It also solicit for specific information on the reason for going electronic; how e-policing has changed the way routine work is conducted; and how e-policing was received among police officers.

Section B: Implementation and Problems faced

This section sort to establish the procedures used, persons involved, training requirements and problems faced during the implementation stage of e-policing in various police stations. It establishes features and functions of e-policing that were incorporated into the police web site during its implementation.

Section C: Benefits of Implementation

This section embellished the main benefits that police stations have reaped as a result of having successfully embraced the new way of providing policing services. The changes that e-policing has brought to the quality of policing services and whether these changes have impact negatively or positively are also investigated in this section.

Section D: Challenges/Problems of Maintaining E-policing

This section sort to establish the challenges and problems that police stations face in keeping and maintaining e-policing currently.

Section E: Need for Strategy

This section sort to solicit for remedial measures on what needs to be done to assist Kenya Police Service realise e-policing fully. It also tries to establish what the police Service is doing to popularise e-policing and general comment on the need for e-policing strategy.

1.10.3.1.2 Questionnaire for General Public

The second questionnaire which is to gather relevant information from the general public is divided into three parts. The three parts include the following:

Part A: Background Information

This part solicited for general information from the general public on kind of employment, level of computer literacy and distance between the respondent resident and the nearest police station.

Part B: Effectiveness and Feasibility of E-policing in Administering Police Operations

This part established the effectiveness and feasibility of e-policing in administering police services to the general public.

Part C: Need for Strategy

This part sort to solicit for remedial measures on what needs to be done to enable Kenya Police Service provide e-policing services to the general public effectively and efficiently. It establishes what should be done to popularise e-policing and also the need to develop a strategy that will enable the police Service web site survive the Internet meltdown.

1.10.3.2 Interviews

The research is also conducted through face-to-face interviews with relevant police officers in 4 police stations to provide first-hand information on e-policing. Contact persons have been established in advance. All the 4 police stations have responded positively to the request to establish contact persons for this research.

The interview questions which respond to the first questionnaire above have been sent out to the contact persons in the 4 police stations and interview dates and time scheduled. The interviews with police officers sort to establish the reasons for going electronic, procedures used, problems faced during e-policing implementation, benefits reaped from e-policing and the challenges faced in maintaining e-policing in Kenya.

1.10.3.3 Literature Search

Various materials are reviewed including previous work conducted in this area in other cities/towns in the United Kingdom.

1.10.4 Data Analysis

Data analysis is conducted using Microsoft Excel and Statistical Package for Social Sciences (SPSS). Some of the activities undertaken include the following:

1. Data cleaning on all questionnaire and interview responses.
2. Comprehensive verification and validation to ensure that the questionnaires are filled correctly and with right information.
3. Coding and keying in of the data in Excel and SPSS ready for analysis.

Some of the functions found in Excel and SPSS which include frequency counts, weighted mean, sub-totals and totals, and pivot tables are used to generate the required charts for easier interpretation.

1.10.5 Control data

The questionnaire that will be used on police stations that have not yet computerise any of their services will also be administered to the 4 police stations that have already computerised some of their services. This provides control data for comparison between the policing services to the general public in computerised and non-computerised police stations.

1.10.6 Strategy Evaluation and Feedback

The aim of this research is to determine the opinion of police officers and the general public regarding the feasibility and effectiveness of e-policing in administering police services to the

public; problems faced during the implementation of e-policing; benefits of implementing e-policing; challenges of maintaining e-policing; and need for formulating e-policing strategy. There is likely that some of the questionnaires will not be fully completed, probably because some of the respondents will not be able to provide a response to certain questions.

Upon formulating the draft strategy, an evaluation on its viability, relevance and its applicability will be done in order to come up with refined strategy. This will be done using;

1. Kenya Police ICT department.
2. Comparison with available e-policing literature
3. Input from academic staff and other students.

1.11 Chapter Outline

The study has 5 chapters. Chapter 1 is the introductory chapter, basically project proposal. Chapter 2 gives an insight of how the Internet and web technologies can be used in enhancing homeland security using United Kingdom as a case study. It reviews United Kingdom experience of e-policing. A working e-policing model in Northumbria is reviewed, e-policing initiatives in Metropolitan are looked at, and a strategic framework for the delivery of e-policing in Lincolnshire is reviewed. Chapter 3 reviews the current Kenya Police web site capability in delivering homeland security services. Chapter 4 critically analyses the research findings in terms of challenges, opportunities and implications for establishing e-policing system for the homeland security. It also evaluates the research project in terms of objectives set and management. Finally conclusions and recommendations are given in chapter 5.

Chapter 2: Using the Internet and web technologies in enhancing homeland security – Case Study of United Kingdom Experience of E-policing

2.1 Introduction

The Internet is changing society and business transactions so fast that organisations including the police must be able to respond and harness the opportunities these changes bring at an equally fast pace (Wood & Berry, 2001). Most of the 43 police authorities within the UK (England and Wales) have taken the advantages offered by the Internet to provide police services electronically (Kamssu *et al*, 2004). Providing police services via the web sites according to Hu 2001, is about meeting government/public expectations, making policing better, using knowledge better, giving the citizens choice, and putting the citizens first. It simply means ensuring that the general public receive police services in a cost effective and efficient manner.

As part of the UK government objective to provide all services to the citizens electronically by 2005 (BBC, 2001), most police authorities in UK through Police Information and Technology Organisation (PITO) embarked on various projects that would enable them provide police services electronically to the public. PITO is a NDPB in UK whose main role is to purchase goods and services related to ICT for the police with the aim of providing best values through collective procurement (PITO, 1999). Examples of projects for various police authorities relating to e-policing that were managed either directly or indirectly by PITO among many, according to PITO 2002, included Kent's joint call handling; Cheshire's integrated call handling centre; Dorset's e-policing with particular emphasis on the rural community; Thames Valley's Internet solution for contact with citizens; and Lincolnshire's mobile one stop shop.

Minor crime accounts for around 50% of all recorded crime in the UK (Papworth, 2001). These minor crimes can be reported online and therefore reducing administrative costs and time. It was for this reason that the UK government came up with a national police web site, www.online.police.uk. The web site provide alternative way of reporting minor crime in additional to the already existing traditional ways, i.e. telephone system and face-to-face system. The web site went "live" in England and Wales in May 2001 (Papworth, 2001). Most of police authorities within UK for example Lincolnshire, Northumbria, MPA and Wiltshire

have also launched their web sites to enable provisions of some of police services electronically. However, all these web sites do not have common standards and services (Woods, 2003). Woods 2003 further stated that fewer of the web sites provided any form of interactive services to the public, while most were confined to replicating information available in printed form elsewhere

2.2 E-policing in Northumbria: A Working Model

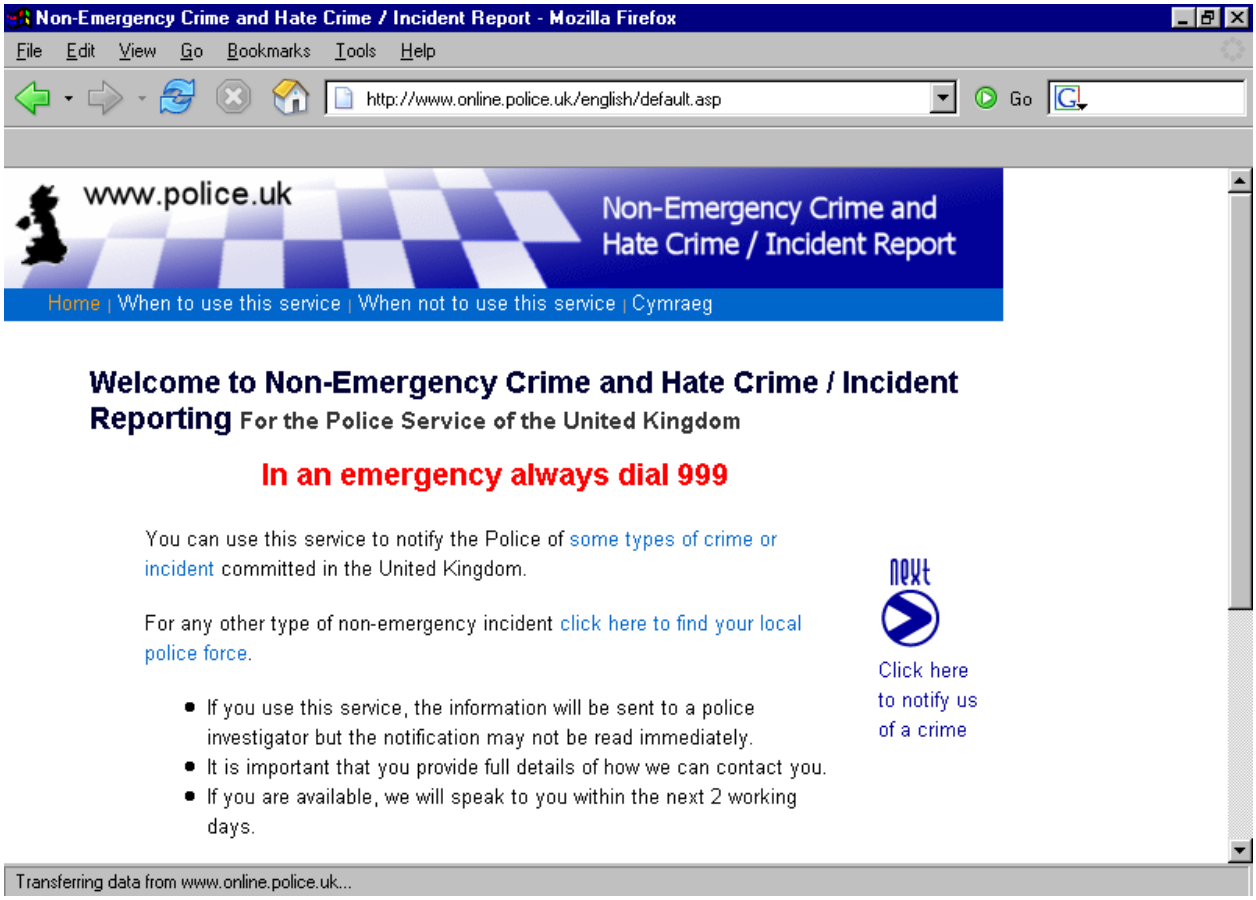

Figure 2.1 UK national police web site

Based upon research conducted in 2000 under the Home Office Police Research Award scheme, Northumbria police in partnership with BBC Tyne and NHS Direct embarked on its e-policing project in 2001 (BT, 2003). ISB funds from PITO were used for this project. A number of potential police services that could be provided electronically to the general public and which could improve on the efficiency and effectiveness of provision of those services were earmarked for modernisation.

The main objectives of e-policing project in Northumbria according to Northumbria Police Authority 2003a were:

1. Enhance choice and improve citizen access to police services.
2. Provide quick useful and cost effective electronic service delivery.
3. Join up local services.
4. Improve information usage between partnerships.
5. Support a national police Internet strategy.
6. Deliver measurable benefits.

Three very important facilities for provision of police services electronically via the web sites, which are content management system (CMS), submission management system (SMS) and a user friendlier web interface were developed by the end of 2002 (Liu and Hu, 2005). CMS purpose is to enable content management and redesign of Northumbria police web sites. SMS is a web portal that enables e-forms development and gateway for public access to these forms. The user friendlier web interface provides that important interface between the web browsers (police officers and the general public) and the police web system.

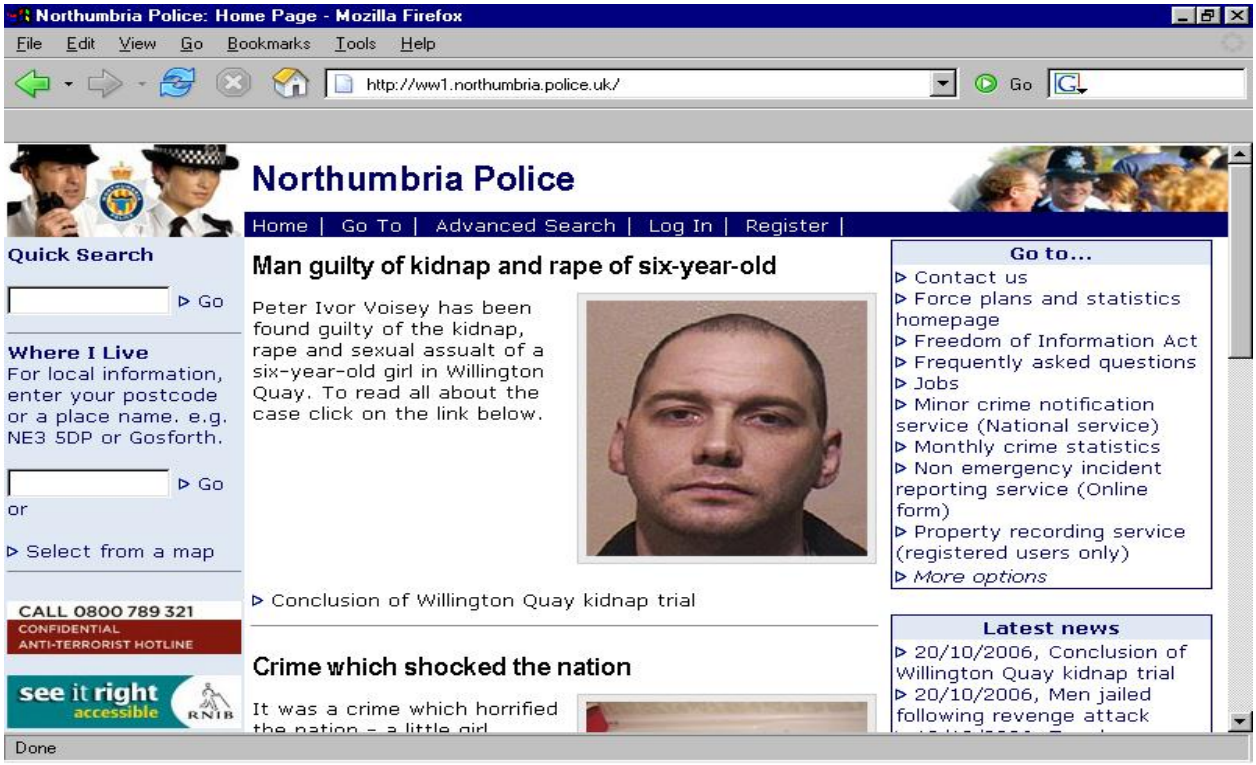

Figure 2.2 Northumbria Police Authority web site

2.2.7 Police Services Provided

Northumbria Police Authority have actually exploited fully the huge potential offered by the Internet of reaching vast numbers of people and at the same time enabling these people to reach the police. At the heart of e-policing initiative is a redesigned and refined Northumbria police web site (BT, 2003). Through this web site, the general public can now be able to register for news alerts and seek out the latest crime reduction material; securely report on minor non-urgent incidents of crime; and apply for police jobs online. The web site also uses messaging and e-mail technologies to keep victims and witnesses up to date with their cases and the results of these cases.

To facilitate the above mentioned services to the general public, several functions/features have been incorporated into the web site. The major functions/features that have been incorporated into the web site according to Leighton 2003, include home page management, news releases and events, FAQs, incident reporting, area command and miscellaneous plans and statistics, crime prevention material, crime appeals, results of crimes and cases, property registration, missing persons, locations and guides, and people police wish to trace among others. This new and modern way of providing police services is meant to enhance the traditional policing methods (BBC, 2003).

2.2.8 E-policing Training

A comprehensive training programme on e-policing has been developed in Northumbria to enable the police officers provide police services electronically via web sites to the general public efficiently and effectively (Northumbria Police Authority, 2003b). The training programme includes the use of CMS and SMS for content developers and quality assurance police officers.

2.2.9 E-policing Marketing

Northumbria Police Authority has been involved directly in the promotional campaign of its web site and the police services offered electronically via the web site. The promotional campaigns are normally done through radio advertisements, bus advertisements and promotional items such as personal attack alarms and UV marker pens (Northumbria Police

Authority, 2003a). To crown these campaigns, all Northumbria police correspondence and vehicles carry the web site address as a way of marketing the web site to the general public.

2.2.10 Multimedia Internet Kiosks

Northumbria police web site is of little use if the majority of people in its communities lack Internet access facilities (BT, 2003). In the Newcastle East area of Northumbria police area, it was found that 68% of households were without Internet access, while at a national level only 40% of households were able to use online services (BBC, 2003). To counter this pitfall, Northumbria Police Authority started multimedia kiosks that would give more people in both urban and rural environments a way of accessing police services online free of charge.

In March 2003, two multimedia kiosks were installed, the first in foyer of Sunderland station, and the second in the foyer at Tynemouth headquarters (BT, 2003). Some local authorities within Northumbria police area are in the process of rolling out major program of public multimedia kiosks (Northumbria Police Authority, 2003b).

According to Hall 2003, the multimedia kiosks have proved a useful promotional tool, presenting Northumbria police to the general public in a modern and professional manner. The multimedia kiosks indeed have enabled the police available to all people, not only those who have access to the Internet at home and work place. Those people who have no Internet access at home or work place are also at the same time available to the police.

The multimedia kiosks will reduce some of the burden off the police officers sitting on the help desks of responding to FAQs as this routine policing information can be obtained just by a click of a computer mouse from a terminal in these kiosks.

2.3 E-policing Initiatives in Metropolitan Police Authority

Police are investing in ICT to increase their capability to store and process large volumes of data; to improve their intelligence and investigation capabilities; and to provide ready access to criminal records and other criminal related information (Chan *et al*, 2001). Not only does ICT promise to improve police effectiveness and efficiency in controlling crime, it may also enhance police professional status and organisational legitimacy (Erickson and Haggerty,

1997). Because of the advantages associated with ICT in provision of police services and enhancement of professionalism among the officers, MPA embarked on several e-policing initiatives. Examples of current e-policing initiatives and those e-policing initiatives under consideration by MPA are shown in appendices 1 and 2.

The MPA Finance Committee endorsed most of MPA e-policing initiatives in June 2003 (MPA, 2004). The main purpose of these e-policing initiatives was to ensure that most of the police services are available electronically via web sites to the general public. Some of the most successful services that are now available electronically via MPA web site according to MPA 2003a are:

1. The crime reporting online currently attracts in excess of 1,000 reports per month.
2. Commissioner's and New Scotland Yard's e-mail addresses, providing the opportunity for general e-mail enquiries and which currently attracts approximately 5,000 enquiries per month.
3. The Karrot initiative from Southwark Borough, which uses smartcard technology to engage with young people and encourage positive social outcomes. This initiative was subject of an ISB Award in 2002.

MPA popularise their police services offered electronically via the police web site through clear links from other relevant web sites.

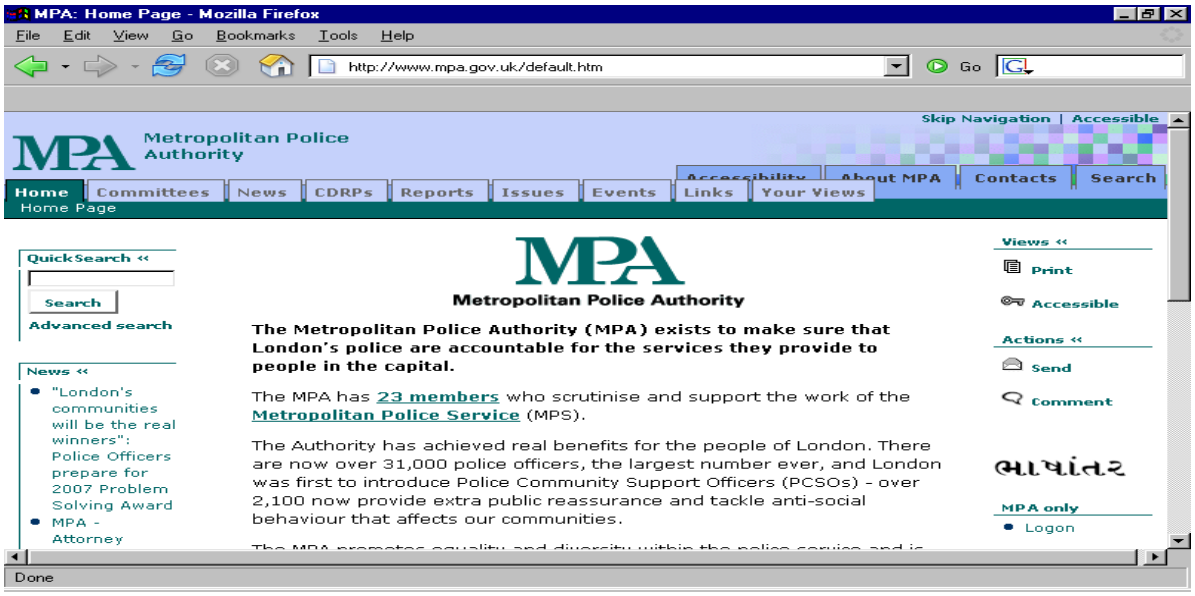

Figure 2.3 Metropolitan Police Authority web site

The e-policing initiatives are expected to continue beyond 2005 with the aim of extending the range of police services that can be offered electronically and promoting social inclusion of hard to reach people in the access and delivery of these services (MPA, 2003b).

2.4 A Strategic Framework for the Delivery of E-policing by Lincolnshire Police Authority

In policing, technological changes are driven by three analogous imperatives: to improve effectiveness and efficiency, to meet the requirements of new forms of police management and accountability, and to satisfy the demand of external agencies for information (Chan *et al*, 2001). It is for these three reasons that several police agencies have come up with strategic frameworks for delivering police services electronically. In line with the UK government agenda to provide electronic services to the citizens by 2005 (Sorensen and Pica, 2005), Lincolnshire Police Authority defined a strategy which would enable the police Service to plan and implement the necessary activities and policies concerning e-policing (Lincolnshire Police Authority, 2003a).

Figure 2.4 Lincolnshire Police Authority web site

2.4.1 Objectives of Implementing the Strategy

The strategic aim according to Liu and Hu 2005 was to deliver all police services to the general public electronically where it was reasonable to do so in relation to the policing of the County and the reform and modernisation of the Criminal Justice System (CJS). As such three main objectives of implementing e-policing that would enable the achievement of the stated aim were identified. These are:

2.4.1.1 Identifying and defining those services which can be reasonably be delivered electronically

The police keep order and safety by ensuring security for the general public and property. It can therefore be said that the police is in existence because of the general public or rather the general public is the employer of the police Service. For this reason, it is therefore essential that the general public is involved fully in the identification and definition of those police services that can be reasonably be delivered electronically.

The business need for e-initiatives of Lincolnshire police was defined by reference to the general public (Lincolnshire Police Authority, 2003c). These e-initiatives formed part of the e-policing strategic framework and reflected the general public values and requirements. This ensured that any negative impact on e-policing was avoided.

This objective would be achieved according to Lincolnshire Police Authority 2003b by identifying and defining those services which are delivered electronically at the moment; identifying all Lincolnshire police projects and pilots which aim to deliver services using e-technology; and identifying additional services which could reasonably be delivered using e-technologies.

2.4.1.2 Investigating and developing the infrastructure to provide range of service delivery options

Achieving the e-policing vision requires that common standards and infrastructure be established to facilitate interoperability across the police Service and wider police services and related agencies (Lincolnshire Police Authority, 2003d). In order to achieve e-policing fully, the police must have the required infrastructure put in place.

The e-Government Interoperability Framework (e-GIF) that was established as the foundation of e-government strategy in the UK (e-GIF, 2003), sets out standards and infrastructure for achieving interoperability and ICT systems coherence across the public sector which include the police Service. Adherence to e-GIF infrastructure specifications and policies is mandatory according to Lincolnshire Police Authority 2003a. Lincolnshire police therefore, adapted web technology, intranet and extranet connectivity and corporate database that met mandatory e-GIF standards.

Lincolnshire police would achieve this objective by developing infrastructure that enable the public to communicate easily using a broad range of electronic media; provide seamless inter-working with partner agencies to common e-GIF standards; provide an environment within which the quality of information is known and therefore allowing it to be managed and exchanged; and support and maintain a situational analysis which would ensure that initiatives remain focussed and valid.

2.4.1.3 Implementing the e-services, providing clearly defined, compelling, citizen-focussed services

For any new technology to be accepted within the public domain, it must be user friendlier and meet the required expectations. It simple words it must be citizen-focussed. This objective was focussed in meeting the end user requirements. The objective according to Lincolnshire Police Authority 2003b would be achieved by developing a comprehensive strategy for design, trial, introduction, evaluation and development of e-services that are citizen-focussed; and developing clear business processes which provided seamless links between technologies and other Lincolnshire police services and technologies.

2.4.2 Strategic framework

E-policing strategy is a long-term aspiration; covered by ISS4PS (Valiant) programme and achievable only once old legacy systems are replaced and all the processes and links to all core systems are complete (Lincolnshire Police Authority, 2003a). This means that e-policing in Lincolnshire area will only be achieved if and only if, all police services that can be reasonably be provided electronically are done so. It also means that these services should be

compelling and citizen focussed, meeting the needs and improve on the quality of police services to the public before Lincolnshire can be declared e-policing fully.

The Lincolnshire police e-policing strategy concerns itself principally with the business-to-citizen interface (Lincolnshire Police Authority, 2003c). The strategy therefore focuses on the general public as the main player in the provision of police services electronically. It aims at exploiting full the capabilities offered by new technology in the delivery of police services to the general public.

The strategy was developed in two phases according to Lincolnshire Police Authority 2003c. The expected outcome changed as the strategic requirements were addressed and new technological developments emerged. The two phases are:

1. Phase 1 involved all those elements necessary to meet the modernising government targets of 2005.
2. Phase 2 consisted of the elements necessary to complete the joining up and implementation of a fully citizen-centric environment for e-policing.

The strategic framework for e-policing in Lincolnshire police in line with the PITO national e-policing strategic framework comprises five component strategic areas (CJS, 2003). The five strategic components are:

2.4.2.3 Governance and management strategy

It is integrated with the police Service information and communication strategy and channel strategy (Lincolnshire Police Authority, 2003a). The purpose of this strategy is to provide a top-level framework for policy development and links to national e-policing and ICT strategy (BBC, 2003). This strategy helps to ensure that any form of modernisation meets the overall modernisation objective of the UK government.

Governance and management strategy ensures that all e-initiatives comply with UK, CJS, Lincolnshire police policy, UK legislation and necessary international agreements (CJS, 2003). Once this is ensured, it will enable Lincolnshire police integrate its ICT system easily

with other similar systems. This will therefore enhance the applicability of the other four strategies.

2.4.2.4 Application strategy

This strategy defines the interoperability and integration requirements of e-policing (e-GIF, 2003). It consists of the applications portfolio and the priorities for its development and migration plan for all e-policing initiatives in Lincolnshire (Lincolnshire Police Authority, 2003a). This strategy is concerned with the actually interaction of the end users with the e-policing system. The web sites, the web portals and associated infrastructure are defined in this strategy.

All the police services that can reasonably be provided online, for example online crime reporting, on line recruitment, online citizen's forum, real-time traffic information via CJX portal, fine payments via magistrates' courts gateway, and online lost and found property among many others are defined and implemented in application strategy.

2.4.2.5 Enabling services and Infrastructure strategy

Lincolnshire Police Authority 2003a states that this strategy defines central service provision, multi-channel supporting infrastructure and networking and communications protocols in terms of technical standards and integration with other police Services in UK. All the technologies used in e-initiatives that meet e-GIF standards such as the airwave mobile application gateway (MAG) that enable access to police back office system remotely using hand held PDAs; and ISS4PS, a corporate database are defined and implemented in this strategy.

2.4.2.6 Information and content management strategy

This defines how information content is created, managed and branded to facilitate data flows and data validation according to Lincolnshire Police Authority (2003a). It includes database management and data warehousing. Facilities such as CMS for content management and redesign on the web site and SMS for enabling e-forms development and gateway for public access to these forms are implemented in this strategy.

2.4.2.7 Procurement and implementation strategy

This strategy sets out the framework for planning, procurement, implementation, development and management of e-policing systems (PITO, 2003). It simple deals with the administrative part of e-initiatives. PITO is normally involved administratively either directly or indirectly in the implementation of most e-policing initiatives in UK.

2.5 Conclusion

Most of the 43 police authorities within England and Wales have exploited the huge potential offered by the Internet of reaching vast numbers of people to provide police services to the public online. This is in line with the UK government objective to provide all services that can reasonably be provided to the public electronically by 2005. E-policing is meant to enhance the traditional policing methods.

The police authorities that provide their services electronically via web sites in UK, market their web sites to the public. The marketing is normally done through radio advertisements, TV advertisements, bus advertisements and through advertising in other web sites that are frequently visited by citizens. By marketing their web sites and police services associated with these web sites they are able to reach the public appropriately through their web sites.

Comprehensive training programmes on e-policing for both the police officers and the general public need to be developed and conducted if this new and modern way of policing has to make impact. Police authorities in the UK, for example Northumbria police have developed training programmes to sensitise people on how to use e-policing facilities and on advantages associated with e-policing.

Not all people in UK have access to the Internet. At national level, only 40% have access to the Internet. To enable the provision of police services on line, police authorities in UK have developed multimedia kiosks programme. The purpose of these kiosks is to enable those people who do not have access to the Internet at home and workplaces enjoy police services offered online.

To succeed in e-policing, police authorities should formulate comprehensive and well defined implementation strategic framework for the delivery of e-policing.

The UK case study suggested that e-policing is more than just having a police web site. It is about putting the required applications and infrastructure in place in order to provide police services electronically online. A major infrastructure in e-policing is the data management system – the Portal, which provided a single point of entry for information. The Portal has three major modules which are Message broadcasting (e-mails, telephone, and text messages), Notification of minor crimes and Intelligence reports. The portal has changed the public/police relationship by allowing online/real time communication between the police and the public. Whether people have computers at home or not is not an issue. There are Internet cafes, computers in public libraries, etc. The portal fits in with the current/future use of technology. The issue is more how the police can manage this relatively new source of information efficiently. As is the case for any technological adaptation, training and planning are required before implementation.

From this case study, it can be established that:

1. There is tangible evidence that unprecedented volumes of messages can be delivered by the e-policing Portal simultaneously.
2. E-policing Portal broadcasts achieve higher penetration than traditional methods.
3. Broadcasted messages can deliver specific information to targeted groups such as taxi drivers, pub landlords, nurses, etc.
4. Broadcast messages are well received by the general public through e-policing platform.
5. The e-policing Portal gives society many thousands of eyes watching compared to a two eyes in a police car.

Chapter 3: Current Delivery of E-policing Services by Kenya Police Service

4.1 Introduction

In the past IT was focused on improving procedures and efficiency in the back office, while more recently IT is seen as a tool that can improve the quality of service delivery in the front office (Kaul, 1998). It is in this line that the Kenyan government in March 2004 released the e-government strategy through the Cabinet Office in the Office of the President (Kageni *et al*, 2004). The e-government strategy is a framework for delivering a better life through services in a better, convenient, and cost effective way to Kenyans. Services envisaged in this framework include, among others, the ability of citizens and businesses to file tax returns and make tax claims online, download passports forms online, and for government to undertake police operations online (Zeraza, 2005). It is for this reason that the police Service has taken e-policing seriously as one of the highest priority in its endeavour to keep Kenya a safe place to live in.

To create a modernised, more effective and efficient police Service that is responsive to the needs and expectations of Kenyans, the e-government directorate came up with short-terms initiative that would be implemented by June 2004, and long-term initiative that would be implemented beyond 2007 (Wafuala & Wanyohi, 2005). The short-term initiative required the Service to have its own web site in order to make police information available easily, widely and equitably to Kenyans. The long-term initiative required the Service to secure e-mail facilities across Criminal Justice System, computerise and network all systems within police stations and other working partners countrywide. This could for example, enable a traffic police officer electronically access details of a car or driver in the event of an accident.

In line with the objectives of e-government strategy of making the government more result-oriented, efficient and citizen centred; and enable citizens and businesses to access the government services and information as efficiently and as effectively as possible through the use of ICT (Okongo, 2005), police Service launched its web site in May 2006.

4.2 The Kenya Police Web site

Figure 3.1 Kenya Police Service Web site

The police web site has actually enabled some of the policing services to available easily and widely online. The facilities found on the police web site are as tabulated below.

Facility	**Description**
Online crime reporting	Secure crime reporting facility for range of minor crimes. It is provided using the police portal.
Commissioner e-mail service	The Inspector General e-mail address commissioner@kenyapolice.go.ke is available for general enquiries and where possible and appropriate, results in an electronic response.
Online interactive FAQs including legal, procedural and general advice	Frequently Asked Questions facility provides detailed on screen questioning guidelines to support policing decisions.

Facility	Description
Online updates on incidents	Provide updates from police formations e.g. Traffic Department.
Crime prevention information/Specialist advice	Detailed advice is available on the web site on counter terrorism, cyber crime and fraud.
Information source	Advice on anti-social behaviour, crime hot spots, Drugs and HIV/AIDs to community/young people.
Property lost and found/Stolen property notification with search functionality.	Provide information about certain categories of high value property such as vehicles which come into the possession of police.
Link with government	To enable controlled and effective information sharing between government agencies.
Download police forms	Police forms e.g. P3 form and police abstract available online for downloading.
Online job application	Vacancies in the Service are advertised online and can be applied online.
Most wanted criminal alert	Provide detailed information of the most wanted criminals.
Media/Communication links	Established links with the media and communication industry to ensure timely and accurate dissemination of police information.

Table 3.1 Facilities in Kenya Police Web site

The utilisation of ICTs by people and businesses is manifested in a number of ways, and a number of indicators can be used to access this including the level of performance and utilisation of ICTs, teledensity and traffic flows, information technology, and Internet gateway capacity (Heeks, 2003). Teledensity is the number of telephone lines and/or mobile subscribes per 100 persons. As is evident from the table 1.4 below, Kenya's teledensity and ICT utilisation in terms of personal computers and Internet use is lacking as compared to other counties. This clear shows that very few Kenyans are likely to utilise the Kenya Police Service online services despite the inception of the police web site.

Parameter	Kenya	South Africa	Egypt	Malaysia	Singapore
Teledensity					
Main Telephone Lines Per 100 Persons	1.03	10.66	11.04	19.04	46.28
Mobile Subscribers Per 100 Persons	4.15	30.39	6.68	37.68	79.56
ICTs Utilisation					
Internet users per 10,000 persons	125.27	682.01	282.26	3,196.89	5,043.59
Internet hosts per 10,000 persons	0.93	43.75	0.45	35.18	812.62
PCs per 100 persons	0.64	7.26	1.66	14.68	62.2
E-government ranking, 2003 (%)	25.7	31.8	28	36.7	46.3

Table 3.2 Common Information and Communication Technology Statistics (International Telecommunication Union (ITU), 2003)

4.3 Conclusion

E-policing is fundamental in efforts to modernise the Kenya Police Service if at all the Service is to cope with the fast growing Kenyan society technologically. The Police Service has actually taken advantage of the fast increasing use of the Internet and web technologies by Kenyans to provide its services such as crime reporting, public notifications, job application, security alerts and traffic alerts among others, online. Online services will give the Service opportunities to improve performance; meet key policing objectives; support police officers at work for example a traffic police officer, could electronically access details of a car or driver in the event of an accident; and provide an alternative new improved service to the Kenyans.

With e-policing, Kenya Police Service will be able to reach for the first time remote, rural areas and disadvantaged persons/communities through mobile phone computing. This new service will open up new ways of communication for the Kenyans to assist in police investigations.

Despite the good thing associated with e-policing in Kenya, the police Service lacks proper ICT infrastructure to fully implement this new way of policing. A special formation/unit

within the Service should be established to oversee the computerisation and networking of the current system and subsequent maintenance and upgrading of ICT equipment in future. Police officers should also be trained on ICT for successful implementation of e-policing. The Service must acquire enough modern communication equipment that will enhance online service to Kenyans.

Kenyans lags behind in ICT utilisation and teledensity and therefore the police Service may not be able to provide online policing services easily, widely and equitably. It is only a few that are advantaged in the society, those who have access to the Internet and personal computers that will be able to utilise this new way of policing. Although Internet services are now available through mobile phone service providers, the service is expensive to majority of Kenyans.

The Kenya Police Web site does not have all important features/functions that are needed for e-policing which are found in most of the police web sites in the UK police authorities that have successful implemented this new and modern way of policing. These features include crime and witness appeal, ability to record serial numbers of property and online subscription for information on police operations. The police Service web site also lacks the mobile phone interaction facility as compared to UK police authorities' web sites.

Chapter 4: Presentation of Research Findings

4.1 Introduction

Generally the response rate was good for both police stations and general public that were served with the questionnaires. Out of 74 police stations that were served with questionnaires, 62.2% responded to the questionnaires. Out of 100 people in the general public that were served with questionnaires, 58% responded to the questionnaires. A total of 13 tables and 7 graphs were generated from the analysis of raw data obtained from the 2 questionnaires.

The research results were evaluated based on the 6 objectives of this study which include, determining the feasibility and effectiveness of providing policing services to the public electronically; problems faced during the implementation of e-policing; benefits of implementing e-policing; challenges of maintaining e-policing; and need for formulating e-policing strategy.

4.2 Response Rate

A total of 46 police stations and 58 people from the general public responded to the questionnaires giving an overall response rate of 62.2% and 58.0% respectively. The response rate of the 3 major cities in Kenya were, Nairobi 65.6% for police stations and 50.0% for the general public; Mombasa 68.2% for police stations and 70.0% for the general public; and Kisumu 50.0% for police stations and 56.7% for the general public. In general all the 3 major cities in Kenya had a good response rate and are well represented in the overall 62.2% and 58.0% response rates for both police stations and general public respectively. This therefore makes the study results to have a comprehensive unbiased representation of Kenyans both who offers policing services and those who receive these services.

S/No.	City	No. of Stations issued with Questionnaires	Those who responded	Response Rate %
1	Nairobi	32	21	65.6
2	Mombasa	22	15	68.2
3	Kisumu	20	10	50.0
	Total	74	46	62.2

Table 4.1 Police stations response rate by city

S/No.	City	No. of People issued with Questionnaires	Those who responded	Response Rate %
1	Nairobi	40	20	50.0
2	Mombasa	30	21	70.0
3	Kisumu	30	17	56.6
	Total	100	58	58.0

Table 4.2 General public response rate by city

4.2.1 Distribution of Police Station Respondents by City

The distribution of police station respondents by city showed that Nairobi city had the highest number of respondents at 45.7% followed by Mombasa city at 32.6%, while Kisumu city had the least representation at 21.7%.

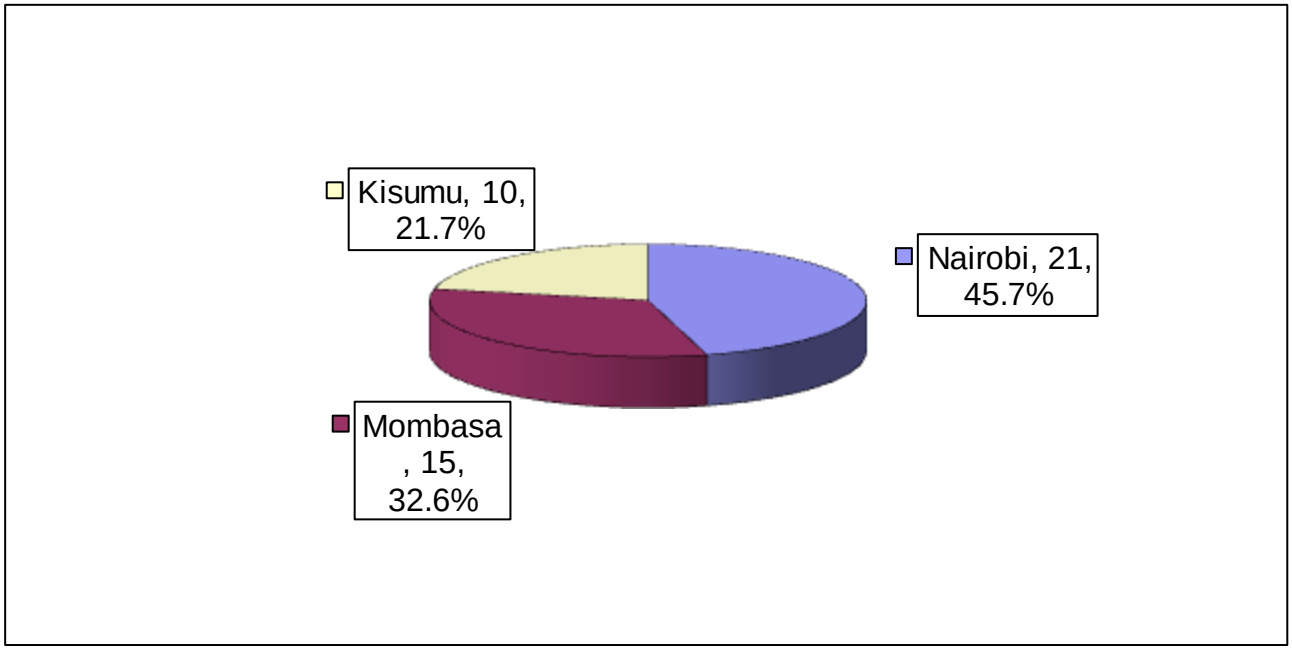

Figure 4.1 Distribution of Police Stations respondents by city

4.2.2 Distribution of General Public Respondents by City

The majority of Kenyans who responded to the general public questionnaire were from Mombasa city at 36.2%, followed by Nairobi city at 34.5%. Kisumu city was once again with the least respondents at 29.3% compared to the other 2 major cities.

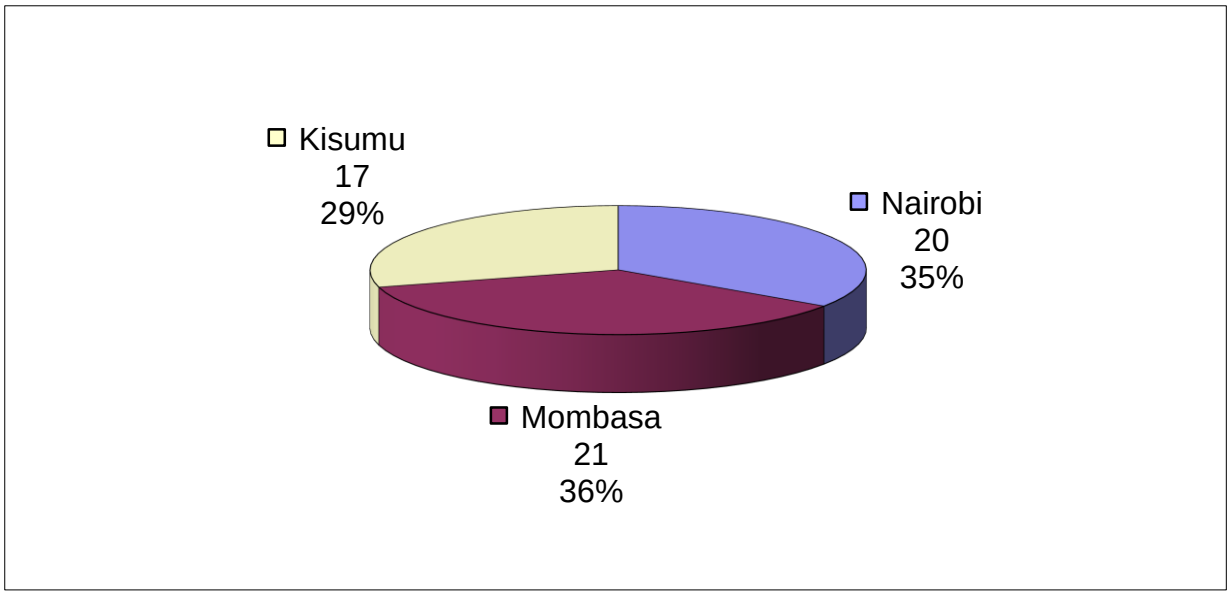

Figure 4.2 Distribution of general public respondents by city

4.2.3 Distribution of General Public Respondents by Employment

There were 3 major categories to be selected from. These were not employed, informal employment and formal employment. In Nairobi city, 7 respondents were not employed at all, 2 were in informal employment and 11 were in formal employment. In Mombasa city, 5 respondents were unemployed, 3 were in informal employment and 13 were in formal employment. Kisumu city had 2 respondents who were unemployed, 1 in informal employment and 14 in formal employment. The table below summarises this.

Employment / City	Nairobi	Mombasa	Kisumu	Total	Response Rate %
Not Employed	7	5	2	14	24.2
Informal Employment	2	3	1	6	10.3
Formal Employment	11	13	14	38	65.5
Total	20	21	17	58	100.0

Table 4.3 General public response rate by employment

The distribution showed that the formal employment had the highest number of respondents at 65.5% followed by unemployment at 24.2%, while informal employment had the least representation at 10.3%.

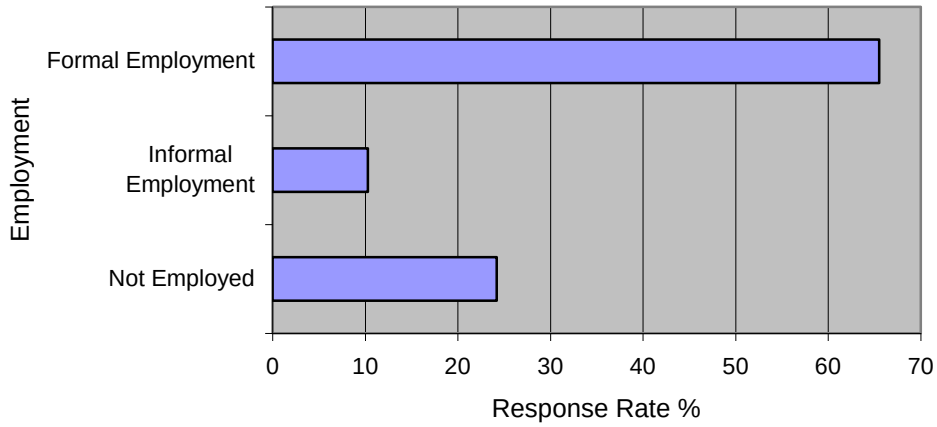

Figure 4.3 Distribution of General Public Respondents by Employment

4.2.4 Distribution of General Respondents by Level of Computer Literacy

The levels of computer literacy were categorised into 4 groups. These included not at all, at least, moderate and complete computer literate. Of the 20 respondents from Nairobi city, 8 respondents were not at all computer literate, 4 at least computer literate, 3 moderate computer literate and 5 complete computer literate. In Mombasa city, 10 respondents were not at all computer literate, 5 at least, 3 moderate, and 3 complete computer literate. Kisumu city had 11 respondents who were not at all computer literate, 3 at least, 1 moderate and 2 complete. This is summarised in the table below.

Literacy / City	**Nairobi**	**Mombasa**	**Kisumu**	**Total**	**Response Rate %**
Not At All	8	10	11	29	50.0
At Least	4	5	3	12	20.7
Moderate	3	3	1	7	12.1
Complete	5	3	2	10	17.2
Total	20	21	17	58	100.0

Table 4.4 General public response rate by computer literacy

Not at all computer literate had the highest number of respondents at 50.0%, followed by at least computer literate at 20.7%, complete computer literate at 17.2% and moderate computer literate at 12.1% respectively.

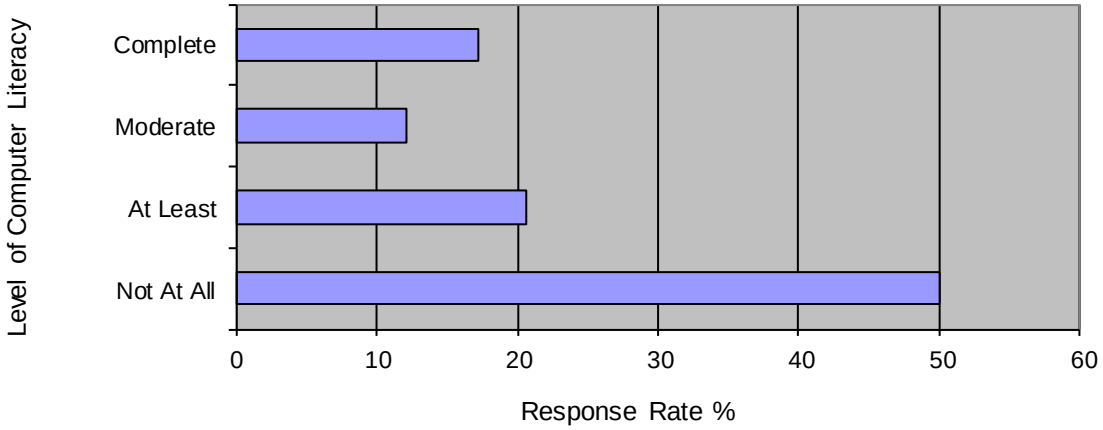

Figure 4.4 General public response rates by computer literacy

4.2.5 Distribution of General Public Respondents by Distance from the nearest Police Station

The general public respondents were asked to indicate approximate distance from the nearest police station to their residential place. The distance was categorised into 5 groups, which included less than 10 kilometres; between 10 kilometres and 20 kilometres; between 20 kilometres and 50 kilometres; between 50 kilometres and 100 kilometres; and more than 100 kilometres. The table below shows response rate in the 3 major cities in Kenya under these groups.

Distance / City	Nairobi	Mombasa	Kisumu	Total	Response Rate %
Less than 10km	10	7	7	24	41.4
Between 10km & 20km	9	10	3	22	37.9
Between 20km & 50km	1	3	4	8	13.8
Between 50km & 100km	0	1	2	3	5.2
More than 100km	0	0	1	1	1.7
Total	20	21	17	58	100.0

Table 4.5 General public response rate by distance from the nearest police station

Distribution by distance shows that 41.4% of the respondents in the 3 major cities in Kenya stay in a distance of less than 10km from the nearest police station; 37.9 % stay between 10 kilometres and 20 kilometres from the nearest police station; 13.8% stay between 20

kilometres and 50 kilometres; 5.2% between 50 kilometres and 100 kilometres; and 1.7% more than 100 kilometres away from the nearest police station.

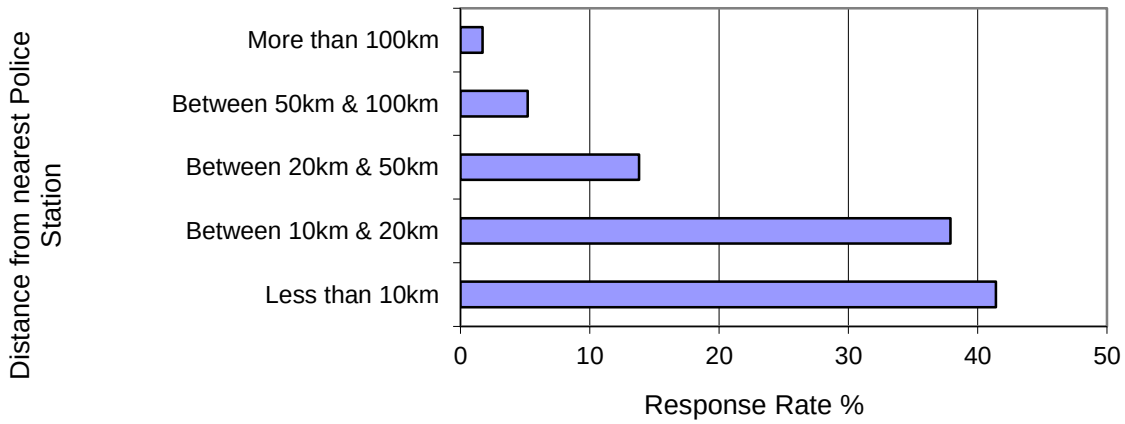

Figure 4.5 General public response rates by distance from the nearest police station

4.3 The Feasibility of E-policing in Delivering Police Services

The police stations and the general public were asked whether it is feasible to deliver all police services to the public electronically via web sites. Most respondents acknowledged that it was feasible to deliver some of the police services electronically while the least of the respondents believed that it was feasible to deliver all police services electronically. Out of 46 police stations 80.4% felt that it was feasible to deliver some services, 13.1% believed that it was not feasible to deliver any police service electronically, while 6.5% indicated that it was feasible to deliver all police services electronically.

Out of 58 respondents from the general public, 77.6% indicated that it was feasible to deliver some police services electronically, 17.2% indicated that it was not feasible to deliver any police service electronically, while 5.2% indicated that it was feasible to deliver all police services to the public electronically. The table 4.6 below shows this.

Police Services	**Police Stations**		**General Public**	
	Count	**%**	**Count**	**%**
All Services	3	6.5	3	5.2
Some Services	37	80.4	45	77.6
No Services	6	13.1	10	17.2

Police Services	Police Stations		General Public	
	Count	%	Count	%
Total	46	100.0	58	100.0

Table 4.6 Response to the feasibility of e-policing

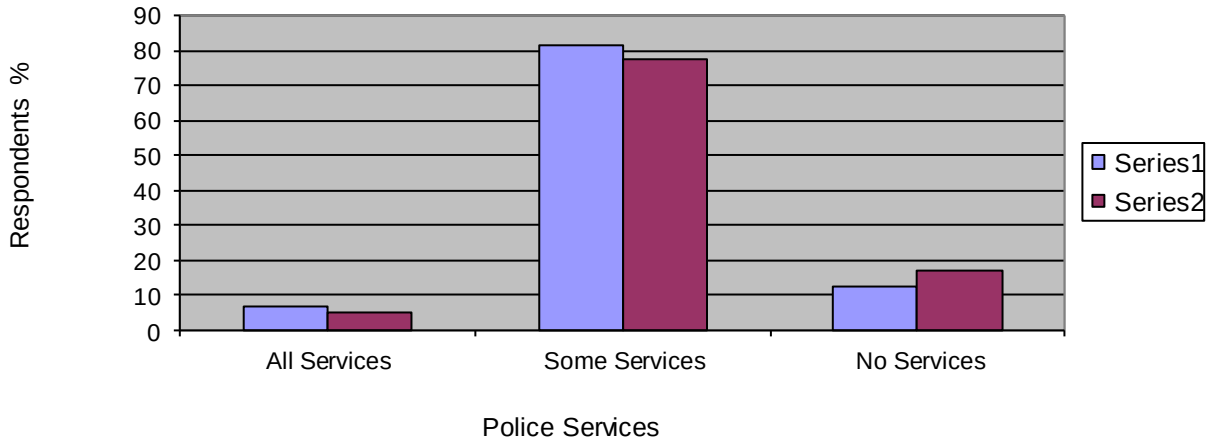

Figure 4.6 Response to the feasibility of e-policing

4.3.1 Feasibility of E-policing Based on Internet Usage by General Public

To determine further the feasibility of e-policing in delivering police services to the public, the general public respondents were asked to indicate how they access the Internet, where they normally access the Internet, and how often they visit the Kenya Police web site. Table 4.7 shows these results.

How do you access the Internet?								
Category	Not Applicable		Through PC		Through Mobile Phone		Through Interactive TV	
	Count	%	Count	%	Count	%	Count	%
	19	32.8	35	60.3	4	6.9	0	0.0
Where do you normally access the Internet?								
Category	Not Applicable		At Office		At Home		Cyber Cafe	
	Count	%	Count	%	Count	%	Count	%
	19	32.8	20	34.5	3	5.2	16	27.5
	How often do you visit the Kenya Police web site?							

Category	Not At All		Rarely		Occasionally		Very Much	
	Count	%	Count	%	Count	%	Count	%
	19	32.8	15	25.9	13	22.4	11	18.9

Table 4.7 Feasibility of E-policing Based on Internet Usage

The majority of the respondents at least had access to the Internet in one way or another. This stood at 67.2% of the respondents, while 32.8% of the respondents do not have access to the Internet at all. This clearly indicated that e-policing is feasible considering the number of Kenyans who are able to access the Internet.

60.35% of the respondents access the Internet through PCs; 32.8% of the respondents indicated that the Internet is not applicable in their life; 4.0% access the Internet through their mobile phones; while 0.0% of the respondents access the Internet through Interactive TV. 34.5% access the Internet in their offices; 32.8% have no place to access the Internet; 27.55% access the Internet in cyber cafes; and 5.2% access the Internet at home. This indicates that the majority of Kenyans do not have Internet at home and therefore the majority of Kenyans can only receive e-policing services while at their places of work.

Out of the 58 respondents, the majority at 32.8% do not access the Internet at all. 25.9% rarely access the Internet; 22.4% occasionally access the Internet; while the least of Kenyans at 18.9% access the Internet very much.

The respondents were further asked to rate the places of interest in the Kenya Police web site based on a scale varying from ‘not at all’ to ‘very much’. Respondents rated 5 places of interest and a weighted mean was calculated for each place of interest. Table 4.8 shows the results obtained and the mean score for each place of interest.

		Weight					**Weighted**
S/No	**Interest**	**1**	**2**	**3**	**4**	**5**	**mean**
1	Seek Information	19	0	0	24	15	3.3
2	Seek employment	19	20	10	6	3	2.2
3	Down loading police forms (P3 and police abstract)	19	0	5	14	20	3.3
4	Report incidents	19	15	13	7	4	2.3

		Weight					Weighted mean
S/No	**Interest**	**1**	**2**	**3**	**4**	**5**	
5	Any other (Please specify)	58	0	0	0	0	1.0

Weights: 1 – Not at all, 2 – Least, 3 – moderate, 4 – Much, 5 – Very much

Table 4.8 Places of Interests in the police web site

In the responses, seek information at mean score of 3.3 and down loading police forms also at mean score of 3.3 were highly rated with both having mean rates above 3.0. These being major services in any police station, clearly show the importance of providing these services electronically. Others are report incidents at 2.3, seek employment at 2.2, ant any other at 1.0.

It is worrying that reporting of minor incidents at 2.3 is below average. It is supposed to be the major driving force in providing police services electronically. This clearly shows that the majority of Kenyans had not yet recognised this new way of reporting minor incidents to the police.

4.3.2 Feasibility of E-policing Based on Police Stations Opinions

The police stations were required to give a general overview of e-policing in terms of available infrastructure, ICT personnel on the ground and training on e-policing.

The stations were asked to indicate if the mentioned infrastructures of e-policing were available in their areas of jurisdiction. Table 4.9 shows the results obtained.

Infrastructure	**Indicate if in use**			
	Yes		**No**	
	Count	**%**	**Count**	**%**
Airwave Mobile Application Gateway	0	0.0	46	100.0
Web Site	22	47.8	24	52.2
Web Portal	22	47.8	24	52.2
Multimedia Internet Kiosks	0	0.0	46	100.0
Hand held PDA	0	0.0	46	100.0
Police Intranet	0	0.0	46	100.0
Broadband or ISDN	4	8.7	42	91.3

Infrastructure	Indicate if in use			
	Yes		No	
	Count	%	Count	%
Web Camera	0	0	46	100.0

Table 4.9 Availability of e-policing infrastructure

The results show that the majority of police stations did not have the mentioned infrastructure for e-policing. The only infrastructures that were available in some of the police stations were web site for content management and redesign and web portal for e-forms development and gateway for public access to them. 47.8% of the 46 respondents had both web site and web portal infrastructures, while 52.2% did not have both of these infrastructures. 8.7% of the police stations had broadband or ISDN for Internet connectivity, whereas 91.3% did not have broadband connectivity. None of the police stations had airwave mobile application to enable access to police back office systems for officers on the move; PDA to allow PNC checks and updates; police intranet for communication among police stations; and web camera to enable video conferencing applications. These findings put the feasibility of providing police services to the public at stake.

All the police stations responded that there were few or no ICT personnel at all in their stations. They also indicated that there was no ICT training to the officers going on or proposed by police headquarters. The main reason for embracing Internet and web technologies in day-to-day police services to the public was given by the majority of police stations as government decision.

The majority of police stations were of the opinion that e-policing was received fairly well among the police officers in their stations. They stated that improvement of police services to the public as the organisational consequence of the acceptance of this new way of policing. All these findings enhanced the feasibility of providing police services electronically.

4.4 The Effectiveness of E-policing in Delivering Police Services

The general public respondents were asked to indicate how often they access the Internet to determine the effectiveness of providing police services via web sites. The majority of the respondents were not accessing the Internet at all. This represented 32.8%of the 58

respondents. 25.8% of the respondents browse the Internet once in a week; 17.2% daily; 12.2% twice in a week, while also 12.2% browse the Internet thrice in a week. This shows that at least 67.2% of Kenyans had access to the Internet and therefore Internet is an effective way to reach the public.

Frequency of Internet Access	**Respondents**	**Respondents %**
Not At All	19	32.7
Once in a Week	15	25.9
Twice in a Week	7	12.1
Thrice in a Week	7	12.1
Daily	10	17.2
Total	**58**	**100**

Table 4.10 Frequency of Internet access by the general public

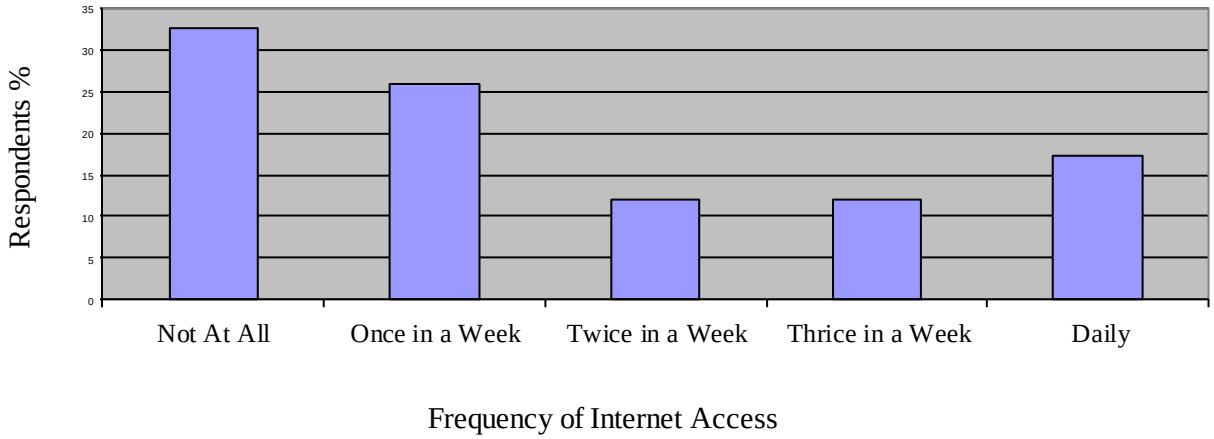

Figure 4.7 Frequency of Internet access by the general public

67.2% of the 58 respondents thought that delivering police services via web sites is an effective way of reaching to a large population and faster; while 32.8% thought that services via web sites is not an effective method of reaching large mass of people.

The police stations were asked to rate the extent to which the introduction of e-policing had changed the way routine work was conducted by police officers in their jurisdiction in 5 functional areas. The rating was based on a scale varying from ‘not at all’ to ‘very much’. A

weighted mean was calculated for each functional area. Table 4.11 below shows the outcome and the mean score of each functional area.

Functional Area	weight					Weighted Mean
	1	2	3	4	5	
General Duties	0	12	13	21	0	3.2
Traffic	0	22	24	0	0	2.5
Criminal Investigation	0	0	21	16	9	3.7
Search and Rescue	46	0	0	0	0	1.0
Riots and Public Unrest	40	4	2	0	0	1.2

Weights: 1 – Not at all, 2 – Least, 3 – moderate, 4 – Much, 5 – Very much

Table 4.11 Effectiveness of e-policing in functional areas

4.5 Implementation of E-policing and Problems Encountered

4.5.1 Features/Functions Incorporated during Implementation

The police stations were required to state if the given features of e-policing were incorporated in the police web site during its implementation. Table 4.12 shows the results obtained.

Police Web site Feature	Indicate if Found	
	Yes	No
Crime and Witness Appeal		√
Arrests made		√
Police campaigns and their results	√	
Crime Report System for non-urgent incidents of crime	√	
Pictures and video footage of people wanted in connection with crime	√	
Ability to record serial numbers of property		√
Section on missing persons		√
Detailed statistics about counties/towns and area command	√	
Job application online	√	
Register for information on police operations		√

Table 4.12 Important features that are normally incorporated in police web sites

Out of the 10 very important features of e-policing that were given, 5 of them were incorporated. Those which were incorporated included police campaigns and their results; crime report system for non-urgent incidents of crime; pictures and video footage of people wanted in connection of crime; detailed statistics about councils/towns and area command; and job application online. The 5 features which are very important to e-policing but were not incorporated in the police web site included arrests made; crime and witness appeal; ability to record serial numbers of property; section on missing persons; and register for information on police operations.

4.5.2 Those Involved in the Implementation

Basically, there were 3 main players involved during the implementation of e-policing. These were the newly formed Kenya Police Service ITC department, the Ministry of Finance for research, and the Office of the President's e-government directorate. The police's newly formed ICT department was involved in identifying those police services that would be offered electronically. Any government planning and development fall under the Ministry of Planning and therefore its involvement was automatic. E-government directorate is the arm of Kenyan government in the Office of the President that was mandated to implement e-government in various government departments, and the Police Service one of the departments that was earmarked.

4.5.3 Steps and Procedures used during the Implementation

The majority of the police stations stated that there were no defined and specific steps and procedures that were used during e-policing implementation. They admitted that the implementation was done unprofessionally with no consultation from the senior police officers in various police formations/units.

4.5.4 E-policing Training Conducted during the Implementation

All police stations indicated that there was no specific training that was conducted during e-policing implementation to the concerned police officers.

4.5.5 Problems Encountered during the Implementation

There were many problems many problems faced during the implementation of e-policing. Providing police services electronically was a new thing to most police officers. Most of the police officers therefore were unable to adapt to this new way of policing.

Most police stations had no budget at all for ICT department and even some did not have ICT department. A few with ICT department did not have qualified personnel with most of them being a one man department.

The majority of police stations expected instant miracles after the implementation of e-policing, which was unrealistic. They did not have the patience to allow the new system to produce results in its due time and therefore a few had expressed their disappointment.

4.6 Benefits of Implementation of E-policing

The police stations were asked to rate various benefits that had been gained from e-policing. The respondents rated 7 major benefits and a weighted mean was calculated for each of them. Table 4.13 shows the results obtained and the mean score of each benefit.

S/No	Benefit	Weight					Weighted mean
		1	2	3	4	5	
1	Traffic Alerts	6	10	23	7	0	2.7
2	Security Alerts	0	3	21	17	5	3.5
3	Reduce crime rate	9	21	16	0	0	2.2
4	Enable the police to reach a large population	0	6	20	13	7	3.5
5	Open up communication for public to assist police in investigations	2	30	9	5	0	2.4
6	Increase police partnership with the community	0	0	11	20	15	4.1
7	Cut policing costs	0	1	15	17	3	2.8
	Mean						**3.0**

Weights: 1 – Not at all, 2 – Least, 3 – moderate, 4 – Much, 5 – Very much

Table 4.13 Benefits of e-policing weighted mean

The benefits realised from the implementation of e-policing had a mean score of 3.0 generally. This is above average and it is believed that it can be improved further once e-policing is fully functional.

The highly rated benefit was increase police partnership with the community at 4.1. This was probably because of the recent introduction of community policing in various police stations in Kenya (Police Review, 2006). Securities alerts and enable the police to reach a large population were the benefits that followed at 3.5 each. Cutting policing costs and traffic alerts were slightly above average at 2.8 and 2.7 respectively. Open up communication for the public to assist police in investigation and reduce crime rate were benefits that were slightly below average at 2.4 and 2.2 respectively.

The majority of police stations were of the opinion that e-policing had improved the quality of police services to the public in their jurisdiction especially in the issuance of police forms and in the dissemination of information to the public. This had actually brought a good image of the police force to the general public.

Most of the police stations believed that e-policing had improved on the effectiveness and efficiency of some of the police services to the public for example security alerts.

All the police stations were in agreement that e-policing had no impact on the level and form of accountability in policing; on supervisory and management practices; and on the implementation and monitoring police policies. They also believed that e-policing had no benefit in relation to police officers and working environment. They cited the reason as ICT department not fully implemented in their stations or not implemented at all in their stations.

4.7 Challenges of Maintaining E-policing

While e-policing was seen as a major milestone, most respondents acknowledged that maintaining police services electronically was not easy. The police web site for example, has to be current and monitored closely to ensure continuity.

Among the major challenges and problems experienced by the respondents included:

4.7.1 Lack of well Structured ICT Department

The majority of the respondents felt that ICT department within their jurisdiction were either ill equipped or not in existence at all. Furthermore, those with ICT departments had personnel who were not qualified in that field and were very few. This was seen as a major drawback in maintaining e-policing.

4.7.2 Lack of Proper Policies regarding E-policing

All the respondents admitted that there were no policies regarding e-policing in the police standing orders. This meant that the new way of delivering police services to the public was not well constituted. As a result of this, some police officers were not taking it seriously.

4.7.3 Lack of Appreciation by the General Public

Most respondents found it difficult to convince the general public toe this new facility to obtain some of the police services electronically. This was most evident by the few people who visited the police web site.

4.7.4 Problem of Rigidity and Inflexibility

The majority of the respondents stated that, some police officers in their jurisdiction wanted to do things in their own way according to their training and experience. This was a major challenge to e-policing, since the officers were not making maximum use of the Internet and web technologies in the delivering police services to the public as expected.

4.8 Need for Strategy and Other Information

In conclusion the majority of the respondents were in agreement that the benefits of e-policing outweighed the problems and challenges. They were also in agreement that this new way of policing should be implemented fully.

Most respondents also observed that there is a lot to be done to raise the awareness level of e-policing to both police officers and the general public. They suggested marketing of the police web site through radio advertisements, TV advertisements and through advertising it in other commonly visited government and media groups' web sites.

The majority were of the opinion that an implementation strategy for e-policing should be formulated to guide the Kenya Police Service on this new and modern way of policing. They insisted that this strategy should be in line with the local conditions, unique environment and challenges in Kenya.

4.9 Evaluation of Outputs against Objectives

4.9.1 Objective 1

The first objective was to research on how the Internet and web technologies can be used in the fight against crime; assist the homeland security to reach a large population; open up communication for the public to assist homeland security in investigations; increase homeland security partnership with the community; and cut policing costs. A literature survey in chapter 2, UK experience of e-policing shows how the Internet and web technologies is being utilised by various police authorities such as Northumbria and Metropolitan to attain the mentioned functions. Several features and e-initiatives in these police authorities' web sites were looked into to determine how they assist in the attainment of these functions. Objective 1 was therefore achieved.

4.9.2 Objective 2

The second objective was to critically evaluate the existing Kenya Police web site in terms of day to day police services for example security alerts and traffic alerts, how the police interact with the general public electronically in its quest to fight crime and disorder, and technologies used. A comprehensive study of the police web site in chapter 3 identified e-policing features that are found and not found in the web. The survey carried out on police stations in Kenya also established police services offered electronically online, thus this objective was achieved.

4.9.3 Objective 3

The third objective was to survey the views of Kenya Police establishments/units and the general public regarding the feasibility and effectiveness of e-policing in administering police operations. A survey was carried successfully and the findings analysed and discussed in chapter 4. The results show that it is viable to implement e-policing system fully in Kenya

and that some of the police services can be offered to the general public effectively and efficiently electronically online. It was also established from the survey carried that e-policing will enable the police force reach a large population both in rural and urban area easily. Hence, this objective has been achieved.

4.9.4 Objective 4

Objective 4 was to develop an implementation strategy for the delivery of e-policing by Kenya Police Service based on findings in objectives 1, 2 and 3. From the findings of the data collected through questionnaires, interviews and the literature surveys conducted, there is a clear need for an implementation strategy to guide Kenya Police Service in implementing e-policing fully as a mean of improving its services to the public. To this effect a three stage detailed implementation strategy in appendix 5 that covers a period of 3 to 5 years was developed to assist the police service achieve e-policing status fully. The proposed e-policing implementation strategy was taken for validation and evaluation to the police ICT department whose input was used in refining and shaping the strategy. The strategy was observed to be a true reflection of the path required to achieve e-policing in Kenya and therefore this objective was achieved.

4.10 Evaluation of Project Management

4.10.1 Project Task and Schedule

Due to the military nature of work of the researcher which involves a lot of movement from time to time, the original project task and schedule had to be revised several times to enable successful completion of this study. These revisions affected the project schedule especially evaluation of the survey findings and production of the final study. However the projects tasks were not affected in any way. Some tasks took longer than estimated, but they were adjusted to take place concurrently with other tasks to enable successful completion of this study within the time-frame provided for by this Post Graduate Diploma Programme.

4.10.2 Contacts in Kenya Police Service

The research was about e-policing and therefore contacts had to be established in the police service to enable the researcher obtain relevant information on current police practices in

Kenya and also assist in obtaining responses for the survey from relevant police officers. Contacts in the three police regional headquarters in the three major cities in Kenya were established courtesy of the Director of police operations in police headquarters. The three contacts were eventually used to obtain other contacts within their jurisdiction. Contacts were made through telephone, mobile phone and letters.

4.10.3 The Survey

The survey required the gathering of opinions of police officers as well as the general public regarding the feasibility and effectiveness of e-policing. As such, two structured questionnaires with both open and closed ended questions were designed and served to the respective respondents. The questionnaires used a combination of closed questions formats such as multiple-choice and ranking, and a few open-ended formats. The Kenya Police Service headquarters mailing system was used in distributing questionnaires to various police stations contact persons, which was fast and efficient. The general public questionnaires were issued randomly to Kenyans on the streets and places of work in the three major cities. Getting the completed questionnaires from the police stations was easy as they were mailed to the relevant police regional headquarters in the three major cities as instructed. Getting the completed questionnaires from the general public was difficult as this involved visiting the respondents at their places of work and wait for the postal replies. Generally the survey response rate was good for both police stations and general public and the time allocated for survey was utilised as per the schedule.

4.11 Conclusion

The response rates of 62.2% and 58.0% are considerably enough to substantiate the findings from this research. Mombasa city had the highest response rates for both police stations at 68.2% and the general public at 70.0% probably because of the friendliness of the people from the Coastal part of the country. The least response rate in the police stations category was Kisumu city at 50.0%. Nairobi city had the least response rate at 50.0% for the general public probably because of the belief that Nairobians mind their own business.

The highest response rate for the general public category was from the people employed in the formal sector at 65.5%. Most of the respondents from the same category were not

computer literate. Most respondents also from the same category resided between distances of zero to 20 kilometres from the nearest police stations.

On the feasibility of e-policing, the majority of the respondents in the 2 categories, police stations and general public were of the opinion that it was feasible to deliver some of the police services electronically. Majority of the respondents from the general public had access to the Internet in one way or another and had at least accessed the police web site. This is a clear indication of the feasibility of e-policing in administering police operations. E-policing was also received fairly well among police officers in most of the police stations. This is a further boast to the feasibility of e-policing.

On effectiveness of e-policing, majority of the general public believed that delivering some of the police services via the web sites was an effective way of reaching to a large population and faster. Most of the police stations had the opinion that e-policing is very effective in the delivery of the general duties and criminal investigation at the mean score of 3.2 and 3.7 respectively.

It was established that some important features/functions of e-policing were incorporated in the police web site; and that the Kenyan government through the Ministry of Finance, and the directorate of e-government, was directly involved in the implementation of e-policing. It was further established that there were no defined procedures, no training was conducted to the police officers, and that so many problems were encountered during the implementation.

The benefits that were realised from the implementation of e-policing had a mean score of 3.0 generally. This was above average and it is believed that it can be improved further once e-policing is fully operational.

The major challenges of maintaining e-policing were cited as lack of well-structured ICT department; lack of proper polices regarding e-policing; lack of appreciation by the general public on e-policing; and the problem of rigidity and inflexibility among the police officers regarding this new and modern way of policing.

The majority of the respondents in the 2 categories, police stations and general public were in agreement on the need to formulate an implementation strategy for e-policing to guide the Kenya Police Service.

The 4 objectives stated in the introductory chapter were achieved. This can be testified by the final outputs of the research project. On the project management, all the tasks were completed and the survey general response rate was satisfactory. This is a clear indication of well managed project. Although the original project task and schedule had to be revised several times, the research project was completed successfully.

Chapter 5: Conclusion and Recommendations

5.1 Conclusion

This study managed to achieve its objectives. Clearly the implementation of e-policing in administering police operations by Kenya Police Service still remains a far-fetched dream and great effort need to be put in order to achieve e-policing status fully. E-policing is more than just having a police web site. It is about putting the required applications and infrastructure in place in order to provide police services electronically online.

The study found out that e-policing system is a supplementary of the traditional way of policing, which includes telephone system and face-to-face system in provision of police services to the public. It cannot completely substitute these traditional systems especially in provision of certain police services such as reporting major crime.

The research established that it was feasible to deliver some of the police services electronically online. These police services include traffic alert, security alert, police job application online, lost and found property, arrests made, crime reporting on minor non-urgent incidents, missing persons and recording serial numbers of property. The survey of the general public showed that some Kenyans who had access to the Internet in one way or another had at least accessed the police web site. This is a clear indication of the feasibility of e-policing in administering police operations. E-policing was also received fairly well among police officers in most of the police stations. This is a further boast to the feasibility of e-policing.

On effectiveness of e-policing, the research established that Kenyans believed that delivering some of the police services via the web sites was an effective way of reaching to a large population and faster. It was further established that e-policing is very effective in the delivery of the general duties and criminal investigation in various police stations in Kenya.

The survey of the police web site found that Kenya Police Web site did not have all important features/functions that are needed for e-policing which are found in most of the police web sites in the UK police authorities that have successful implemented this new and modern way

of policing. These features include crime and witness appeal, ability to record serial numbers of property and online subscription for information on police operations.

There were no defined procedures on e-policing and no working strategic framework for e-policing in Kenya at the moment. The survey of police stations established this. It further established that no training was conducted to the police officers during and after the launch of the police web site. The Kenya Police Service has not yet marketed its web site and police services that can be offered online to the general public and therefore very little is known in Kenya about the new way of policing.

The research established the benefits/opportunities that can be realised from the implementation of e-policing fully in Kenya as the police force reaching a large population both in rural and urban areas easily and fast, cutting on policing costs, and support joined up government.

It was found that the major challenges of maintaining e-policing in Kenya are lack of well-structured ICT department; lack of proper polices regarding e-policing; lack of appreciation by the general public on e-policing; and the problem of rigidity and inflexibility among the police officers regarding this new and modern way of policing.

To this end, a simple, Kenya made, police specific, implementation strategy was formulated as means to assist and ensure successful implementation of e-policing system in Kenya. The proposed strategy is outlined in appendix 5.

5.2 Limitations

There were time and financial constraints. Most of the literature available needed online subscription. The researcher did not have enough time to carry out this project considering his military nature of work of travelling from time to time in remote places in and outside the country. However the available resources were well utilised and the Kenya Police Service ICT department was gracious enough to provide some very helpful material and human resources technical expertise in completion of this study.

It was not possible to do a comprehensive implementation of the proposed strategy since police protocol has to be followed. The Kenya government also has to be involved in such ventures. This would take a lot of time say one year before being approved and wait for availability of funds. As provided for by the University of Nairobi the maximum duration of this kind of study is 9 months for Post Graduate Diploma programme.

The control group was too small, i.e. 4 police stations that provide some of police services electronically. While they might have provided useful data and information, there may be high degree of bias which could have been eliminated if a large research population was available to provide the control data.

5.3 Recommendations

There is need to take the developed strategy and do a practical implementation. This will help identify weakness and problems for correction and modification for future projects. Best methods for providing police services to the general public in Kenya electronically online, whether just to put information on a web site or interact fully with the police will also be established.

There is need to tailor the strategy to various e-policing components such as management, application, infrastructure and training. This will enable easy and fast implementation of the individual e-policing components within a short duration of time. This will be possible since different project teams will be concentrating on specific e-policing elements at the same time.

While e-policing is important, it is needful to look into the issue of melt-down of this new way of policing over time, considering the Internet melt-down that different organisations all over the world that provide services online have experienced. This may be extremely complex as a result of large variety of factors that may be involved.

Research also needs to be carried out on effectiveness of online policing on specific police services such as traffic alert and security alert. The research could cover areas such usability of police web site, adequacy and accuracy of information provided, and efficiency and speed of police online services in reference to these specific services. This research could assess the response of the general public to these specific police services.

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Appendix 1: Current E-policing Initiatives in MPA

Examples of Current and Developing e-Policing Initiatives

No	Title	Description
1	*Metcall*	Comprehensive command and control facility supported by digital technologies to provide call handling and dispatch services. Rollout 2004 – 2006.
2	*On-Line Crime Reporting*	Secure crime reporting facility for a range of minor crimes. There are plans to expand the range of crimes reportable through this route. This system is provided through Police Information Technology Organisation using a national portal and supporting technical infrastructure.
3	*Commissioners e-Mail Service*	E-mail addresses available from the MPS website include commissioner@met.police.uk and New Scotland Yard at nsy@met.police.uk. These addresses are available for general enquiries and will, where possible and appropriate, result in an electronic response.
4	*On Line interactive FAQs including legal, procedural and general advice*	The MPS provides limited public facing FAQ facilities on the main force website, supported with local information on some Borough websites. The new Command and Control system, which is provided as part of Metcall, incorporates detailed on screen questioning guidelines to support policing decisions.
5	*Fast time electronic communications with London Ambulance (Command and Control)*	Interface provided between the MPS Command and Control System and London Ambulance Service. This service was first made available by the MPS in 1997, and now allows for the two-way electronic transfer of relevant operational information.
6	*Fast time communication with other emergency response agencies*	A full electronic interface has been provided with British Transport Police and the City of London Police. This supports joint operational response to incidents where necessary. We are in discussion with a number of other emergency agencies including other police forces with shared boundaries to the MPS, with a view to providing improved electronic communication.

No	Title	Description
7	*Multi-force sharing of resources to respond to peak demands (e.g. CASWEB)*	This is an extension to the HOLMES Casualty Bureau application, which will allow for operators from other forces to 'log on' and operate in support of the host force following major incidents. The national Project is at an advanced stage and is due for launch in Q3 2004.
8	*On-Line updates re developing incidents (e.g. major incidents or on-going local issues such as traffic diversions)*	Updates provided through Traffic for London website, with support from MPS Traffic OCU. Scope to extend this service to local information through Borough websites.
9	• *E-mail / SMS updates / advice to subscribers* • *Fast time information re serious incidents to subscribers* • *E-mail / SMS witness tracing activity using subscribers or targeted groups*	MPS continues to use pager systems in a number of Boroughs to support Neighbourhood Watch, Pubwatch and local business groups. MPS is working with ACPO, PITO and the Home Office to develop a centrally funded national Message Broadcast system for deployment in 2004. This system will be initially deployed in London as a counter terrorism tool, although ACPO has ambitions to extend the service nationally and into other business areas.
10	*Electronic links between MPS and Crown Prosecution Service*	The MPS has well developed procedures for the secure exchange of information between individual officers and investigators, police administration units, and the Crown Prosecution Service.
11	*Secure e-mail between MPS and the wider Criminal Justice community*	A secure e-mail service has been provided which supports business processes by delivering the exchange of relevant information between the MPS and other members of the wider criminal justice community including courts and defence solicitors.
12	*Multi agency monitoring of victims / offenders (e.g. IRT)*	The MPS has taken a lead role in trials and pilots associated with the multi agency monitoring of vulnerable members of the community. A key example is the Identification, Referral and Tracking programme, which seeks to provide effective electronic data sharing mechanisms to support the children's agenda.

No	Title	Description
13	*Crime prevention information / advice Specialist advice (Counter Terrorism, cybercrime, fraud, etc.)*	Detailed advice is available on the MPS and some Borough websites. This advice could be extended and linked to a range of other Government and crime agency information sources.
14	*Transactional services on website*	Work is underway to extend the number of forms available through the website. The MPS is keen to make use of the national police portal to deliver cost effective citizen focussed transactional services. The key service delivered through this route is on-line crime reporting, and there are plans to market this service to enhance take up.
15	*Availability of electronic input facilities (e.g. crime reporting) in front offices at police stations.*	The MPS is developing a pilot on Westminster Borough using kiosk technology to provide electronic crime reporting and information access in front offices.
16	*Multi Agency information sharing data warehouses (e.g. Newham Borough initiative [Neighbourhood Information Management System]; Drugs initiative, Barking & Dagenham, etc.)*	The MPS is working with partner agencies at local, sub-regional and pan-London level to provide effective and secure data warehousing facilities to meet information sharing needs.
17	*Advice re local issues (e.g. anti social behaviour, crime hot spots, etc.)*	Advice on local issues is currently available on many Borough websites, all of which can be accessed through the MPS website. Boroughs are being encouraged to make wider use of their website to disseminate local information.
18	*Information sources (Publication scheme, etc.)*	The MPS Publication Scheme, which is available through our website, is a key part of our work to comply with the Freedom of Information Act. Boroughs and Departments are being encouraged to make use of this facility to make relevant documents available to the public. This is supported by a communications exercise to lift awareness as part of the Information Management Business Change Programme.

No	Title	Description
19	• *Development of outbound e-mail / SMS information regarding policing initiatives and enquiries.* • *Development of e-Watch forums for business, neighbourhood and other local groups* • *Highlighting 'good news' in the community through electronic info sharing*	Some Neighbourhood Watch, Pubwatch and business watch activity is now delivered electronically. An example is the Voice Connects initiative on the Royal Borough of Kensington and Chelsea (see below). Corporate guidance will encourage Boroughs and Departments to explore options further.
20	*Development of kiosk / electronic information points in public spaces*	The MPS has been in discussion with a wide range of agencies that are developing a presence through kiosks in public spaces. Key MPS activities (e.g. Operation Sapphire) have made use of these facilities with some service providers. This is an area for potential expansion.
21	*Use of e-technologies to promote involvement with community groups (e.g. Karrot)*	Karrot is a high profile initiative based on Southwark Borough, using smartcard technology to develop relationships with young people and agencies with an interest in children and young people. Electronic technologies are used to provide a rewards system, which will encourage positive social outcomes in the community. Karrot has also provided an IT equipped vehicle that is used to build bridges with community groups.
22	*Development of website functionality*	We have a long established and well-developed web site, which is under constant development, and review by the MPS e-Communications team. Our website is being developed to deliver additional functionality and access to a range of services. We are currently working to expand the number of downloadable forms available, and seeking to improve the quality of information. We also seek to develop more transactional services that will benefit the citizen.

No	Title	Description
23	*Extending electronic information exchange with strategic and local partners (e.g. Local Authorities)*	We are actively engaged in information sharing at a Borough, sub regional and pan-London level. This embraces Crime and Disorder partnership groups and other information sharing requirements. We are working with partners at all levels to develop information sharing protocols which will support the business requirement, improve communications and enhance the services we provide.
24	*Development of multi channel info receipt / despatch options.*	We will continue to develop our channels strategy to provide additional access to information and services to meet the needs of the public. As part of this process, we are monitoring development projects in a number of UK police forces and partner agencies.
25	*Property lost and found reporting / searching functionality* *Stolen property notification / search functionality*	Our website includes information about certain categories of high value property which has come into the possession of police (e.g. Arts and Antiques). We provide links to 'Virtual Bumblebee', an independent site supported by PITO that offers some functionality for the electronic reporting property lost and found. The MPS is reviewing the management of property and seeks to develop a holistic approach, which provides electronic management of all property reported lost or found, or otherwise in possession of police.
26	*Media / communications links to ensure timely and accurate info dissemination*	The Directorate of Public Affairs has well established links with the media and communications industry to ensure the effective dissemination of information. This includes the use of electronic media. DPA is actively engaged in discussions relating to circulation of information as part of the Message Broadcast functionality (see above – Response Management).
27	*Shared briefing information for front line staff in multi-agency environments*	Examples exist of shared briefing material between the MPS and operational staff of partner agencies (e.g. other emergency services and Local Authorities). Protocols are being developed which will allow for electronic sharing of such information, ensuring compliance with all relevant legislation and Government guidance.

No	Title	Description
28	*Use of large size electronic public information displays / reassurance messages in public spaces including police station front offices, stations, shopping centres*	The MPS makes use of large-scale information screens at major public events in London. A number of projects are looking at using similar technologies to display information and crime prevention advice in front offices and other public spaces.
29	*Use of telephony to circulate prepared messages to subscribers (e.g. Voice Connects, RBKC)*	This system operates within Kensington and Chelsea, it enables Neighbourhood Watch co-ordinators and members to receive up to date information that may be occurring. Messages can be sent via the telephone or fax machine. This service is free of charge to all participants.
30	*Multi agency shared management of local issues (e.g. abandoned vehicles, fly-tipping, etc.)*	A number of initiatives exist to share information regarding key antisocial activities, which attract a multi agency response. A number of Boroughs have developed partnership arrangements, which will include electronic information exchange on such issues. Some of these initiatives have been developed at sub-regional level using funding opportunities from the ODPM.
31	• *On-line local (Borough) management info* • *On-line MPS management info* • *Crime stats* • *Performance stats* • *Crime and Disorder audits on Borough level* • *Supply of Crime and Disorder and other required info to Government Departments*	Comparative management information, performance and statistical data are increasingly available through the MPS and Borough websites. For example, crime statistics, broken down by Borough, are available on the main website. We are exploring processes for collating and publishing local data in a way in which local people want to receive it. An example is the local crime data for Camden Borough (Camstats) that has been recently released. The Publication Scheme encourages the publishing of all local and corporate documents relating to performance.
32	• *Case progress for person charged (solicitors, etc)* • *Information access / exchange for legal advisors and other relevant professionals (e.g. medical experts)* • *Electronic disclosure of evidence*	The MPS is engaged in detailed discussions with ACPO and various Government Departments to develop a comprehensive case tracking facility. These discussions are led by the Office of the Deputy Prime Minister through the Criminal Justice IT (CJIT) initiative. Secure e-mail has now been provided which allows for the secure exchange of correspondence between Criminal Justice organisations.

Appendix 2: E-policing Initiatives under Considerations by MPA

Examples of e-Policing Initiatives Under Consideration

No	Title	Description
33	• *On Line Intelligence gathering* • *SMS intelligence gathering* • *Intelligence gathering options (NIM etc)*	The MPS is aware of both the potential benefits and the risks associated with intelligence gathering using e-mail and SMS. Local trials are being considered and the MPS is monitoring pilot systems in other force areas.
34	• *Witness info and liaison options* • *Victim advice and liaison options*	Whilst options already exist to maintain contact with victims and witnesses via e-mail, this is an area where, with improved technologies and wider use of secure digital signatures, scope will develop for more detailed monitoring of case progress and provision of support to witnesses and victims.
35	*Discussion forums*	We have engaged in 'on-line' debate with selected stakeholders as part of our process of corporate consultation. We have conducted local trials using 'forum' technology, but generally, take up from the community has been poor.
36	*Incident update*	Some constabularies (e.g. Northumbria) are developing technology projects for the reporting of incidents on line, and providing updates to the informant. This initiative has attracted a very low take up rate. We have reservations about the potential cost of developing and managing this service in London, but will continue to monitor national developments.
37	*Link with Government and other trusted databases to support Immigration, Probation and other relevant services.*	The Office of the e-Envoy is facilitating discussions in all areas of Criminal Justice to enable controlled and effective information sharing between government agencies to meet defined business needs.
38	*Payment of fees*	Potential exists for the payment of fees (e.g. for police services such as Data Protection Subject Access enquiries) on line.
39	*On line completion and processing of corporate forms with 'progress tracking' facilities (e.g. licensing, firearms)*	Models do exist for the tracking of forms and applications although these are not available to the public. This is in order to maintain the integrity of our computer systems and to ensure compliance with Data Protection and other relevant legislation. However, as transactional services are developed, electronic monitoring of progress will be considered as an option.

No	Title	Description
40	• *Multi-language presentation of on-screen forms and information* • *Development of initiatives to promote disability access to police services* • *Development of initiatives to promote access to information and services with GLA priority groups*	The MPS e-Communications team continues to work to improve access to police services through our website, particularly for those with disabilities or whose first language is other than English. There is the scope to develop multi language forms and information. The MPS is in discussion with the GLA and others to explore methods of identifying those services that would attract take-up from members of the hard to reach groups. Electronic service delivery options will be considered as part of this process.
41	*Regular 'updates' on model of Downing Street / Cabinet Office daily / weekly briefings to subscribers*	Some local updates are circulated community members who subscribe to local initiatives. These processes do not form part of the current corporate communication policy.
42	*Information sources targeted at community / faith groups, young people, etc.*	The MPS has ambitions to use the PITO messaging system (See above) to communicate with community groups including faith groups and young people.

Appendix 3: Questionnaire for Police Stations

Introduction

This study is aimed at surveying how the Internet and web technologies can be used in the fight against crime; assist the police to reach a large population; open up communication for the public to assist police in investigations; increase police partnership with the community; and cut policing costs. It also aims to develop a strategic framework for the delivery of e-policing by Kenya Police Force .This interview is meant to collect data from Kenya Police Force establishments/units that will assist the researcher in coming up with the proposed strategic framework.

The response and information provided will strictly be treated in confidence and will be used purely for academic purposes.

Section A: Background Information: General E-policing Status in Kenya

a. Please give a general overview of e-policing in your establishment/unit in terms of
   - Available ICT infrastructure. (Indicate √ for **Yes** or × for **No** for the listed infrastructure below)

Infrastructure	**Purpose**	**Indicate if in use**
Airwave Mobile Application Gateway	Enable access to police back office systems for officer on the move.	
Web Site	Content management and redesign	
Web Portal	E-forms development and gateway for public access to them.	
Multimedia Internet Kiosks	To enable public access to police web site	
Hand held Personal Digital Assistant (PDA)	To allow Police National Computer (PNC) checks and updates	
Police Intranet	For communication among police stations	
Broadband or Integrated Service Digital Network (ISDN)	For fast Internet/Intranet connectivity	
Web Camera	To enable video conferencing applications	

   - ICT personnel
   - Training

b. Do you think it is feasible to deliver all police services to the public electronically via web site?

(i.) All services ( )

(ii.) Some services ( )

(iii.) No services ( )

c. What are the main reasons for embracing Internet and web technologies in your day-to-day police services to the public?

d. Do you think police service delivery electronically via web site is an effective way of policing?

(i.) Yes ( )

(ii.) No ( )

e. To what extend has the introduction of e-policing changed the way routine work is conducted by police officers in your jurisdiction? Please indicate the change in the functional area listed below. (Answer from **1** for **Not At All** to **5** for **Very Much**)

S/No.	**Functional Area**	**1**	**2**	**3**	**4**	**5**
1	General Duties					
2	Traffic					
3	Criminal Investigation					
4	Search and Rescue					
5	Riots and Public Unrest					

f. How does e-policing impact vary according to functional area and geographical location?

g. How has e-policing been received among the police officers in your establishment/unit?

h. What are the organisational consequences of such acceptance or resistance in (c) above?

i. How has the general public within your jurisdiction responded to e-policing?

j. To what extend has e-policing achieved its intended objectives?

Section B: Implantation and Problems Faced

a. Who were involved in your establishment/unit during the implementation of e-policing?

b. Were there any external persons and/or help received during the implementation of e-policing?

c. What steps and procedures were used during the implementation of e-policing?

d. Was there any internal and/or external training conducted? State any specific training.

e. Please indicate if the below listed features/functions are incorporated in the Kenya Police web site. (Indicate √ for **Yes** and × for **No**)

Police Web site Feature	**Indicate if Found**
Crime and Witness Appeal	
Arrests made	
Police campaigns and their results	
Crime Report System for non-urgent incidents of crime	

Pictures and video footage of people wanted in connection with crime

Ability to record serial numbers of property

Section on missing persons

Detailed statistics about councils/towns and area command

Job application online

Register for information on police operations

f. What problems did your establishment/unit face during the implementation of e-policing?

Section C: Benefits of the Implementation

a. What benefits has your establishment/unit gained from e-policing? Please indicate the benefits listed below. (Answer from **1** for **Not At All** to **5** for **Very Much**)

S/No	Benefit	1	2	3	4	5
1	Traffic Alerts					
2	Security Alerts					
3	Reduce crime rate					
4	Enable the police to reach a large population					
5	Open up communication for public to assist police in investigations					
6	Increase police partnership with the community					
7	Cut policing costs					

b. What changes as e-policing brought to the quality of policing services to the public in your jurisdiction?

c. What changes has e-policing brought to the image of your establishment/unit to the general public?

d. Has e-policing improved on the effectiveness and efficiency of police services to the public?

e. Has there been any improvement in police services to the general public other than (d) above?

f. What impact does e-policing have on the level and form of accountability in policing?

g. How does e-policing affect supervisory and management practices within your establishment/unit?

h. To what extend has e-policing been used by police managers to implement or monitor policies?

i. What has been the benefit in relation to police officers and working environment?

Section D: Challenges/Problems of Maintaining E-policing

a. What are the main challenges faced in maintaining e-policing?
b. Are there any specific internal challenges and external challenges?
c. Are there any financial challenges in maintaining e-policing?
d. Are there any challenges related to system modification and improvement?

Section E: Need for Strategy

a. What should be done to popularise e-policing?
b. What are some of the things your ICT department is doing to popularise e-policing among police officers and general public?
c. Is there need to develop a strategic framework for e-policing? Please give reasons.

Appendix 4: Questionnaire for General Public

Introduction

This study is aimed at surveying how the Internet and web technologies can be used in the fight against crime; assist the police to reach a large population; open up communication for the public to assist police in investigations; increase police partnership with the community; and cut policing costs. It also aims to develop a strategy that will enable the Kenya Police Force web site survive the Internet meltdown .This questionnaire is meant to collect data from the general public that will assist the researcher in coming up with the proposed strategy.

The response and information provided will strictly be treated in confidence and will be used purely for academic purposes.

Section A: Background Information

Please tick as appropriate.

1. Please indicate how employed.
    a) Not employed ( )
    b) Informal employment ( )
    c) Formal employment ( )
2. Please indicate level of computer literacy.
    a) Not at all ( )
    b) At least ( )
    c) Moderate ( )
    d) Complete ( )
3. Please indicate approximate distance from the nearest police station to residential place.
    a) Less than 10 kilometres ( )
    b) Between 10 kilometres and 20 kilometres ( )
    c) Between 20 kilometres and 50 kilometres ( )
    d) Between 50 kilometres and 100 kilometres ( )
    e) More than 100 kilometres ( )

Section B: Effectiveness and Feasibility of E-policing in Administering Police Operations

Please tick as appropriate.

1. Do you think that delivering police services electronically via the web site is an effective method of policing?

a) Yes ( )

b) No ( )

2. Do you think it is feasible to deliver all police services to the public electronically via web site?

a) All services ( )

b) Some services ( )

c) No service ( )

3. How often do you access the Internet?

a) Not at all ( )

b) Once in a week ( )

c) Twice in a week ( )

d) Thrice in a week ( )

e) Daily ( )

4. How do you access the Internet?

a) Not applicable ( )

b) Through Personal Computer(PC) ( )

c) Through mobile phone ( )

d) Through interactive TV ( )

5. Where do you normally access the Internet?

a) Not applicable ( )

b) In the office ( )

c) At home ( )

d) In cyber café ( )

6. How often do you visit the Kenya Police web site?

a) Not at all ( )

b) Rarely ( )

c) Occasionally ( )

d) Very much ( )

7. What are your interests in the Kenya Police web site? Please indicate the listed interests below.

(Answer from **1** for **Not AT All** to **5** for **Very Much**)

S/No	**Interest**	**1**	**2**	**3**	**4**	**5**
1	Seek Information					
2	Seek employment					
3	Down loading police forms (P3 and police abstract)					
4	Report incidents					
5	Any other (Please specify)					

Section C: Need for Strategy

1. In your own words, what do you think should be done to popularise the Kenya Police web site?

_____
_____
_____
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_____

2. In your own words, give reasons why there is need to develop a strategy that will enable the police force web site survive the Internet meltdown.

_____
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Thank you very much for sparing your time to fill the questionnaire.

Appendix 5: Proposed E-policing Implementation Strategy

5.1 Introduction

From the findings of the data collected through questionnaires, interviews and the literature surveys conducted, there is a clear need for an implementation strategy to guide Kenya Police Force in implementing e-policing fully as a mean of improving its services to the public. To this effect a three stage detailed implementation strategy that covers a period of 3 to 5 years was developed to assist the police force achieve e-policing.

Great efforts were made to ensure a whole inclusive but simple implementation strategy for Kenya Police Force. While most available guidelines concentrate on the implementation stage, this strategy adopted a three stage approach focussing on all activities required at the pre-implementation, implementation and post-implementation stages. As shown in figure 6.1 below, a lot of input has gone towards the development of the strategy and its refinement as well as its applicability to Kenya Police Force.

The following sections outline the methodology used in coming up with the proposed strategy, the proposed strategy itself and an evaluation of this strategy based on feedback from police officers in ICT department.

5.2 Strategy Formulation

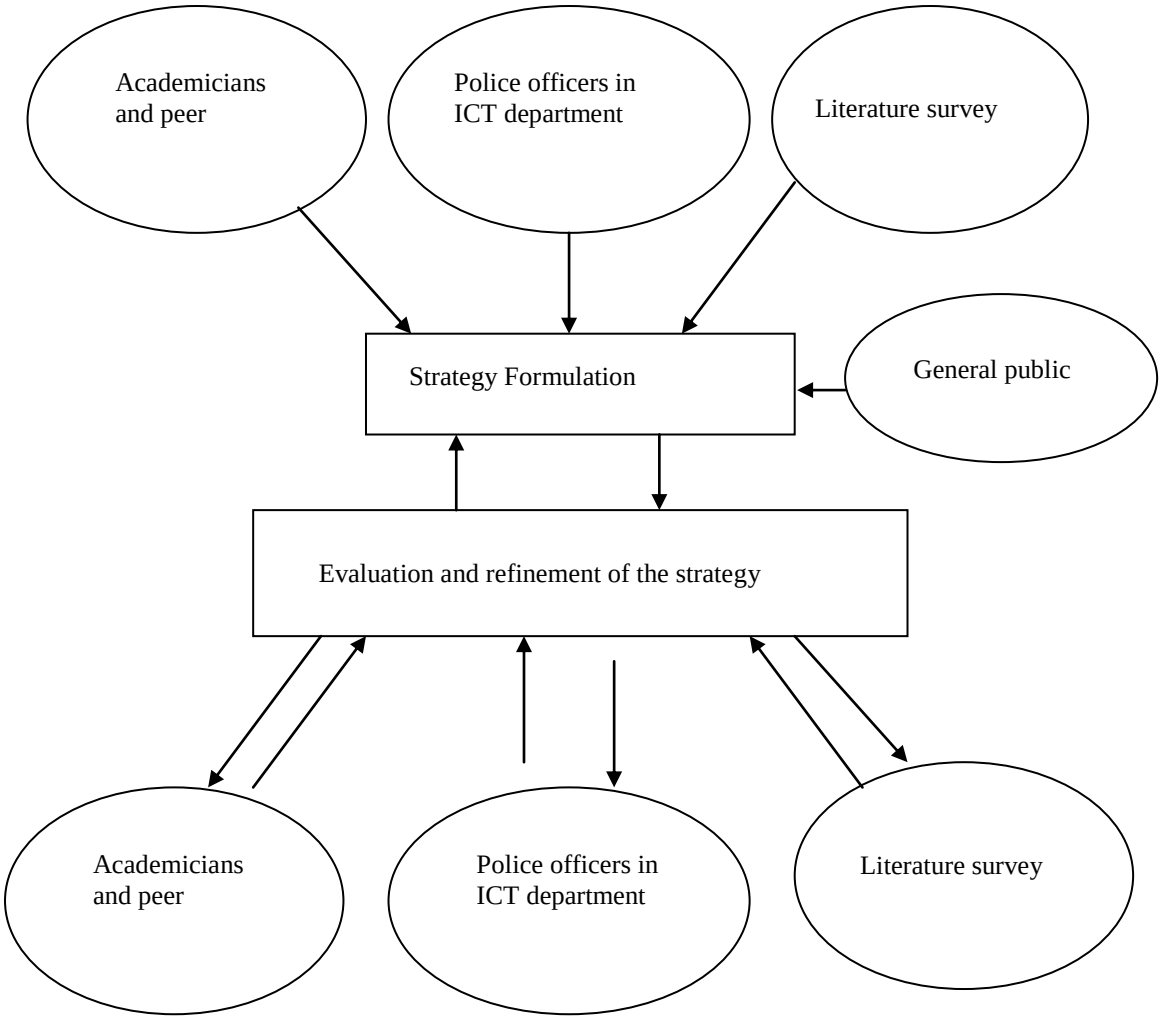

Figure 5.1 Formulation of proposed strategy

5.2.1 Inputs used in the formulation of the strategy

In coming up with the proposed strategy, data and information gathered throughout the project was used as input. The inputs used were:

- Analysed data from interviews with police officers in selected stations.
- Analysed data from questionnaires of police officers in selected stations.
- Analysed data from questionnaires of the general public.
- Literature survey of e-policing related materials.
- Academic input from academic staff and fellow students.

5.2.2 Validation and Feedback on the Recommended Strategy

To validate and evaluate the proposed strategy, the police officers in ICT department were used to provide feedback in order to refine and modify the strategy. Information used foe validation, evaluation and feedback was obtained from:

- Police officers in ICT department
- E-policing literature
- Academic staff and peer evaluation

5.3 Proposed Strategy

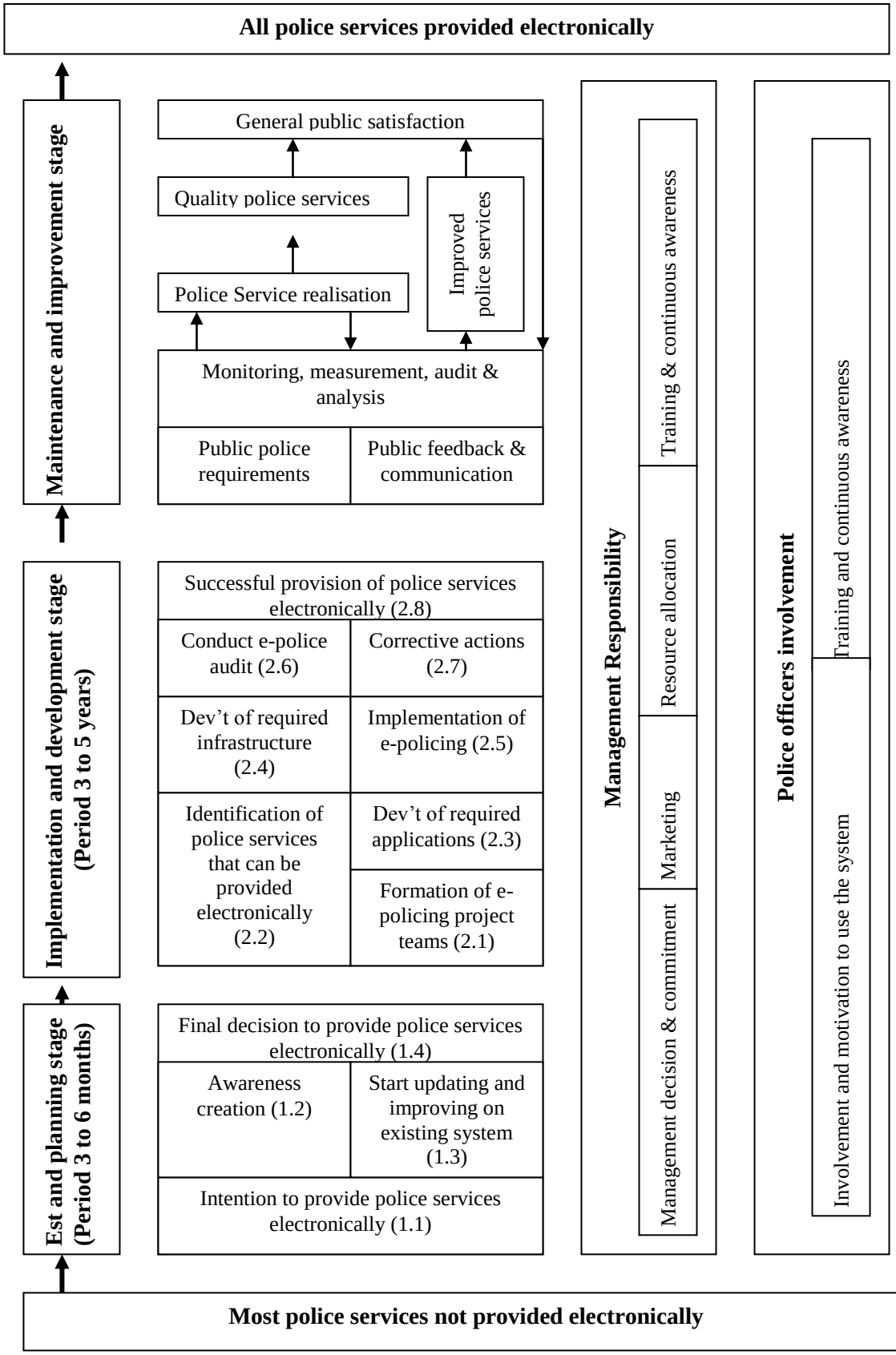

Figure 5.2 Diagrammatic representation of the proposed strategy

5.3.1 Stage 1: Establishment and Planning

5.3.1.1 Intention to provide police services electronically

This basically the police top management strategic decision that should be well thought and communicated to the entire police force. In Kenya Police Force, the intention should be by the Inspector General. However, other senior police officers in various formations especial in the ICT department can have the intention and propose through the chain of command foe approval.

5.3.1.2 Awareness creation

This is a crucial step. In order to provide police services electronically, the force should obtain much information about e-policing as possible from those countries for example UK that have successfully implemented this new system of policing. This can be done through visits to those countries and learning from their experience. Attending seminars, consulting ICT consultants and reading related literature from journals and books can also create e-policing awareness among the police officers. The entire police force should be sensitised on e-policing initiatives and how they contribute to improvement of police services. All in all, the police top management should be more involved in gathering relevant information to assist the force in making the most crucial decision of providing services electronically.

5.3.1.3 Updating and improving on existing system

It is important that before any step is taken to move towards e-policing, all internal police systems of operations are improved and polished. There is seldom 100% replacement of the current system, and therefore it is important that what is current on the ground however little it seems, should be in good order. This will help in the identification of those police services that need to be provided electronically.

5.3.1.4 Final decision to provide police services electronically

The final decision to provide police services electronically should be made by police top management. This will therefore call for sober reflection based on the police force present and future strategic orientation. The Inspector General in consultation with police ICT department, police chiefs in various police formations/units, Ministry of Finance through its permanent secretary, and e-government directorate should make the final decision. In doing this, the decision should be based on

the benefits desired. Among the major benefits that were identified in this research project that have resulted from successful e-policing implementation include:

- Traffic Alerts
- Security Alerts
- Reduce crime rate
- Enable the police to reach a large population
- Open up communication for public to assist police in investigations
- Increase police partnership with the community
- Cut policing costs
- General public satisfaction
- Improved police services
- Improved communication among police officers
- Police officers higher moral and job satisfaction

5.3.2 Stage 2: Implementation and Development

5.3.2.1 Formation of e-policing project team

This is an important step in developing and implementing an effective e-policing system. The selected team should officially visit those countries that have implemented e-policing successful for example UK, to learn from their experience. The team should also attend training seminars and workshops both locally and abroad on electronic service delivery. This will ensure sound and solid e-policing knowledge for planning, development and auditing for the team in establishing and maintaining e-policing system.

The team should prepare action plans with all police formations and divisions country-wide to provide e-policing training; help police officers interpret e-policing requirements correctly; search for any help to address any difficult problems encountered; and establish e-policing system.

In Kenya Police Force, a typical e-policing team would include:

S/No.	Description	Police Rank	Project Title
1	Director of Operations	SDCP	Chairman
2	Director of Communication (ICT)	ACP	Secretary
3	ICT training manger	SP	Member
4	SW development manger	SP	Member
5	Maintenance and support manger	SP	Member

S/No.	Description	Police Rank	Project Title
6	Marketing manager	SP	Member
7	Network and infrastructure manager	SP	Member
8	Database administrator	SP	Member
9	Internet and web manager	SP	Member

Table 6.1 Example of e-policing project team

All formations and divisions heads should also be members of the project team and hence chairpersons of their respective subcommittees and project teams in their divisions. The project team secretary will be the person in-charge of e-policing system and therefore over sees its implementation. He should report the progress of the project to the police top management through the chairman of the team.

5.3.2.2 Identification of police services that can reasonably be provided electronically

The composed team will identify those police services that can reasonably be provided electronically country-wide through subcommittees in all police divisions. The identified services should then be ranked according to their importance and urgency. Priority should be given to those services that very important depending on the availability of funds and duration of the project.

5.3.2.3 Development of the required applications

This is concerned with the development of e-policing application portfolio. The major facilities from the literature survey which include the web site, web portal and user-friendlier web interface are developed. Emphasis should be given to those web site features/functions that will enhance provision of police services that were identified in section 6.3.2.2 above.

The application developed should enable content development and redesign on the web; e-forms development and gateway for public access to those forms; and should be easy to use and learn for both the police officers and the general public. Since the Kenya Police Force web site is already in existence, emphasis should be on improvement of it to cater for those services that were identified and not provided such as crime and witness appeal , arrests made, ability to record serial numbers of property, and registration for information on police operations among others.

5.3.2.4 Development of the required infrastructure

From the research data gathered, it is clear that the Kenya Police Force lack the required infrastructure for e-policing. Other than the police web site, the force does not have any other infrastructure to support provision of services electronically.

The police force should work hard on the required infrastructure e-policing if at all it has to succeed in this new way of policing. Police stations should be equipped well with the necessary ICT facilities such as desktop computers, laptop computers, hand held PDAs and web cameras. A police intranet with fast Internet/Intranet connectivity should be developed. This will enable fast and easy communication among the police stations country-wide.

An airwave mobile application gateway (MAG) should be developed to enable access to police back office systems for police officers on the move. For example a traffic police officer will be able to check and update information on traffic using a hand held PDA remotely.

The research shows that most Kenyans do not have access to the Internet and therefore may not be able to interact with the police online. An intensive programme on multimedia Internet kiosks should be developed to enable the less privileged people in the society access police services online free of charge. These kiosks should be placed at strategic points throughout the country especially the rural areas.

5.3.2.5 Implementation of e-policing

Review, verification and validation of the developed e-policing applications and infrastructure should be conducted before the actual implementation of e-policing system. This will ensure that the developed system meets the specified requirements before put in use.

The developed system should first be run in parallel with the existing system before it is finally adapted. This will ensure smooth transition from the old system to the new system among the police officers and the general public. It should also be noted that the developed system is a supplementary of traditional system of policing. It is not meant to substitute other methods of providing services to the public for example telephone system and face-to-face system.

5.3.2.6 Conduct e-policing audit

Auditing is scrutinising in this case police services that are provided electronically, with the intention of verifying if these services are provided as required. This is very crucial process as problems that are

associated with the developed system can easily be identified and corrected as required. The police force should form an audit team from within and without to carry out this important exercise and ensure the acceptance of the developed system.

5.3.2.7 Corrective action

When problems occur after the implementation, the underlying process responsible for the defects should be fixed immediately. Corrective actions on observed deficiencies and non-conformance should be taken and preventive actions put in place to avoid a repeat of the same in future. The police force should create a written procedure for satisfying public complaints, identifying the underlying cause of anomalies, investigating and solving reported problems and keeping a record of corrective actions.

5.3.2.8 Successful provision of police services electronically

If the new way of policing is acceptable among the police officers and the general public, then it is successful. This can only be realised if the required application and infrastructure are put in place. It is the responsibility of the police top management to ensure the success of e-policing project by marketing this new way of policing to the general public and police officers.

5.3.3 Stage 3: Maintenance and Improvement

ICT is very dynamic and as such the police force needs to maintain and improve on its e-policing system as technology change. The system also has to be maintained effectively from time to time after the implementation in order to meet the changing general public requirements.

5.3.3.1 General public requirements

Public requirements as far police services are concerned, form an important input in services realisation processes. The public will always specify what it expects in terms of the desired end product. Services that meet the public requirements are thus considered to be of good quality. To achieve this, the police force must interact with the public continuously to determine its requirements. This will results to continuous improvement of police services provided electronically.

5.3.3.2 General public feedback and communication

The police force should put a lot of emphasis on public feedback and communication. Once police services are offered electronically, the public should be encouraged to give feedback and where none

is voluntarily forthcoming then it should be solicited. Public communication should also be encouraged at service realisation stage to ensure that the public is up to date of what is happening and therefore able to request adjustments and corrections where deviations from requirements are observed.

Communication also ensures that the public is not taken by surprise once a police service is delivered electronically.

In general, public feedback and communication will help the police force improve and modify e-policing system and thus ensuring that it is not stagnant.

5.3.3.3 Monitoring, measurement, audit and analysis

This is mainly concerned with monitoring how e-policing system is performing and therefore takes corrective action as required. It ensures that police services offered electronically meet the public requirements, ensures that e-policing system works as planned, and improve the police operations delivered electronically.

The process factors considered include maintainability, testability, flexibility, portability, reusability, interoperability and correctness.

5.3.3.4 Police service realisation

Realisation is the term used to describe the work that an organisation goes through to develop, manufacture, and deliver the finished goods or services. An effective e-policing therefore, includes a comprehensive approach to getting a life time system deliver quality improved police services to the public.

5.3.3.5 Improved police services

E-policing is expected to grow and improve with use. It should be improve police services as it is continued to be used. Weakness should be identified, corrected and improved.

The police force should be able to identify area that need improvement, gather proposed changes and ideas, do the initial evaluation of the proposed changes, do a detailed evaluation of the proposed changes, roll-out into e-policing system and finally measure the effectiveness of the changes made.

5.3.3.6 Quality police services

This is the ultimate aim and purpose of e-policing system. The force should ensure quality and improved police services to the general public.

5.3.3.7 General public satisfaction

This is the ultimate goal, to keep the public happy and satisfied and if possible switches completely to e-policing system where necessary. This will eventual translate into the much needed saving of policing costs and human resources for some other work.

The police force can measure public satisfaction through interaction with the public during the project execution, public feedback obtained after the project, public complaints about electronic services, support requests from the public, survey of the public, reports and reviews in the media and analysis of the public profiles.

5.3.4 Management Responsibility and Police Officers Involvement

An effective e-policing system requires the involvement of the police top management. It must ensure that general public requirements are understood and achieved. The management should undertake the following responsibilities:

1. Overseeing the establishment of e-policing system.
2. Marketing of the police web site and services that can be provided on line to the general public.
3. Providing adequate resources for the operation of e-policing such as hand held PDAs.
4. Providing training to the police officers on e-policing such as web content management and redesign and e-forms development.
5. Reviewing the operation of e-policing
6. Motivate police officers to use the e-policing system

The police officers must also be involved fully in this new and modern way of policing for it to be successful. They should attend e-policing training to improve on their knowledge and skills.

5.4 Validation and Evaluation of the Proposed Strategy

The proposed e-policing implementation strategy was taken for validation and evaluation to the police ICT department whose input was used in refining and shaping the strategy. While most of the input was incorporated into the strategy, a few of the comments have been captured and provided. These are:

1. The strategy was observed to be a true reflection of the path required to achieve e-policing in Kenya.
2. Implementation period is attainable as long as funds are available from the government.
3. Although the strategy is adaptable, it may need some government backing before it could be acceptable as an implementation strategy for e-policing.
4. Stage 3 on maintain ace and improvement is too demanding and may be impossible to follow it in totality, especially monitoring and measuring the general public satisfaction. However it was agreed that the stage is very important if the police was to attain e-policing status fully.
5. There is also fear to manipulate and introduce unnecessary changes to the traditional way of policing that would suite senior police officers but not for the purposes of improving police services to the public.
6. It was also felt that the implementation period was to short considering the police force is currently involved in the housing project where all funds have been put.
7. The police ICT department commended the strategy as a fine piece of academic work but complained that it may never reach the police top management.

5.5 Conclusion

With the availability of the required funds, this implementation strategic framework of e-policing is workable. Great emphasis however, should be put on the development and implementation stage if at all e-policing is to be achieved successful. The success of this project also depends on the police top management involvement in it.

Maintenance and improvement stage of this strategy is too demanding as it involves monitoring and measuring the general public satisfaction on the police services offered electronically. It is actually very difficult to measure this attribute. However, it is a very important stage if the police force has to provide quality services to the public electronically.

E-policing should provide an option among other methods, for example telephone system and face-to-face system in provision of police services to the public, and not completely replace these traditional systems.