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14th DECEMBER, 2018.

QUESTION: TO INVESTIGATE THE USE OF SMARTPHONES IN RENDERING POLICE SERVICES: A CASE STUDY OF SELECTED POLICE STATIONS IN LUSAKA.
DECLARATION
We declare that this research project is our original work and its findings were based on the seven selected police stations in Lusaka district. This research has not been submitted for any academic degree at this or any other university.

Signature …………………………………

Date ………………………………………
DEDICATION
We hereby dedicate this research project to our families, colleagues and friends who have continuously been a source of encouragement and offered their endless support during the entire time we were writing this research project and in times when we felt defeated and all hope seemed lost.
ACKNOWLEDGEMENT
First and foremost, we would like to acknowledge and appreciate God Almighty for his divine guidance and protection throughout our journey of this research writing. We are also grateful to our supervisor Mr. E. Mwalimu for his insightful comments and guidance on our work. Tribute also goes to all the members of staff from the Library and Information Science (LIS) Department for the support rendered during our study for this programme. Further, we thank the management of the Zambia police service for giving us the opportunity to conduct this study. Finally, many thanks go to the police officers, who participated in this study, this is because without their support this research project would not have been a success.
ABSTRACT
The purpose of this study was to investigate the use of smartphones by the Zambia Police in rendering services to the Zambian community. The objective of the study were: To establish if the Zambia Police use smartphones in rendering services to the Zambian community; to establish if the Zambia Police have an ICT policy in rendering their services to the Zambian community; to find out the types of technologies used by the Zambia Police in rendering their services to the Zambian community; and to establish the challenges faced by Zambia police when it comes to the use of smartphones in rendering police services to the Zambian community. The study used descriptive survey design for the quantitative and qualitative research approaches. A total of 58 respondents participated in the study. Cluster and purposive sampling were used to select respondents. The interview guide was used to collect data from one IT personnel from the Lusaka division and all the officers in charge from all the selected police stations. The data was analysed using SPSS and thematic analysis. The results were presented in themes, diagrams, charts, and percentages. The study revealed that 74% of the respondents admitted of using smartphones in rendering police service to the community, 24% of the respondents denied of using smartphones in rendering police service while the rest were not sure. This shows that smartphones are used in rendering police services to the Zambian community. According to the results on the presence of an ICT policy on the use of technology in rendering police services, the study revealed that, 66% of respondents admitted to have an ICT policy in rendering police services to the community while 34% denied of not having a policy of using ICTs in rendering police services to the community. This shows the presence of an ICT policy is there that supports the use of a smartphone in rendering police services to the Zambian community. In trying to find out what types of technologies used by the Police in rendering their services to the community, the study revealed that computers are the most frequent used technologies followed by smartphones. According to the results, scanners and printers are the least types of technologies used by the police. Furthermore, with respect to finding out possible challenges faced by police when it comes to the use of smartphones. According to the results, 36% of the respondents said that police officers have a negative attitude towards the use of technologies; these were followed by 32% who claimed that using smartphones is a challenge because of the inability to pay running costs. And the remaining 16% was shared by two groups of respondents who said there is lack of ICT skills and lack of government support. However, the dominant suggested possible solutions were that, police officers need to be trained on the use of ICTs, to improve financial and technical support from the government and an effective policy in the use of ICTs.
Based on the findings, the study highly recommends that the government should provide sufficient funds for training and ICT infrastructure development in the Zambia Police and other related agencies to enhance information sharing between the Police as well as the public. The government should also provide new information technologies promoting better performance in law enforcement agencies.
ACRONYMS

1. TAM – Technology Acceptance Model
2. ICTs – Information Communication Technologies
3. PU – Perceived Usefulness
4. PEOU – Perceived Ease of Use
5. GPS – Global Positioning System
6. IT – Information Technology
7. PAN – Permanent Account Number
8. CCTV – Closed Circuit Television
9. SPSS – Statistical Packages for Social Sciences
10. NYPD – New York Police Department
11. ZP – Zambia Police
12. LIS – Library and Information Science
13. EMR – Electro Magnetic Radiation
14. RFID – Radio Frequency Identification
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CHAPTER ONE

1.0 Introduction
Mobile technologies have become powerful tools in helping police render their services. Today mobile phones which include smartphones have become intrinsic to society and seem to be a natural component of our personal lives (Tambul & Caker, 2015). The introduction of smartphones has improved the operations of police by making their work effective and efficient through providing the capacity to store and process large volumes of data, improve intelligence and investigative capabilities, make ready access to criminal records and other kinds of relevant data (Kumbuti, 2013). Smart phones provide information about a person’s whereabouts and a person’s contacts which are useful tools in police services such as criminal investigation. They contain call history, contacts, text messages, web browser history, email, Global Positioning System (GPS) and other advanced features such as video and audio recording as well as camera which the police and law enforcement agencies find valuable. Evidence from smartphones can help the police piece together motives and events and provide new leads (Newman, 2013).

Furthermore, smart phones are hybrid devices that have internet browsers and have potential to be successfully used in the mobile multimedia communication, investigations, crime prevention and control as well as law enforcement. According to Adderley and Musgrove (2001), smart phones are thought to be helpful in so many ways and play a major role in accessing and disseminating information between the police and the public in maintaining law and order.

Chaos is endemic to society. There has never been a human society without some level of disorder, though the motivations, definitions, and punishments have varied extensively (Karake, 2014). A large part of the development of human civilizations has arisen from the desire of leaders to maintain law and order. The evolution of maintaining law and order has been as important as the development of agriculture, technology, medicine and economic development. This is because pandemonium and disorderliness has started and ended wars, lead to mass executions, mass pardons, and justifications for genocide (Adderley & Musgrove, 2001). The fight against pandemonium and disorderliness requires a cohesive and coordinated approach supported by strong ICT security system such as the use of smartphones by the police. Fortunately, police globally use information technology tools such as smartphones at almost every stage, including allocation of resources, patrolling, crime prevention, crime tracking, hot pursuits, crime solving and enforce the law firmly and fairly in order to create a safe, secure and peaceful environment for all (Kumbuti, 2013).
The purpose of this study was to investigate the use of smartphones by the Zambia police in rendering their services. This study investigated the use of smartphones by Zambia police in rendering their services to the Zambian community using selected police stations in Lusaka. More specifically this study intended to establish if the Zambia Police use smartphones in rendering services to the community. It also intended to establish if the Zambia Police have a policy on technology in rendering their services to the community. Further, it intended to find out the types of technology used by the Zambia Police in rendering their services to the community and finally this study intended to establish the challenges faced by police when it comes to the use of smart phones in rendering police service.

1.1 Background
The Zambia Police Service has been in existence since 1964. This was established under Article 193 of the constitution of Zambia. The mandate and functions of the Zambia Police Service are provided for in the constitution under Article 104 and the Zambia Police Act Chapter 107. The purpose of its existence is to prevent and detect crime, enforce the law firmly and fairly in order to create a safe, secure and peaceful environment for social and economic development for all. Its vision is to be professional and accountable Police Service that provides quality law enforcement services for a better Zambia. However, Zambia Police Service is divided into ten (10) divisions which are Lusaka, Luapula, Eastern, Southern, Copperbelt, Muchinga, Central, Western, North-western and Northern division.

Lusaka Division lies in the central part of Zambia and has 23 Police Stations of which 14 are in Lusaka urban district and 9 in Lusaka Rural district. Further, it shares boundaries with eastern province on the Eastern side while in the western side it shares with central province while on the western part with southern province. The province has nine (9) districts namely Kafue, Luangwa, Chilanga, Rufunsa, Shibuyunji, Lusaka, Chongwe including Siavonga and Chirundu. Siavonga and Chirundu are geographically located in the southern province but administratively falling under the jurisdiction of Lusaka Police Division. The Lusaka Central police station is situated along Church road of the capital city of the republic of Zambia.

Since independence, the Zambia police have been using mobile radiophones (walky-talky) in delivering their services amongst themselves. Although the radiophones have been useful for the police in the past decades, it has brought about a gap in communication between the public and the police. Thus, the public have no access to these radiophones and this restricts them to share
information with the police in instances where disorder arises. The use of smartphones which have multimedia functions which include sounds, motion pictures and GPS has proved to be more effective in other countries in the region (Karake, 2014). Therefore, this study aimed at investigating the use of smartphones by the Zambia police in rendering their services to the Zambian community.

1.2 Problem statement
The Zambia police and various stakeholders have been facing numerous challenges in maintaining law and order due to lack of effective communication channels between them and the public (Musamba, 2014). In the recent past, there have been increases in technological tools such as smartphones which have been used to investigate criminal cases, theft prevention, patrolling, handling traffic accidents, communications and many other proactive initiatives (Njase, 2016). Smartphones have a number of advantages in Police services and in helping officers do their jobs more efficiently (Karake, 2014). Studies conducted on smartphones have shown that smartphones make gathering, distribution of information about investigations easier for law enforcement. They provide the police with convenient applications which help them maintain law and order (Lee, 2017). With this information provided, it is clear that smartphones are useful tools which can help the police to render their services effectively. However, the extent to which the Zambia police use smartphones and other technologies in rendering their services to the Zambian community was not known. Therefore, it was from this effect that this research intended to investigate the use of smartphones by the Zambia police in rendering their services to the Zambian community.

1.3 Objectives

1.3.1 Main objective:
To investigate the use of smartphones by the Zambia Police in rendering services to the Zambian community.

1.3.2 Specific Objectives:
- To establish if the Zambia Police use smartphones in rendering services to the Zambian community.
- To establish if the Zambia Police have an ICT policy in rendering their services to the Zambian community.
- To find out the types of technologies used by the Zambia Police in rendering their services to the Zambian community.
To establish the challenges faced by Zambia police when it comes to the use of smartphones in rendering police services to the Zambian community.

1.3.3 Research Questions
- Do Zambia Police use smartphones in rendering services to the Zambian community?
- Do Zambia Police have an ICT policy in rendering their services to the Zambian community?
- What types of technologies do Zambia police use in rendering their services to the Zambian community?
- What challenges do Zambia police face when it comes to the use of smartphones in rendering police services to the Zambian community?

1.4 Rationale of the study
This study was worthy undertaken because it would inform the Zambia police the importance of using a smartphone in rendering services to the Zambian community. This study would also help the Zambia police to plan effectively in the use of technologies to render their services. This study was not just intended to influence the adoption of smartphones, but the use of different technologies and how ICTs can make the operation of Zambia police effective in rendering their services to the Zambian community. Although there is a National Policy on ICTs, the proposed study may also help the Zambian government to plan for the ICTs needed in the police service. To researchers, scholars and academicians this study was meant to act as a useful reference point. It would provide foundation for future studies to be done on the factors affecting adoption of smartphones in police services.

1.5 Delimitations of the study
The ideal population of the study could have been the inclusion of a good number of police stations in Zambia. Unfortunately, the study was limited to one province which is Lusaka and to be precise, only seven police stations in the Lusaka district were selected. Therefore, the results of this study were not generalized to the entire Lusaka province neither were they generalized to the whole country.

1.6 Limitations of the study
The research only selected seven (7) police stations in the Lusaka district. This was due to limited resources to cater for transport and other resources that were useful for the research. Furthermore, since the research was conducted during school hours there was inadequate time for the
researchers to carry out a very comprehensive research due to busy and different schedules of the target population.

1.7 Ethical considerations
Ethical considerations refers to ethics which are a system of moral values that is concerned with the degree to which research procedures adhere to professional, legal and social obligations to the study participants (Dempsey, 2000). Participants who were involved in the research were informed of the objectives, methods and anticipated benefits of the research beforehand. This study put into consideration confidentiality and privacy of all respondents by not putting their personal identities on the questionnaires. It also made use of the random sampling method to avoid prejudice. Permission was obtained from the authority board in order to ensure no harm was inflicted on participants. Therefore, the data obtained was analysed and reported the way it was and all used articles and books was cited so as to ensure honest, truth and objectivity.

1.8 Definition of key terms
**Police Service:** this is the public organization responsible for the prevention and detection of crime and maintenance of public disorder. It consists of body of persons empowered by the state to enforce the law, to protect people and property, and to prevent crime and civil disorder. Their powers include the power of arrest and legitimize use of force (Musamba, 2014).

**Information and Communication Technologies (ICTs):** Information and Communication Technology (ICTs) is an umbrella that includes any electronic tool or communication device comprising of; radio, television, cellular phones, video camera, calculator, computer network, hardware and software, satellite systems and so on, as well as the various services and applications are liked with them, such as videoconferencing, online lectures and distance learning (Njase, 2016).

**Smartphone:** a smartphone is a mobile phone that includes advanced functionality beyond making phone calls and sending text messages. Most smartphones have the capability to display photos, play videos, check and send emails, and surf the web (Adderley & Musgrove, 2001).

**Law and order:** A situation in which the laws of the country are being obeyed, and people behave in an organized and peaceful way especially when the police or army are used to make certain of this (Njase, 2016).

**Technology Acceptance Model (TAM):** The TAM is an information system theory that models how users come to accept and use a technology. The model is composed of two components;
perceived usefulness (PU) and perceived ease of use (PEOU). PU is the degree to which a person believes that using a particular system would enhance his or her job performance. Perceived ease of use is the extent to which an individual considers that making use of a specific system would be effortless and hassle free (Davies, 1989).

Crime control: Crime control refers to methods taken to reduce crime in society. It often focuses on the use of criminal penalties as a means of deterring people from committing crime and temporarily or permanently incapacitating those who have already committed crime from re-offending (Karake, 2014).

1.9 Theoretical framework
Theoretical framework is a critical component in social science research in the sense that it saves as a guidepost for the theoretical perspectives, which underpin a given theme under investigation. In a case study design, theories can be applied in order to explain, predict, and understand particular social phenomena but also, to challenge or build on the existing knowledge within the context of what is termed as critical bounding assumptions (Denzin & Lincoln, 1994). In order to comprehend this research more clearly, the Technology Acceptance Model (TAM) was selected to understand this research topic in detail. This model would then help understand why and give a base for the foundation of the research.

TAM is gaining popularity for understanding the relationship between humans and technology through Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). The TAM is an information system theory that models how users come to accept and use a technology. This model was introduced by (Davies, 1989) to explain the acceptance of information technology. It suggests that when users are presented with a new technology, a number of factors influence their decisions about how and when they will use it. The model is composed of two components, notably: PU and PEOU. PU is the degree to which a person believes that using a particular system would enhance his or her job performance. In other words PU is the extent to which a person believes that utilizing a particular method or technique would enhance his or her job performance or routine responsibility. This perception is anchored on the consideration that the capacity acquired will strengthen performance. People are naturally reinforced for better performance by raises, promotions, bonuses, and other rewards. The TAM undoubtedly presents value to many researchers because it has effectively demonstrated how such value can improve users’ job performance. Perceived Usefulness has proven to be a very important factor for technology adoption in most recent studies (Olumide, 2016).
Perceived Ease of Use is the extent to which an individual considers that making use of a specific system would be effortless and hustle free; in other words, ease of use means freedom from complexity and trouble (Olumide, 2016). Thus, an application that is perceived to be easier to use is generally accepted and utilized by more people. Perceived Ease of Use signifies the degree to which an individual accepts that using certain technology would be effortless and hustle free. Factors that may influence the ease of use of modern resources are characteristics of information resources, the job experience, technical equipment and support. Further, the following are the factors to consider when evaluating Perceived Ease of Use: computer self-efficacy, perception of external control, internet self-efficacy, computer anxiety, information anxiety, perceived enjoyment and objective, usability and behavioral intention to use. TAM identifies PU and PEOU as dominant determinants of the intention to use technology. The main aim of TAM is to provide a foundation for chasing up the impacts of external variables on internal beliefs, attitudes and intentions (Legris, 2003). The TAM model also includes attitude as a mediator of usefulness and ease of use as a mediator of the intention to use.

In regard to this research, TAM is seen to be more cardinal as it allows a person using a particular system to enhance his or her job performance and also how a person believes that using a particular system would be free from effort. Mobile technologies have become powerful tools in helping individuals to operate effectively and the police are not excluded in the use of technologies. Despite the increased use of alternative sources and technologies to access and use information in maintenance of law and order, police play a crucial role in making sure that law and order is maintained. With the adoption of mobile technologies such as a smartphone, their mandate of upholding law and order can even be achieved more effectively. For instance, the use of mobile technology in law enforcement has been seen as important and beneficial for the officers involved to improve the results of their work. For example, Easton (2002) argues that the use of wireless systems among other things, improves productivity, neighborhood safety and cost reduction.

Additionally, the police are obliged to operate in a number of different working circumstances. Most countries are geographically large having a lot of sparsely populated rural areas in addition to urban areas. The police have to offer services to all people, regardless of their home area. Balancing these two different areas of operations is one of the main challenges faced by the police (National Police Board of Finland 2011). This view reflects the geographical origins of the issue and offers this research the context of work which is typical for police work such as working in or outside a vehicle.
In this study, this context is believed to have an effect on the technology acceptance of mobile technology specifically a smartphone.

Furthermore, the context regarding the working scene of police considers the situation whether their work is carried out inside or outside a vehicle or office. The work conditions of police working outside require that they have tools that would help them to carry out their work effectively of which one of such tools is a smartphone. The idea is to change the working methods of the police to utilize mobile technology as much as possible, so as to transfer the work from the office setting to the field. Hence, the TAM is ideal to this study (ibid).

In addition to the above, police work requires urgency of the assignment. There are actions inside assignments which need to be carried out immediately, such as accidents, data base queries regarding the information of vehicles involved in an accident, queries to the weapons register or criminal records or requesting information concerning the identity of the suspect. Technologies on such cases are very useful and cost efficient. In such cases, technologies such as a smartphone can easily be used.

When looking at technology acceptance in the professional context however, there are findings in the literature which suggest that technology acceptance among professional users might not be exactly the same as in the individual context among common users. Chau and Hu state that, professional users are more pragmatic and focus on the usefulness of the technology instead of ease of use (Chau & Hu, 2002). Their results show that the perceived usefulness might be the only significant determinant on technology acceptance in this context. In the professional context especially in police service, these findings may offer good opportunities for research. TAM is suitable for this study because team work and working closely in pairs in police service may be a good prevailing work method in the Zambian police service.

Overall, the TAM is of particular interest to the police professionals because it helps to enhance their desire in the adoption and use of Information Technology (IT) which is the dominant technology of the contemporary society and has elevated the importance of theories that predict and explain IT acceptance and use. The use of TAM is justifiable, especially with numerous relationships specified by the TAM continually validated in police profession. And also, the TAM presents a relationship between PU and intention to use or actual use of IT facilities that are widely used in the profession.
1.10 Summary of chapter one
This chapter dealt with the introduction, background, problem statement, the main objective, specific objectives, research questions, rationale, limitations, theoretical framework, ethics and definition of key terms. Introduction of smartphones has improved the operations of police by making their work effective and efficient through providing the capacity to store and process large volumes of data improve intelligence and investigative capabilities, make ready access to criminal records and other kinds of relevant information. The mandate and functions of the Zambia Police Service are provided for in the constitution under Article 104 and the Zambia Police Act Chapter 107. The purpose of its existence is to prevent and detect crime, enforce the law firmly and fairly in order to create a safe, secure and peaceful environment for social and economic development for all. The introduction of radiophones after independence has brought about a problem of sharing and accessing information between the police and the public in upholding law and order. This is because radiophones limit the police to communicate with the public as they only have a platform of communicating among the police and excludes the public. This research investigated the use of smartphones by the Zambia police in rendering Zambian police services. The importance of this study was to provide useful information to various stakeholders in order improve the effectiveness and efficiency of Zambia in maintaining law and order.
CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction
This chapter presents the literature reviewed for the study. The purpose of conducting a literature review is to get background information related to the topic under discussion and gain knowledge on how researchers conducted similar studies in the past. Literature review enables the researcher to gain knowledge in the field of user studies using citation analysis, including vocabulary, theories, key variables and methodologies applied by the experts prior to this research. Wang and Higgins (2006) states that literature review plays a role in delimiting the research problem, seeking new lines of inquiry, avoiding fruitless approaches, gaining methodological insights, identifying recommendations and for further research. The other rationale of conducting a literature review was to get a framework for relating new findings to previous findings in the discussions. This research focused on different themes based on the following objectives: to establish if the Zambia Police use smartphones in rendering services to the community; to establish if the Zambia Police have an ICT policy in rendering their services to the community; to find out the types of technologies used by the Zambia Police in rendering their services to the community; and the challenges faced by Zambia police when it comes to the use of smart phones in rendering police service.

2.2 Use of smart phone by Police.
Maintaining law and order is one of the major challenges that most governments around the world are struggling with. Every individual including family, friends and businesses have been directly or indirectly affected by robberies, burglaries, vandalism, sexual and other crimes. Recent researchers have identified and recommended the use of handheld mobile devices as possible tools for effective crime detection and reporting. However, there is no doubt that globally, the rate of handheld mobile phone adoption and the levels of use of the device has prompted much interest from many sectors including the Police service (Goggin, 2007). So far, there is a considerable amount of research on the use of mobile phones that has been carried out in nations of the global North such as the USA (Chen & Katz, 2009), Australia (Satchell & Graham, 2010), New Zealand (Broege, 2009), Canada (Middleton, 2008), Hong Kong (Lin & Tong, 2008), Japan (Ito, 2005), Norway (Ling, 2004; Skog, 2001), Sweden (Axelsson, 2010) and the UK (Davie, Panting, & Charlton, 2004; Green, 2003). Initially, researchers interested in the use of smart phones by the Police service focused primarily on the significance of the technological features and functions of mobile phone devices in helping the Police force render their services to the community. Subsequently, studies began to focus on the efficiency and effectiveness of the device to the law enforcers.
For example, a survey conducted in the United States of America in 2014 on the use of smartphones by Police revealed that, officers in major metropolitan areas have already taken steps to update the patrol beat for the digital age. It was reported that the New York Police Department (NYPD) began equipping all of its officers with smartphones and outfitting many police cars with tablet computers in an effort to modernize the nation’s largest police force. The program implemented by the NYPD as part of Mobility Initiative distributed 41,000 devices across the department; each of its 35,000 officers received a hand-held device, and about 6,000 received tablets to be installed in police cars. Each device would hold several applications, such as a mobile version of the Domain Awareness System, a computer surveillance system that joins video feeds from thousands of closed-circuit cameras to law enforcement databases, allowing them to track and gather information about criminals and possible terrorists. This initiative was done to help solve disputes between officers and members of the community in the USA when disputes arise between the police and the public over the unfolding of events (Schlossberg, 2014).

In March 2012, LexisNexis Risk Solutions conducted an online study in the African region of 1,221 law enforcement professionals from the federal, state and local sectors to determine the current use of social media in the law enforcement community. The data sources utilized for this literature review revealed that, social media and mobile phone application usage by law enforcement agencies was increasing. This was so in Kenya where the explosive growth and technological sophistication of smart phones and the surging popularity of social networking cites had empowered the general public and raised expectations regarding services provided by law enforcement, the ability to communicate with police and the transparency of the organization (Karake, 2014). These studies have shown that smartphones are used by the police in other countries.

**2.2 Policy on ICTs in rendering Police services.**

ICTs are a powerful tool at global level. They help organizations to participate effectively in delivering their services, promote accountability and enhance opportunity’s development from business to governance. According to the current literatures (Rahman and University Teknologi Malaysia, 2011), ICT policies are present in both developing and developed countries. Further, they are mainly developed aligned with the needs of the community and the police organization in order to achieve their goals. In this view today, the police officials are also bound to face heavy pressure from various stakeholders, not just from the public and media but also from its employees for
efficient working and service conditions. ICT policy is the only solution for bringing the effectiveness in the police working environment.

A policy is a statement of intent, and is implemented as a procedure or protocol to guide the course of actions. A number of studies have been conducted on whether police service use technologies in rendering services to the public. The study conducted in Australia which aimed at investigating the impact of information technology on police practices showed that, the need for a policy on technology in rendering police service is imperative to the effectiveness and proficiency of police work (Manchin, 1997). This study revealed that there is a policy in Australia which looked at how the police service would incorporate technology in their service. The reason for this was that technology must be compatible with other agencies and this was an important driving force to the police in rendering their services. He further stated that, Police organizations were different from commercial firms in that their use of information technology to improve performance and management was not driven by market considerations, but was mainly the result of externally imposed demands for public accountability, in terms of cost-effectiveness, probity and procedural regularity. Since the 1980s, a new conception of public accountability has arisen in a number of Western democracies such as Australia and Britain (Davids and Hancock, 1998).

Further, another study conducted in Canada showed that a policy on electronic policing is important because it helps to make transitions when new technology emerges (Adderley & Musgrove, 2001). According to this study, rendering police services using technology makes the work of police easier. This led the government of Canada to have a policy on the use of technology on rendering police services. The Internet is increasingly central to public access and information. Secure reporting of non-urgent incidents is one Internet application that is proving useful. Online crime reporting allows the public to file police reports for some incidents and crimes via the Internet throughout. These studies show that other police firms have a policy on technology that helps them to keep up with their work because of technological advancements.

In Africa ICT policy exist in developing countries such as Nigeria, Egypt, South Africa, Zambia and many more. In many African countries the government is putting more effort to ensure the police strategies are clearly defined in order to improve the police operations and services. A study conducted in Nigeria in 2012 examined the impact of Information and Communication Technology (ICT) in Effective Policing. It was found out that the use of ICT and other Technologies enhance the performance and effectiveness of the Police officers. It also revealed that, an indisputable fact that the problem of crime has become acute that the police force as a government apparatus has no
choice other than to employ the use of technologies to curb crime. After the research a policy was implemented on the use of ICTs on police services as it was seen that they can enhance performance and effectiveness of the police (Ibikunle, 2012).

Another study conducted in Zambia in the year 2016 examined E-policing as a service. This study showed that, the use of ICTs and policy enhances the operations and services in the Zambia police. The study revealed that when activities are done manually, substantial amounts of time are spent on completing reports and huge resources are spent on administering paper flows, storing and maintaining records. This leads to delayed processing of criminal cases, traffic offences and its common knowledge which is justice denied. To restraint the above problems, Zambia Police have started modernizing work flow systems and procedures, through the use of ICTs in support with Zambia Police Strategic Plan, 2013-2016. Further, the strategic plan helps to provide Police information system through external communication channels, to enhance efficiency and cooperation between Zambia Police and the public. The above study shows that other Zambia police firms have a policy on technology that helps to work effectively in their operations (Njase, 2016).

2.3 Types of technologies used by Police.
Spicer and Mines (2002) reviewed policing as a very complex and sensitive activity which requires the integration of multiple data sources in a short period of time. In their study which was conducted in Thailand shows that, ICT tools help the police force for better and timely service delivery to control the crime and maintain the law and order with the economy, effectiveness and efficiency (Spice & Mines, 2002). Digital signature of a person, Bank account number, Telephone/mobile number, Driving license number, Passport number and Permanent Account Number (PAN) are some of technologies used by police. Police could find any person quickly to maintain security in the society with above mentioned sources. These sources provide the detail information about the person.

Globally, Mullen (1996) revealed the use of Closed Circuit Television (CCTV) by the police in the United Kingdom. When the environment was not suitable for human beings for gathering of information, CCTV systems could continuously do this work. The equipment could be used to see and observe different parts of a process from a central control room. It could be placed at public places that enable the police to collect large volumes of video for the analysis of a particular event of any incident. In addition to this Welsh, (2002) in his recent review of crime prevention technology states that, metal detectors in schools and baggage screening at airports are also some of the
examples of technologies used by the police in the United States of America (USA) and street lighting strategies have proven to be far more effective in reducing crimes. On the other hand, literature has also revealed that it is difficult to determine the extent to which each of these technologies have been adopted and currently being used because several large U.S cities at the time this study was carried out had recently began to deploy CCTV cameras across the states (Nestel, 2006).

Another study done in Morocco by Leishman, et al. (1996) revealed that, biometric technologies and fingerprint reader were also helping in law enforcement and to improve the operations of the police. This technology helped in online verification and recognition of people across different geographical locations. It provides accurate information of the suspected person and provides a scope for quick decision-making on related security issues.

In Kenya, the advancement in the use of mobile technology began 5-10 years ago and is today considered as a leading hub for ICT innovation in Africa. A study conducted by Ushahidi (2009) shows that, the ownership and use of mobile phones is virtually universal and they are increasingly internet enabled. An example of innovation, the use of ICT (twitter and facebook) is being utilized by Chief Francis Kariuki, the administrative chief of Lanet Umojo and the public in Western Kenya to reduce crimes and also the Inspector General of Police of Kenya uses the same mode of medium to communicate with the public about issues related to public security and maintaining law and order.

According to a research conducted by Radoff (1993), it was discovered that Zambia like most other developing countries was introduced to the use of Geographical Information Systems (GIS). This is a type of technology that makes the integration of spatial data with other law enforcement data possible. It is a better and comprehensive type of technology for crime analysis with the application developed in it and it is also a user friendly and available tool which makes it easier to pin point the geographical location of crime incidents and to analyze the crime spot. Another well-known type of technology used by the Zambia police is the Walky Talky Radio Phone. This particular mode of technology operates on a geographical frequency only (Saddler, 1999).

### 2.5 Challenges faced by police when it comes to smart phones in rendering Police service.

A smartphone is a mobile phone with advanced services of communication and computing. Generally, smartphones are expensive. They are power dependants since they consist of applications that consume the power in the battery. Communication is also more expensive on smartphones than home phones as they require more airtime to buy bundles and make calls (Yoon-Ji, 2016).
Storage can be a problem. Smartphones are small so there is no space for a huge, built-in hard drive. Although you can buy a sizable SD card for your music, images and videos, the vast majority of your apps and the data they download will be stored on the phone’s internal storage by default. You can move the apps’ data to your SD card, however, whenever the app updates (and most do so very regularly), it will reinstall everything back on the internal storage again. In effect, this limits the number of apps you can have installed at any one time (Yoon-Ji, 2016).

Various studies have been conducted on challenges faced by police in the use of smartphones. A study done in Canada in 2016 whose aim was to assess police efficiency in terms of challenges and opportunities revealed that challenges surrounding the delivery of policing services efficiently are the lack of standardized practice, and the uneven use of technologies which includes smartphones. Police officers had a challenge of accessing information in remote areas of Canada due to poor network resulting in delays in download and uploading of information needed for effective delivery of police service using smartphones. This study recommended that there was a need to invest in technologies that would help in communication even in remote areas so as to ensure that network problem does not affect the police when using smart phones (Murphy & Tatz, 2016). From this it can be concluded that smartphones are useless in areas where network is poor because its functions such as browsing, using Facebook and WhatsApp cannot function, hence delivery of police service using a smartphone in such cases would be poor.

Further, another study conducted in United States in 2016 whose aim was to investigate the use of smartphones by police was done. The findings were that a smartphone affords mobility as it fits in most pockets and is voluntarily worn at all times. Because of this mobility, the police service is required to provide a smartphone to each officer. This study recommended that more resources should be allocated to the police service in order to buy smartphones for every officer (Wabenga, 2016). A conclusion in this study is that in order for the police to use smartphones in rendering service to the community, more financial resources are required to the smartphones.

In addition, a study in Southern Africa concerning police and mobile technology was conducted in 2015. The aim of this study was to investigate the effectiveness of smartphone application in police service. This study used a CopCast mobile application that enables Android phones to perform similar function as a dedicated body camera. The study revealed that the application had high Electromagnetic Radiation (EMR) which is harmful to health. It also showed that the majority of people take their phones to bed or wherever they go because they are unaware of the harmful EMR
which many smartphones have. The EMR may cause DNA damage, brain dysfunction and poor eyesight. It was recommended that effective health measures should be put in place in order to regulate the effects of EMR which is present in every smartphone (Flood, 2015). Conclusion to this study is that smartphones should not be the only mobile technology which should be used by police in rendering their service to the community as they possess health risking components.

2.5 Summary of chapter two
This chapter looked at various literatures on the use of smartphones by police, ICT policy in rendering police services to the community, various types of technologies used by police service in rendering their services and lastly challenges faced by police when it comes to the use of smartphones. On the use of smartphones, literature has revealed that smartphones are used by police in other countries. Secondly, literature has confirmed that police firms have an ICT policy that guides them in rendering services to the public in this era of technology. In terms of types of technologies used by the police, literature sought revealed that there are various types of technologies used by the police around the globe. Finally, review of literature on challenges faced by police when it comes to the use of smartphones has shown that smartphones are costly, they have communication problems and healthy risks. This review of the literature has shown that there has not been a great deal of research in Zambia pertaining to the use of smartphones by Zambia police as none of the above studies have been conducted in Zambia. Hence, the gap that this study is trying to fill is the use of smartphones by the Zambia police in rendering their service to the Zambian community.
CHAPTER THREE: METHODOLOGY

3.0 Overview
This chapter highlights the methodology that was employed to conduct the study. The chapter describes the research design, total population, sample size and sampling procedures, data collection instruments and data analysis. According to Kumar (2005), research methodology is defined as a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically.

3.1 Research design
This study fell into the broad area of descriptive studies. The descriptive design was adopted because it gave an accurate account of the characteristics of a particular phenomenon situation, community or person (Kumar, 2005). Further, this descriptive study involved the systematic collection and presentation of data. The design basically facilitated the collection of data that provided a detailed description of the phenomenon, group or community as they naturally occurred. The main objective of this descriptive study was to acquire knowledge of the phenomenon. This study collected both quantitative and qualitative data. Quantitative is the data that is presented in numerical values, while qualitative data allow non-numerical examination and interpretation of observations for the purpose of discovering underlying meanings and patterns of relationships (Ghosh, 2002).

3.2 Total population
A study population is an aggregate or totality of all subjects, objects or members that conform to a designated set of specification (Akakandelwa, 2016). Two categories of population were identified. The first category comprised of the IT personnel from Lusaka division and officers in charge at selected police stations. The second category comprised of the police officers in general at selected police stations. These are responsible for the daily operational activities with the general public.

3.3 Sample size and sampling procedures

3.3.1 Sample size
Smith and Scot (2013) define a sample size in research as the number of observation or replicates to include in a sample. The sample size for this study was 58 respondents. The respondents were divided according to the seven Police stations within Lusaka which were randomly picked by the researchers, where general 8 police officers were selected from Lusaka central police and 7 police officers from each of the remaining police stations. The other 8 respondents were selected purposively by the researchers and it comprised of one respondent IT department from Lusaka
division and one Officer in Charge from each of the seven police stations. This study used a small sample size because it is cost effective, time saving and data from small a sample is easier to analyze and interpret.

3.3.2 Sampling Procedure
Mceston (2005), states that a Sampling procedure is an approach taken either probability or non-probability in order to collect data from the respondents. This study used both probability and non-probability sampling. Clustered sampling was used in the probability sampling procedure. Cluster sampling is the sampling where the population is divided into different clusters or groups geographically. Inside cluster sampling there is simple random sampling which helps to select individual respondents randomly. Cluster sampling is easy and cheaper to use, and it also provides a wider perspective of a phenomenon. A list of police stations within Lusaka was listed and then seven police stations were randomly picked by the researchers. The picked police stations were, Lusaka central police, Chilenje police station, Kabwata police station, Ng’ombe police post, Kanyama police station, Chelstone police station and Matero police station. Therefore, 8 police officers were selected from Lusaka central police and 7 police officers from each of the remaining police stations. Under non-probability sampling design, purposive sampling method was used. According to Lewis and Kumar (2005) purposive sampling technique is the process where the researcher selects a sample based on their knowledge about the population and the study itself. It relies on the subjective judgement of the researcher; hence, not everyone from the police station had a chance to be sampled. This is because it enabled the researchers to get the intended data for the study and it was not time consuming. Therefore, this research used purposive sampling to select one respondent from IT department from Lusaka division and one Officer in Charge from each selected police stations.

3.4 Data collection and instruments
3.4.1 Data collection
Data was collected using both secondary and primary methods. In collecting secondary data, the researchers used documentary reviews such as the internet cites, books, journals and magazines. The secondary data was important in this writing because it showed the researchers what has been written on that particular topic. Secondary data is also time-saving and cost-efficient because data would have been collected, analyzed and interpreted by someone else other than the researchers. On the other hand, primary data was collected through the interview guides and questionnaires. This is so because primary data provides firsthand information about an event and this can be relied upon.
3.4.2 Data collection instruments
The study used two types of data collection instruments. It used a questionnaire which was given to the Police officers at each station and an interview guide to the Officer in charge at each police station and one IT personnel from the Lusaka division.

3.4.2.1 Questionnaire
The structured questionnaire was given to the Police officers at each selected police station. This was so because it is pre-supposed that all the respondents would be able to read and write.

3.4.2.2 Interview guide
Face to face interview used to collect information from one officer in charge at each selected police stations and one IT personnel from the Lusaka division. With this tool, it was easy to clarify any misunderstanding based on the questions and it provided insight information needed for the study.

3.5 Data analysis
After collection, data from various sources was reviewed and then analyzed to form a finding or conclusion. This was important for the study as it ensured that all relevant data was present for making contemplated comparisons and analysis. The answered questionnaires were then collected, checked and coded to ensure that data was consistent, complete and accurate.

Suffice to state that the analysis of the gathered data was done manually with the help of tables, frequencies and graphs such as pie charts, bar charts and histograms in order to aid the interpretation of data. Having done that, the method of quantitative analysis was then used as the data collection tool aimed at capturing demographic characteristics such as age and sex in the background section. The instrument of this analysis was a computer software program Statistical Package for the Social Sciences (SPSS) which is most suitable for the analysis of quantitative data because it is more convenient, improves accuracy and allows for easy evaluation. The information that was obtained from the interviews was written down because some of the participants were uncomfortable of being recorded. Content or thematic analysis was used to analyze qualitative data.
3.6 Summary of chapter 3
This chapter focused on the methodology that was used to generate data from the respondents. In other words, it discussed certain methodological elements that were critical to the process of data collection. The research design that was used is descriptive in that the study collected both quantitative and qualitative data. Two categories of population had been identified, the police officers in general and one personnel from IT department from Lusaka division and officers in charge. The Sample size was 58 respondents as it was easier to analyze and interpret. The sampling procedure was both probability which used cluster sampling and non-probability which used purposive sampling. The study used two types of data collection instruments; a questionnaire which was given to the Police officers at each station and an interview guide to one IT personnel at the Lusaka division and officers in charge at each police station. Data analysis was done using thematic analysis for qualitative data generated from interviews and SPPS for quantitative data generated from questionnaires. The data that was collected was discussed in chapter four.
4.0 Overview
This chapter presents the findings from the study on the use of smartphones by the Zambia police in rendering service to the community. Apart from the background information of the respondents, the findings are presented in line with specific objectives which are; the use of smartphones, ICT policy on technologies in rendering police service, types of technologies used by the police and challenges faced by police when it comes to the use of smartphones in rendering police services to the Zambian community.

4.1 Background information of respondents

4.1.1 Gender
In terms of gender, it was discovered that out of 50 respondents, 27 respondents representing 54% were males while 23 representing 46% were females as can be seen from the following table.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>23</td>
<td>46.0</td>
<td>46.0</td>
<td>46.0</td>
</tr>
<tr>
<td>Male</td>
<td>27</td>
<td>54.0</td>
<td>54.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

4.1.2 Level of education.

<table>
<thead>
<tr>
<th>Education</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate</td>
<td>18</td>
<td>36.0</td>
<td>36.0</td>
<td>36.0</td>
</tr>
<tr>
<td>Diploma</td>
<td>16</td>
<td>32.0</td>
<td>32.0</td>
<td>68.0</td>
</tr>
<tr>
<td>Bachelors degree</td>
<td>11</td>
<td>22.0</td>
<td>22.0</td>
<td>90.0</td>
</tr>
<tr>
<td>Masters degree</td>
<td>2</td>
<td>4.0</td>
<td>4.0</td>
<td>94.0</td>
</tr>
<tr>
<td>Any other</td>
<td>3</td>
<td>6.0</td>
<td>6.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
From the table above, the study discovered that 36% of the respondents were certificate holders, followed by diploma holders with 32% and bachelors degree holders representing 22%. 10% of the respondents were Masters Degree holders.

**4.1.3 Work experience.**

The study revealed that, 38% of the respondents were between 16 to 20 years of experience, then followed by 11-15 years and 21 and above with 18%. Then, 0-5 years had 16% and 6-10 years accounted for 10%. The above information is shown in the table below.

**Table: 4.1.3: Work experience.**

<table>
<thead>
<tr>
<th>Work experience in years</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5 years</td>
<td>5</td>
<td>16.0</td>
</tr>
<tr>
<td>5-10 years</td>
<td>5</td>
<td>16.0</td>
</tr>
<tr>
<td>11-15 years</td>
<td>9</td>
<td>18.0</td>
</tr>
<tr>
<td>16-20 years</td>
<td>19</td>
<td>38.0</td>
</tr>
<tr>
<td>21 years and above</td>
<td>9</td>
<td>18.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**4.2 Use of smartphones by police in rendering police service**

This objective sought to find out if the police officers use smartphones in offering police services to the Zambian community. The data collected from the field revealed that, 74% admitted of using smartphones in rendering police services to the Zambian community, followed by 24% who denied of using smartphones in rendering police services while the rest were not sure. This information above is shown in the table below.
<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>37</td>
<td>74.0</td>
<td>74.0</td>
<td>74.0</td>
</tr>
<tr>
<td>No</td>
<td>12</td>
<td>24.0</td>
<td>24.0</td>
<td>98.0</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>2.0</td>
<td>2.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

### 4.3 ICT policy on technologies in rendering police service

The results on the presence of an ICT policy on the use of technologies in rendering police services discovered that, 66% of respondents admitted to have an ICT policy in rendering police services to the Zambian community while 34% denied of having a policy of using ICTs in rendering police services to the Zambian community as can be seen from the pie chart below.

**Figure 4.3: Presence of an ICT policy.**

The study also revealed that for those who said yes of having an ICT policy, 22% argued that they use it for fingerprint and online verification, followed by those who use it for electronic identification and radio frequency identification with 16% each. The table below shows the reasons given for the presence of an ICT policy.
Table 4.3.1: Services on where the ICT policy is used for

<table>
<thead>
<tr>
<th>Services</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic identification</td>
<td>8</td>
<td>16.0</td>
<td>16.3</td>
<td>16.3</td>
</tr>
<tr>
<td>Electronic transport</td>
<td>1</td>
<td>2.0</td>
<td>2.0</td>
<td>18.4</td>
</tr>
<tr>
<td>Online verification and finger print reader</td>
<td>11</td>
<td>22.0</td>
<td>22.4</td>
<td>40.8</td>
</tr>
<tr>
<td>Radio frequency identification</td>
<td>8</td>
<td>16.0</td>
<td>16.3</td>
<td>57.1</td>
</tr>
<tr>
<td>CCTV</td>
<td>4</td>
<td>8.0</td>
<td>8.2</td>
<td>65.3</td>
</tr>
<tr>
<td>Police public interface</td>
<td>4</td>
<td>8.0</td>
<td>8.2</td>
<td>73.5</td>
</tr>
<tr>
<td>Real time information access</td>
<td>4</td>
<td>8.0</td>
<td>8.2</td>
<td>81.6</td>
</tr>
<tr>
<td>Intelligent sensors</td>
<td>2</td>
<td>4.0</td>
<td>4.1</td>
<td>85.7</td>
</tr>
<tr>
<td>Centralized information storehouse</td>
<td>3</td>
<td>6.0</td>
<td>6.1</td>
<td>91.8</td>
</tr>
<tr>
<td>Any other</td>
<td>4</td>
<td>8.0</td>
<td>8.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td>98.0</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing System</td>
<td>1</td>
<td>2.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In terms of the effectiveness of the policy, the study discovered that, 48% of the respondents agreed that the ICT policy has been effective to the moderate extent, 36% to the lesser extent while 16% said it has been very effective as seen from the diagram below.

Table 4.3.2: Effectiveness of the policy.

<table>
<thead>
<tr>
<th>Effectiveness Level</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater extent</td>
<td>8</td>
<td>16.0</td>
<td>16.0</td>
<td>16.0</td>
</tr>
<tr>
<td>Moderate extent</td>
<td>24</td>
<td>48.0</td>
<td>48.0</td>
<td>64.0</td>
</tr>
<tr>
<td>Lesser extent</td>
<td>18</td>
<td>36.0</td>
<td>36.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

4.4 Types of technologies used by police.

This objective intended to find out what types of technologies used by the police in rendering their services to the community. It was discovered that computers are the most frequent used type of
technologies followed by smartphones. According to the results, scanners and printers are the least types of technologies used by the police. The table below summarizes the results on the types of technologies used by police in rendering police services.

**Figure 4.4: Types of technologies used by police.**

![Diagram showing types of technologies used by police](image)

**4.5 Challenges faced by police in rendering police services when it comes to the use of smartphones.**

To identify the challenges faced by police in rendering police services when it comes to the use of smartphones. The study revealed that, 36% of respondents have a negative attitude towards the use of technology, followed by 32% of respondents who claimed that using smartphones is a challenge because of the inability to pay running costs, while 16% is shared by lack ICT skills and government support. The results are shown in the table below.
Regarding the possible solutions to the challenges presented, the study discovered that, 44% of respondents need to be trained on the use of ICTs, followed by 32% who advocated improving financial and technical support from the government represented by, while 24 % revealed that a policy in the use of ICTs should be more effective. The following table summarizes the possible solutions given by the respondents.

**Figure 4.5.1: Possible solutions.**

<table>
<thead>
<tr>
<th>Possible solutions to the stated challenges</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve financial and technical support from the government</td>
<td>16.0</td>
</tr>
<tr>
<td>Introduce the policy in the use of ICTs in rendering police services</td>
<td>12.0</td>
</tr>
<tr>
<td>Training the police in the use of ICTs</td>
<td>22.0</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>
4.6 Findings from interview guide

In order to gain more insight on the study an interview guide was administered to one IT personnel from Lusaka division and one officer in charge from each selected police station. On the use of smart phones, the IT personnel agreed. However, it was stated that phones are not used frequently because much of the information shared is unverified and may be misleading. Further it was stated that, the police service do not share information with the public in relation to crime reports and education. Three officers in charge refused of using smartphones in rendering police services while four agreed. On the presence of an ICT policy the respondent from IT department agreed that the policy is there. It was further stated that the policy is restricted to divisions and not all police stations. Among seven Officers in charge only two refused of having the policy. Further, both the IT personnel and officers in charge stated that the policy has not been very effective due limited resources from the government. On the types of technologies, both respondents gave a variety of technologies which included CCTV, finger prints, scanners and printers, phones, police radio, Automated Criminal Attributes Database (CADB) and Computers for keeping criminal records. On the challenges relating to the use of smartphones, nothing much was said. The IT personnel stated that not everyone can afford to buy a smartphones and officers in charge stated that some officers are not competent to use smartphone due to their complexity.
CHAPTER FIVE: DISCUSSION OF FINDINGS

5.1. Introduction
The purpose of this study was to investigate the use of smartphones in rendering police services to the Zambian community. To guide this study, four objectives which directed the data collection process were formulated. The research objectives were as follows: to establish if the Zambia police use smartphones in rendering services to the Zambian community; to establish if the Zambia police have an ICT policy in rendering police services to the Zambian community; to find out the types of technologies used by the Zambia police in rendering their services to the Zambian community; and to establish the challenges faced by Zambia police when it comes to the use of smartphones in rendering police services to the community.

This chapter discusses the themes that emerged from the research findings. Apart from the researchers’ own analytical interpretations, the discussion is based on the findings presented in chapter four as well as the theoretical framework guiding this study and other related literature in chapter two. For easy discussion, specific objectives have been incorporated as sub themes just as presented in chapter four.

5.2. Use of smartphones by police in rendering police services
Generally, ICTs such as smartphones require a careful balance of choice on technology diffusion and accepting of such devices by users is helpful in so many ways and plays a major role in accessing and disseminating information between the police and the public in maintaining law and order (Njase, 2016). Data collected from the study show that police officers use smartphones in delivering police services to the Zambian community as 74% of officers acknowledged to use smartphones. Therefore, this can be attributed to the fact that most police officers used in this study had personal smartphones and thus, it is not surprising that they use these personal phones in rendering police services to the Zambian community. As a matter of fact, smartphones have substantial impact on police practices such that, increased acceptance and use of smartphones by police officers improves the quality of policing and performance of law enforcement.

In line with the theory of TAM, when users are presented with a new technology, a number of factors influence their decisions about how and when they will use it. Smartphones are used by police officers when the need arises in many ways which includes communication between police and the public as well as communicating among officers themselves. The fact that smartphones are a quite recent technology, they have influenced the police worldwide to incorporate them in their
service to the community and this happens to be the reason why results in this study show the usage of smartphones by Zambian police officers.

Further, NYPD also agreed that, contemporary police officers have already taken a big step towards improving their service to the community through the use of technology which includes smartphones. The above argument has agreed with this study as many police officers in Lusaka have incorporated the use of smartphones in offering their services to the Zambian community. In addition, the results also harmonize with the study conducted in Kenya by Karake (2014) who reported that the explosive growth and technological sophistication of smart phones and the surging popularity of social networking sites had empowered the general public and raised expectations regarding services provided by law enforcement, the ability to communicate with police and the transparency of the organization.

5.3 Policy on ICTs in rendering police services
A policy is a statement of intent, and is implemented as a procedure or protocol to guide the course of actions. Policies are important as they establish boundaries, guidelines, and best practices for acceptable operations in any organization such as police service. The purpose of policies such as policy on technology act as a driving force to the police officers in rendering their services to the public because it helps them in improving their performance in a cost effective and efficient manner.

Considering the results in this study, 66 % of police officers admitted of having the policy attributed to rendering their services to the community while 34 % denied of having a police on technologies. The fact that most police officers admitted to have a policy in rendering their services to the community, it can be argued that there is a policy in Zambia which guides the use of technologies. This agrees with Manchin’s study (1997) which suggested that the need for a policy in rendering police services is imperative to the effectiveness and proficiency of the police. In line with TAM, which looks at the perceived usefulness of technologies in any such as police service there must be a policy to govern the use of such technologies in various services such as finger print, online verification, electronic identification and radio frequency. This also can be attributed to fact which TAM through PU emphasizes that utilizing a particular method or technique would enhance someone’s job performance or routine responsibility. Further, the findings also correspond to the study done by Adderley and Musgrove (2011) which argued that a
A policy on electronic policing is important because it helps to make transitions when new technology emerges.

However, due to the fact that not all police officers agreed to have a policy on technologies in delivering police services, it shows that police officers did not understand the objective of this question as it is not clear as to whether this policy is specifically meant for the police with regards to rendering police services to the community using ICTs. Adding to the above argument, it was discovered that most police stations visited during the research did not have IT personnel. This agrees with one police officer who lamented that police officers are overlooked by the management despite having much contribution in maintaining law and order in the country.

5.4 Types of technologies used by police

Police service is a very complex and sensitive activity which requires the integration of multiple data sources in the shortest period of time (Adderley & Musgrove, 2001). Therefore, ICT tools help the police force for better and timely service delivery in maintaining law and order in an economic, effective and efficient manner. The study discovered that computers were the most frequent used type of technologies followed by smartphones. These results can be attributed to the fact that computers are a multi-purpose devices and they have a lot of functions such as data input, processing and output as contrasted to other ICT devices (Kumbuti, 2013). Secondly, smartphone are more useful not only to police officers but to individuals due to their portability and multi-functionality. In line with this thought, the work conditions of police working outside require that they have tools that would help them to carry out their work effectively of which one of such tools is a smartphone. The idea is to change the working methods of the police to utilize mobile technology as much as possible, so as to transfer the work from the office setting to the field. In addition, Tambul and Caker (2015) postulated that the introduction of computers and smartphones has improved the operations of police by making their work effective and efficient through providing the capacity to store and process large volumes of data which improves intelligence and investigative capabilities, makes ready access to criminal records and other kinds of relevant data. According to TAM the perceived usefulness is one of the significant factors which determine on technology acceptance. In this context, it cannot be denied that smartphones along with computers are more useful in police service.
5.5 Challenges faced by police when it comes to the use of smartphones in rendering police services to the community.

As the say goes, “everything has got its own advantages and disadvantages” so as smartphones. Generally, smartphones are expensive and they are power dependents since they consist of applications that consume the power in the battery. Communication is also expensive on smartphones as they require more airtime to buy bundles and make calls.

According to the findings presented in chapter four, it was discovered that there were a lot of challenges as a result of using smartphones. Firstly, police officers showed a negative attitude towards the use of technology (smartphones). With regards to negative attitude towards technology it can be argued that, police officers were shy of technological innovations brought through the use of smartphones. This agrees with a study done by Lee (2017) who stated that most police officers shun away from using advanced technologies due to their complicated functions. However, this is contradicting with Karake (2014) who discovered that the police service is responding well to technological innovations brought through the use of smartphones and computers as it helps them to deliver their service in an effective and efficient manner.

The study also found out that using smartphones is a challenge because of inability to pay running costs. This came out strongly as a hindrance to use of smartphones in rendering services. Therefore, this can be attributed to the fact that police officers have personal smartphones of which if they start using them for service delivery it would prove to be costly. Among other challenges noted, were lack of ICT skills and lack of government support. This may be due to the lack of a well-defined policy on ICTs.

Apart from the above challenges, a smartphone has a relatively low storage. According to Yoon-ji (2016) who conducted the similar study on the use of smartphones in delivering police services in China, storage can be a problem to smartphones. He discovered that although you can buy a sizable SD card for your music, images and videos, the vast majority of your apps and the data they download will be stored on the phone’s internal storage by default. You can move the apps’ data to your SD card, however, whenever the app updates (and most do so very regularly), it will reinstall everything back on the internal storage again. In effect, this limits the number of apps you can have installed at any one time. Finances to buy talk time and bundles are also another issue.
CHAPTER SIX: RECOMMENDATIONS AND CONCLUSIONS

6.1 Introduction
This chapter is a presentation of the most appealing and salient issues as discussed and found out in this study. It submits recommendations and possible solutions as a consequence of the findings. The conclusion in itself is merely a summary of sticking points of the study. The recommendations and suggestions may be considered to be solutions directed to the stake holders, advising on what could possibly be done to tackle the identified problems which the study has found.

6.2 Conclusion
After having looked at the findings and discussion above, one could conclude that the research revealed that substantial proportion of most police officers use smartphones in delivering police services to the Zambian community. This trend can be attributed to the fact that most police officers used in this study had personal smartphones and thus, it is not surprising that they use these personal phones in rendering police services. However, the key stakeholders such as the public still face challenges to contact the police through mobile technology despite having phones and other mobile terminals. Even the widely used emergency lines are not localized and difficult to access due to congestion.

In regards to finding out if the Zambia police have an ICT policy in rendering police services to the Zambian community, most of the police officers admitted to have a policy in rendering their services to the community. The study seems to suggest that there is a policy in Zambia which guides the use of technologies in delivering services to the community. However, due to the fact that not all police officers agreed to have a policy on technologies in delivering police services, it cannot be clearly stated that there is a policy specifically allocated to the police with regards to the use of ICTs in rendering police services to the community.

With regards to the types of technologies used in police service, they use computers, smartphones, scanners and printers, CCTV, and intelligent sensors. Among these technologies, computers smartphones are the most frequently used. This trend can be attributed to the fact that computers and smartphones have improved the operations of police by making their work effective and efficient through providing the capacity to store and process large volumes of data to improve intelligence and investigative capabilities, making ready access to criminal records and other kinds of relevant data. Nevertheless, it cannot be denied that smartphones being a type of ICTs come with challenges which could be attributed among other factors such as such as, police officers
having a negative attitude towards the use of technology (smartphones), inability to pay running costs, lack of ICT skills as well as lack of government support.

6.3 Recommendations
The study which was centered on the investigation of the use of smartphones in rendering police services to the Zambian community has the following recommendations:

- From the study, it is clear that smartphones are very important in the operation of police officers. Therefore, government should consider buying and allocating a number of smartphones for at least each police station to be used when offering service. In order to achieve this, there should be a clear policy on ICTs specifically to be used in the police service. This will facilitate the balance and integrated Policing strategy in policing matters,

- Government should provide sufficient funds for training and ICT infrastructure development in the Zambia Police and other related agencies to enhance information sharing between the Police as well as the public,

- Government should also partner with NGOs that focus on law enforcement and ICTs that would help them with resources.

- The study recommends that the government to provide new information technologies promoting better performance in law enforcement agencies.

- Specific study should be conducted on the benefits of using smartphones and other technologies.
REFERENCES


### APPENDICES

#### Appendix 1: WORK PLAN

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>DESCRIPTION OF ACTIVITY</th>
<th>TIME FRAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem identification and topic formulation.</td>
<td>- This is where you identify the problems and then come up with a topic based on the problems you have identified.</td>
<td>16th – 30th Apr, 2018 (14 Days)</td>
</tr>
<tr>
<td>Proposal writing</td>
<td>- This will entail the development of the whole proposal. That is the construction of the problem statement where the research problem will be introduced, the objectives will be formulated. This will include both the general and specific objectives and these will help in clarifying the research. - Not only that, development of the proposal will also involve construction the rationale of the study. This is a section where justification or reasons as to why the study is relevant will be given. - There will be also literature review that will involve consulting secondary data to give background information on the Topic. - Further, the development of research proposal will also involve constructing the research methodology where the methods of how the research will be done and discussed. This involves discussing the target group and how</td>
<td>1st May-13th July, 2018 (10 Weeks)</td>
</tr>
</tbody>
</table>
they will be sampled and the data collection tools to be used to collect data from the target groups. Further, this includes discussing how the data collected from the field will be analysed.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation of the data collection tools</td>
<td>This will involve preparing the data collection tools to be used for data collection in the field. Thus, the questionnaire will be prepared.</td>
<td>21st - 28th June, 2018 (7 Days)</td>
</tr>
<tr>
<td>Pre-testing Data Collection Tools</td>
<td>This will involve trying out the data collection tools. Questionnaire and interview guide.</td>
<td>29th June, 2018 (1 Day)</td>
</tr>
<tr>
<td>Reviewing Data Collection Tools</td>
<td>This will involve making changes where necessary on the data collection tools.</td>
<td>30th June, 2018 (1 Day)</td>
</tr>
<tr>
<td>Final editing of the proposal</td>
<td>Here the proposal will be edited in readiness for submission.</td>
<td>10th - 13th July, 2018 (3 Days)</td>
</tr>
<tr>
<td>Submission of the proposal</td>
<td>This entails the handling in of the final proposal to the supervisor for grading.</td>
<td>13th July, 2018 (1 Day)</td>
</tr>
<tr>
<td>Data Collection</td>
<td>This will involve distribution of self-administered questionnaire and interview guide to the respondent</td>
<td>10th - 24th Aug, 2018 (14 Days)</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>This will involve critically studying and manually coding data derived from the questionnaires and interview guide.</td>
<td>1st - 31st Oct, 2018 (4 weeks)</td>
</tr>
<tr>
<td>Report Writing</td>
<td>This will involve the writing and editing of the final report document.</td>
<td>27th - 05th Nov, 2018 (10 days)</td>
</tr>
<tr>
<td>Submission of the report</td>
<td>This entails the handling in of the final report to the supervisor for grading.</td>
<td>14&lt;sup&gt;th&lt;/sup&gt; Dec, 2018  (1 Day)</td>
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### Appendix 2: BUDGET

<table>
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<th>Description/Item</th>
<th>Quantity</th>
<th>Unit Cost (K)</th>
<th>Total Cost (K)</th>
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</thead>
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<td>Lunch</td>
<td>5</td>
<td>100</td>
<td>500</td>
</tr>
<tr>
<td>Air time for communication</td>
<td>10</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>Snacks</td>
<td>10</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>Transport</td>
<td>5</td>
<td>15/2</td>
<td>150</td>
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<td>0.50n</td>
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<tr>
<td>Binding proposal</td>
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<td>10</td>
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<tr>
<td>Printing questionnaire and interview guide</td>
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<td>9</td>
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</tr>
<tr>
<td>Field notebook</td>
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<td>30</td>
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<tr>
<td>Stapler</td>
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<td>35</td>
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</tr>
<tr>
<td>Staples</td>
<td>2 boxes</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>1,478.75</strong></td>
</tr>
</tbody>
</table>
Appendix 3: QUESTIONNAIRE

THE UNIVERSITY OF ZAMBIA
SCHOOL OF EDUCATION
DEPARTMENT OF LIBRARY AND INFORMATION SCIENCES

LIS 4014 RESEARCH PROPOSAL

RESEARCH TOPIC: “TO INVESTIGATE THE USE OF SMARTPHONES IN DELIVERING POLICE SERVICES. A CASE STUDY OF SELECTED POLICE STATIONS IN LUSAKA.”

Dear respondents,

We are fourth year students of Library and information Science carrying out a research on the “Use of smartphones in delivering police services at Lusaka Central police.” With reference to this topic, you have been randomly selected to answer this questionnaire.

We wish therefore to inform you that this research is purely for academic purposes and that the information you will provide will be treated with utmost confidentiality. In line with this, you do not need to indicate your name anywhere in the questionnaire.

INSTRUCTIONS

1. Kindly make your response by circling on the appropriate answer(s) as shown below.

Example: What is your sex? 1. Male  2. Female

2. You are required to give only one answer for each question by circling except in some questions where you are requested to give more than one response and use the spaces provided for explanations when required.
SECTION A: BACKGROUND CHARACTERISTICS.

Q1. What is your gender?
1. Female
2. Male

Q2. Which age group do you belong to?
1. 20-29 years
2. 30-39 years
3. 40-49
4. 50 and above

Q3. What is your marital status?
1. Single
2. Married
3. Divorced
4. Widowed

Q4. Which department do you work from?
1. Traffic
2. Crime control
3. IT
4. Others (specify)………………………………………………………………………

Q5. Work experience in years.
1. 0 to 5 years
2. 6 to 10 years
3. 11 to 15 years  
4. 16 to 20 years  
5. 21 and above

SECTION B: USE OF SMART PHONES BY POLICE.

Q6. Do you use smart phones in offering police services?
1. Yes  
2. No

Q7. If Yes, where do you use it for?
1. Communication between police and the public  
2. Communication among the police only  
3. Others (specify)……………………………..

Q8. If No, what are the reasons?
1. Unwillingness to change  
2. Lack of management support  
3. To protect self interest  
4. Inability to pay running cost (internet, subscription, maintenance of hardware and software)

SECTION C: ICT POLICY ON TECHNOLOGIES IN RENDERING POLICE SERVICE.

Q9. Is there an ICT policy on the use of technologies in rendering police services to the Zambian community?
1. Yes  
2. No

Q10. If yes, on what services do you use the policy for? (circle wherever appropriate)
1. Electronic Identification
2. Electronic Transport (E-Transport)
3. Online Verification and Fingerprints Reader
4. Radio Frequency Identification (RFID)
5. Closed Circuit Television (CCTV)
6. Police-Public Interface
7. Real-time Information Access
8. Intelligent Sensors
9. Centralized Information Storehouse
10. Others, specify………………………………………………………………………………

Q11. According to the department’s policy and procedures, when do officers require to activate the technologies?

1. Only during detention or arrest.
2. Only during traffic stops.
3. During all citizen contacts.
4. When he or she thinks it is necessary.
5. Others (specify)………………………………………………………………………………

Q12. How effective has this policy been in rendering services to the Zambian community?

1. to greater extent
2. to a moderate extent
3. to the lesser extent

SECTION D: TYPES OF TECHNOLOGIES USED BY POLICE.

Q13. What types of technologies do you use? (Circle on the types of technologies you use)

1. Computers (laptops, desktops, etc)
2. Smartphones
3. Scanners and printers
4. CCTV
5. Intelligent sensors
6. Others, specify…………………………………………………………………………………

Q14. Are you trained to make use of the technologies available to police force?

1. Yes
2. No

Q15. How do you use the types of technologies mentioned in Q14?

…………………………………………………………………………………………………………
…………………………………………………………………………………………………………
…………………………………………………………………………………………………………
…………………………………………………………………………………………………………

Q16. How effective have the mentioned types of technologies been in rendering services to the Zambian community?

1. To the greater extent
2. To the moderate extent
3. To the lesser extent.

SECTION E: CHALLENGES FACED BY POLICE WHEN IT COMES TO SMART PHONES IN RENDERING POLICE SERVICE.

Q17. What challenges do you think are related to the use of smart phones in rendering services to the community?

…………………………………………………………………………………………………………
…………………………………………………………………………………………………………
Q18. What are the possible solutions to the above question?

THANK YOU FOR YOUR PARTIPATION AND STAY BLESSED!!!
Q1. Do you use smartphones in offering police services to the Zambian community?
Q2. Is there an ICT policy on the use of technologies in rendering police services to the Zambian community?

Q3. On what services do you use the policy for?

Q4. What is the primary reason why the police use information technology?

Q4. How effective has this policy been in rendering services to the Zambian community?
Q5. What types of technologies do you use in rendering police services to the Zambian community?

Q7. How effective have the mentioned types of technologies been in rendering services to the Zambian community?

Q7. What challenges do you think are related to the use of smart phones in rendering services to the community?

THANK YOU FOR YOUR PARTICIPATION.