Investigation Information Management Application: Case of Kenya Police

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# Chapter 1 : Introduction

## 1.1 Background of the Study

The scene of policemen patrolling out streets with G3 rifles and archaic walkie-talkies and rushing to scenes of crime armed with pens and notebooks betrays the standing of Kenya as a leading ICT hub in Africa. Tattered, faded and dusty manual files scattered across our police stations smell of a police service in dire need of a technology revolution, (Muritu ,2014). The police should be better placed and must adopt technological solutions and also encourage citizens to report crimes by providing information with no need to visit the police stations, in addition the police themselves can also collect information using a technology. Kenya would be better placed if the police can engage with the citizens in reporting crime, Muritu (2014) continues to say that with technology in hand there is no need for the citizens to queue at police stations.

Suspect are identified in everyday life of a police or a private investigator even a security personal during their field work, patrols, crime scenes or any other tasks they may be performing. In the activities they do take notes on a note book. In Kenya the police has always been using note books to note down all their field interviews. This information gets lost eventually or worn out, there is need of a more advance way to keep track of the suspects or informants information while trying to connect the dots of a hunch and even for future reference.

Intelligence is the use of knowledge that has been gathered and understood, it involves creating connections of enemies and persons of interest for security purposes of an ongoing investigation, it is quite hard to compare notes on a note book compared to a computer, since one may even have more than one note book it can be a tiresome and very long process.

Newer strategies based on Problem-Orientated Policing (POP) and Community-Orientated Policing (COP) now encourage police to make greater use of the data they routinely collect, and to be more analytic with regards to the data they utilize for tactical and strategic decision making (Goldstein, 1979; Greene and Mastrofski, 1998; Manning, 1988).Thinking of Kenya in our own view based on what we have observed, heard and read on journals and books the country’s police need to up their game and embrace the importance of gathered data from the field.

In this time of age data is everything we need and the only solution we have for crime and other uncalled for activities, data can be transformed to intelligence, ideas, and so on. Through data analysis and interpretation and triangulation officers can be able to predict or link a lot of things. Investigations are shoddy simply because of the lack of data, if for example there was data about some specific group of people, their work, their parents, and all their “connections”, relationships and then something happened to them, it would be easy for police to know where to start instead of starting investigations from scratch that’s why data is very important.

Times are gone where people have to report to the police stations to report any suspicious undertakings going on, what if it is an emergency? The police have to be equipped with tools that enable them do their work easier, intelligence is even more important than having a bigger wide police force. Poor investigations and follow up of suspects and having data to link or connecting dots for any suspicion in any investigation is very high, crime may continue to prevail because of no prior information because most offenders are usually known, having their information and affiliations may help to capture them or get to them easily, this can only be possible by using a tool that will enable the investigation process take details of suspects and analyzing them compared to others from other investigations based on the context at hand and also having a tool where the citizens can easily communicate with the police.

In this new age of information and technology, many people and companies utilizes information technologies and track new developments in this sector. The increasing investment in the information technology by organizations as well as its widespread usage even in households show what an important element in our lifestyle it has become (Flanagin, 2002). In this information age, whose parameters can be identified by technologies processing information to increase the efficiency and performance of not only individuals, but also of large organizations, people are bombarded with the promise of technological success (Nunn & Quinet, 2002).

The amount of information that the police receive during enforcing the law is overwhelming (Gottschalk, 2006). Police use information technology tools at almost every stage, including allocation of sources through communication, patrolling the city, crime prevention, tracking of crime, pursuits, and solving of crime. Colvin and Goh (2005) assert that information technology has substantial impact on police practices. In addition, any increased acceptance of information technology by police officers improves the quality of policing and performance of law enforcement agencies (Gottschalk & Holgersson, 2006). Therefore,it is very important to know how well technology is working and can work for the police force.

## 1.2 Problem statement

The Kenyan police service is lagging behind behind in terms of gathering of information and storage because of its slow adaptation and embracing of technological innovations that have been part and parcel of this country for years now, the Kenya police has not come up with any technology tool so far to use for themselves as a way of easy data collection during field interviews. In this fast-paced era of rapid technological advances, people spend considerable amounts of money on technology to increase productivity in almost all organizational structures across the globe. However, whether this investment really results in efficient output is a big concern for not only policymakers but also investors (Malhotra &Galletta, 1999). Law enforcement is highly information intensive area, and technology and training require significant resources, so the effective use of technology requires acceptance by those involved in this case the police. Therefore, studies focusing on understanding user technology acceptance in law enforcement settings may contribute to the use of information technology more effectively by law enforcement personnel (Lin, Hu, & Chen, 2004). Similarly, Colvina and Goh (2005) assert that knowing the factors that influence the police officer’s adoption of information technology identifies and predicts how information technology contributes to police organizations or the social organization of policing in terms of effectiveness and efficiency gain.

Most police officers are trained and are capable of reading and writing and have been exposed to computers and smart phones thus using an application would not be a problem, also mobile phones also are getting cheaper and cheaper.If both the number of police officers using information technology in police organizations and the amount of investment for the establishment and development of this technology are taken into account, it becomes clear that police executives and for policy makers should pay special attention to identifying the optimum usage of these systems (Gottschalk & Holgersson, 2006).

Police officers have to rely on note books to take interviews in the field with suspects or persons of interest and also rely on good Samaritans to go all through to the police stations to report any suspicious activities going on an area. The note books are unreliable, they may get lost and also some questions might have not been asked during an interview and crime scene or persons of interest picture might not be taken for reference and follow up on investigations. Triangulation of the information also might be hard using the note books unlike computers where a form like profile of a person of interest would have been formed.

Additionally, the variety of work in policing, including personnel management and

fighting different kinds of crimes in different areas, this affects the usability of information technology and requires comprehensive information technology tools. If the usability of information technology is not seriously taken into account, all efforts made in this area and purchases of new technology may turn into a critical mass in which information is being collected without systematic organization and specific purpose (Manning, 2003).

We intend to build a mobile application that is going to end the note book problem that are susceptible to getting lost and also getting less information needed, the police will also be able to get information from the public of anywhere about of suspicion and crime that is or might take place, we call this tip. In summary the key problems we are going to solve is in interview forms of the police in the field, citizens reporting of any problem or situations going on in their area. The application is going to be for the Nairobi police.

## 1.3 Research Objectives

1. To understand the challenges faced in the field interview process.
2. To review the use paper work and their implications.
3. To design and develop a mobile based application on IOS platform for the Nairobi police.

## 1.4 Research Questions

1. What are the challenges that the police face in the field while conducting interviews?
2. What are some of the the ways that could minimize paper work?
3. How can a mobile based application based on IOS platform be designed and developed?

## 1.5 Justification of the Research

The introduction of an application means that the police will be able to collect more informed data from the field from suspects and contact persons for later analysis and also get information from the citizens. This will save the money spent on note books and also times wasted by citizens to report information to police on issues just a click away. It will also enrich the digital data on criminals and suspects which can be used in future use during investigations. The police can mail themselves or anyone else the information making it more secure compared to using a notebook. The police service itself will benefit from efficiency and easy access to their data when they want to take quick notes and triangulation of crimes or solving of a situation under investigation.

## 1.6 Scope of the Research

This study offers a prototype and not a complete solution, the data to be used will be sample data as used by the police, the application can later be integrated with the police database to allow log in information check confirmation of the police so that they can log in to their accounts and access their information and also allow other application users to view real time data of arrested suspects.

## 1.7 Limitations of the Research

Coming up with an application to automate the interview process of the police during field work for more effective and efficiency will come with some limitations, the police and other users must have an IOS phone, for police whenever they are in the field and other users whenever they need to send tips to police. Also the interviews may tend to take slightly longer because of filling the forms. This will affect the users who do not have IOS phones.

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# Chapter 2 : Literature Review

## 2.1 Introduction

Information is the lifeblood of investigations and it is also the ability of investigators to get useful and accurate information from victims and witnesses that is most crucial for case solution and effective prosecution (Thomson Reuters Publishers, Toronto, 2014.)

Technology is growing and there is need to embrace it, as it makes work easier, the police still use note books to do their interviews in the field and also people still go to the police to report incidences. The police (2014) annual report as posted in their website reported that there were 6,732 offences in Nairobi alone, meaning that if investigations had to be done or were done, then the cost of printing paper forms or note books would be high.

Information technology basically helps the police to collect, organize, store, and replicate information to enable analysis, mapping, and other activities aimed at crime prevention including triangulation. In addition to this, information technology disseminate information to the public too and it can also create a network of communication within agencies.This network has been extended concurrent to the development of internet in the world. Today, the police can inform citizens by showing maps, diagrams, statistics, and pictures in their own websites (Manning, 2003). Also knowledge management must be improved in the police agencies and one of the purpose is also to help in the process of managing the vast information they have for reference in future by the police of the future.

Due to this the study will sought to show the challenges faced while using the note books, the models used to share information at the police stations and to the police from the public, mobile technology that can be used to improve the field interview process, how to test and evaluation of the application that will be built.

## 2.2 Technology acceptance

Technology acceptance is a model developed by (Davis, 1989), it is an information system that illustrates how users eventually come to acknowledge and adapt the technology. The technology acceptance model addressed why users accepted or rejected information technology. Use of technology is affected by perceived usefulness and perceived ease use of the technology (Vankatesh & Davis, 2000).

Also Davis(2009) claimed that “a belief that using a new system will increase the performance”, and perceived ease of use or “the degree to which a person believes that using a particular system would be effortless” are the two main aims as to why we may have an impact of use of technology. Usefulness of a system in escalated with perceived ease of use of the system and usefulness. So if we can prove to the users that the technology is going to make their work much easier then they will not hesitate to use it.

## 2.3 Paper Everywhere

The police in Kenya are still paper-intensive, substantial amounts of time is spent on completing reports more so the problem of storage and maintenance of records. This is the main issues where the police have been cited giving explanations as to why they cannot finish on some investigations and follow ups. As noted above this claims make them unaccountable and suspects may go scot free simply because information is lacking.

Information technology has been regarded often as the solution to paperwork in many organizations and policing. (Gor, 2005) Asserts that information technology has substantial impact on police practices. In addition, any increased acceptance of information technology by police officers improves the quality of policing and performance of law enforcement agencies (Gottschalk & Halverson, 2006). So it is important to know how information technology can work for a police force.

When we compare to the business sector, the police have fallen behind then because of the utilization of information technology. Although their seems to be significant improvements in using computers and mobile phones, commitment to paper based traditional policing needs to be replace totally in this pre-digital era (Chu, 2001). Policing characteristics, demand for efficient maintenance and information processing are some of the obstacles that prevent police officers from using information technology effectively.

Police officers spend considerable amount of time going to the field and come with data which needs to be stored, if information technology tools are not used then the storage and retrieval of this data may be difficult hence the time and resources that was spent just goes to waste.

(Collir, 2006) Indicated that, in the policing, the main problem is not if the information is available, but rather to access the information when it is necessary. Sharing of information and keeping it in a database for future references is paramount and can be used for future trends and prediction of crime depending on the analysis of the data and triangulation meaning even other departments and police officers can use the database to search for information which saves time for always having to start from scratch in each and every investigations. The police receive a lot of complains per day which needs investigations and might not be able to finish all investigations on time due to lack of starting points and also access to available information that has been archived might be difficult.

At first, police department (USA) records were manually recorded by officers with pen and paper, and were later entered using a typewriter. With the increasing use of mainframe computers in the 1970s and 1980s, many police department records, especially crime and arrest reports, were captured electronically by entering in handwritten or typed reports for storage and later retrieval (Dunworth, 2000). This is not the case in Kenya where every entry is put on paper and books.

## 2.4 Social Media and Websites

Applications on social media have mush-roomed in popularity, the police have taken advantage of this to communicate with the public. They use the applications to get information from the public and share information to the public. In other countries the applications that are used to send tips to police make the sender of the information anonymous, compared to social media there can be a great risk to the informant as all the information pertaining to them is online and thus face vulnerability to attack by the affected persons, especially when all the information is their pertaining their family, work place, favorite joints and so on. So this poses security challenge to the informants.

From the Kenya police website, upon following the face book link they have 21,920 followers, the last update was made in October 17th 2013. On twitter they have 108,000 followers and last update being 30th august 2015. Note this links are direct from the official Kenya police website.

## 2.5 Investigating Process

Entries that are within an investigators Notebook are designed to record evidence and observations and take details of suspects on an occurrence or ongoing investigations. It is also used to refresh the memory of the officer when in court or in the field or office making a report. Usually the note books should be returned and stored, but the most significant issue here is the storage and handling of notebooks. Protection of information gathered and access to it is a challenge according to Royal Canadian Mounted police on a research conducted about police officers using note books.

Notebooks remain and continue to be a fundamental tool used in police investigations and remain the main source for references for investigations (Armstrong, 2011). Regarding police notes, report by (Sophonow, 2005) indicated that there were no consistent rules on how police took and kept their notes, how long the notebooks should be kept and who should keep them and where. The report also cites that there is lack of consistent maintenance of the notebooks and evidence gathered making investigations difficult.

Morin and Sophonow later concluded and recommended that, clear policies should be developed for police, for how long to keep notebooks and exhibits. Clearly the cost and implications and rapid technological changes will have to be considers in such policies.

Police practices of note taking and note keeping are outdated for modern day policing. Officers may take notes on various note books, on loose leaf paper or any other paper forms and loose them, or even forget to which note book they put some information.

Some scholars claim that we may be in an era marked by a new policing revolution, one brought upon by both changes in police philosophy and advances in information technology (IT) (Dunworth, 2000; Stroshine, 2005). Traditional police strategies have stressed on preventative routine patrols, response to crime calls, and follow-up on investigations as the core police functionalities. Such an overall operation made patrol officers and detectives as primary users of information regarding crime and suspects, and this information was generally developed by police through their intimate area knowledge. Supervisors used data collected on arrests made, number of citations issued, etc to evaluate subordinates, and occasionally used crime analysis to direct the activity of their units (Dunworth, 2000). Police executives used crime information gathered for decisions regarding patrol deployment, resource allocations, and disseminated crime reports to inform the public and other criminal justice institutions like courts of overall trends and conditions, usually when giving testimony on court they use their note books.

Newer strategies based on Problem-Orientated Policing (POP) and Community-Orientated Policing (COP) now encourage police to make greater use of the data they routinely collect, and to be more analytic with regards to the data they utilize for tactical and strategic decision making (Goldstein, 1979; Greene and Mastrofski, 1998; Manning, 1988). Both strategies encourage police to go beyond individual calls for service, and instead take on the problems underlying them. To do so, police are encouraged to collect data from a wide variety of sources, some of which may be traditional information sources, while others may be newer, untapped sources of information, such as community members or organizations and so on.

## 2.6 Police and Information

The police have always kept records of their activities in note books and also have a long history of gathering information on crime . While most of these records have historically been captured on paper, computerization in law enforcement has become increasingly widespread, allowing police to capture more information than ever before. police are inundated with information, some of it this information is captured without any inherent purpose or reason but rather instincts and speculation and recorded “just in case”. Police are in the position to use IT in ways that are unique when compared to other criminal justice agencies. As Dunworth (2000) writes, “In many respects, police departments have the greatest need among criminal justice agencies for a clear understanding of their environment and the ways they can adapt to it. This makes them the neediest consumers of the new information systems and technology…” (pp.379).

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# Chapter 3 : Research Methodology

## 3.1 Introduction

This chapter is aimed to describe the Research methodology that will be used which will include the designing, development process, implementation and testing technique that will be used. In this chapter the methods of data collection also will be specified and also explanations on why particular methods were used in the study.

## 3.2 Development process

Development process refers to the steps a software takes in its life cycle from inception to produce a complete product. Several models exist for implementation of the processes. Water fall development process is the intended model to be used because the process emphasizes planning on early stages, it ensures flaws before they develop.



Figure Waterfall Diagram

System requirements: the components of building the system are established here, including hardware and software components, the information is usually documented in a systems requirements specification document. Information on how the police collect their data, save, retrieve and their view on the on what they do currently and what they use while in the field, and what should be done to improve all this.

## 3.3 System Design:

The system design comes after gathering the requirements, here hardware specifications are determined which with system requirements help in defining of the overall architecture, here the mobile application can be designed based on information got from the requirements.

Implementation: This is the coding of the detailed requirements specification. The system is developed in small portions called units.

Integration and testing: The units developed are combined to a single system, they are then tested for bugs and fixed.

Deployment of the system: The final product is released in the market to be used, usually for mobile application it is uploaded on an online store, in this aspect play store for Google.

Maintenance: this is usually done depending on client demands, it includes additional of features, fixing bugs and maintaining the versions being released after some period of time.

## 3.4 Research Design

The research tends to use both qualitative and quantitative data collection methods. Qualitative is used when one wants to have an in depth understanding of the problem at hand, with this interviews are conducted and also observations are done to just get an understanding. The police will be given questionnaires and also be observed on what they do on their daily activities especially of how they do interviews in the field. Quantitative on the other hand will be useful to get information using questionnaires, it is useful for comparisons and getting data in a quicker manner than qualitative.

## 3.5 Location of the Study

The research will be carried out in Nairobi County, targeting the police and a few Nairobi residents in the city. The location is to be Nairobi because it has the largest population in the country and also the crime levels and police involvement is wanting.

## 3.6 Target Population

The target population of the research will be the investigation officers in the police service Nairobi County and those involved in storage of information, those in the information technology department and a few citizens especially those who will be making reports of incidents at the police stations.

## 3.7 Research Purpose

The purpose of the research will be to understand the nature of police doing their field interviews and how they manage the data collected and also how citizens share information to the police and provide solutions as to how technology can be used as a tool to make the interview process easy for collection, storage and retrieval and also how citizens can provide information anonymously to the police without putting themselves in any danger.

## 3.8 Sample Size

The testing sample will involve the investigation officers from the police force, they number will not exceed 50 including the citizens too.

## 3.9 Validity

The data collection to be used will ensure that the data collected is valid, this is to be achieved by reviewing the questions to be asked and making sure they are easy to understand and also by analysing the answers given from asking the same questions from different perspectives of the interviewees.

## 3.10 Reliability

The research will be carried out by use of both questionnaires and interviews. And the combination of the data collected will be made sure it is from specific investigation officers and citizens who have complains.

## 3.11 Ethical Issues

The study will ensure that all the respondents act at will and not forced. Any private data they will choose to share will remain private and only used for analysis purposes unless otherwise as will be defined in agreements by the respondents.

## 3.12 Research Instruments

The study proposes to use both the open-ended and closed questionnaire administered to the target population via Emails and one one basis depending on availability of respondents. This is because all the respondents in the sample population are busy people and upon talking to them first can we be able to know the exact mean. With the use of the emails it is very easy to reach the targeted sample. The other reason for using the online forms via emails is that there are multiple online tools that help in easy creation of the questionnaires and analysis on the results like Google forms. The research will also use interview to support the data to be collected through the questionnaires.

## 3.13 Data Analysis Procedures

Data will be analyzed using the inbuilt Google forms analytic tools that summarizes and classifies the raw data. Different types of reports based on different variables will be generated, then analyze the responses given during the interviews.

## 3.14 Conclusion

This Chapter will help get information from the sampled population which will help come in to conclusion on the current situation of the Kenyan police interview process and interaction with the citizens and provide the information needed to determine if a mobile application will solve the problems and the features that can be added to make it effective.

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