

**The use of public ICTs to empower and enhance citizens' participation in the North West
Province**

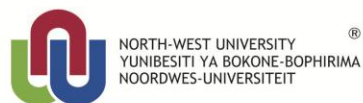
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Dissertation submitted in partial fulfilment of the requirements for the degree Master of
Commerce in Computer Science and Information Systems at the Mafikeng Campus of the North-
West University

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May 2016

It all starts here TM



DECLARATION

I Abednigo Thamsanqa declare that this full dissertation hereby submitted in partial fulfilment of Master Degree in Information and Computer sciences is my own work and has not been previously submitted by me for any degree at any University. It is my own work in design and execution. The material contained herein has been duly acknowledged.

.....

Signature

.....

Date

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ABSTRACT

Information and communication technologies (ICTs) are broadly recognized as being of paramount importance in empowering and enhancing citizen's participation. The government and non-governmental organizations as well as private organizations have contributed extensively towards public ICTs which include public libraries, internet cafes, telecentres and many more.

Public ICT centers have been built in urban areas in the North West province, some are operating some are not, some have skilled personnel some do not. Some have the capability to accommodate diverse citizen's needs including those citizens with disabilities while some do not accommodate disabled citizens. With all these public ICTs put in place, there is no evidence whether citizens are being empowered, participate and benefits from using public ICTs.

This study therefore, aims to place the use of public ICTs as an artifact that can empower and enhance citizen's participation in politics, health, agriculture and education in the North West (NW) province.

This study employed both quantitative and qualitative research methods (mixed method) for the research design and methodology the study was therefore, qualitative in a nature where interviews were conducted for data collection as well as quantitative where questionnaires were administered for data collection.

The study concludes that public ICTs can be used as an artefact that the government can use to empower and enhance citizens' participation. The enquiry also concludes that both the poor and the rich citizens have equal chance to be empowered and get access to different kinds of information through public ICTs. Moreover, the study concludes that the use of public ICTs have closed the gap between public inclusion and public exclusion.

The recommendations emanating from the study are that, public ICTs should also open during public holidays and after working hours. Training should be provided to citizens on how to use the equipment found in public ICT centres. Public ICT centres must be structured in a way that people with disability are accommodated.

Keywords: Information Communication Technology, e-access, citizens, Enhancement, empower, participation, North West, Public ICT, Telecommunication, South Africa, Municipality, North West

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LIST OF ABBREVIATIONS

ICTs	- Information Computer Technologies
ANT	- Actor Network Theory
UTAUT	- Unified Theory of Acceptance and Use of Technology
NW	- North West

Chapter One: The overview of the study

1.1 Introduction

According to Yang and Kang (2015), the use of public ICTs to empower and to enhance citizens' participation can assist nations in achieving poverty eradication, social inclusion. This can be done through making information regarding health, agriculture, politics and education available in a place where it is easy for citizens to get to like public ICTs. The Economic and Social Council, in its resolution, made empowerment and citizens participation a priority theme for Commission for Social Development in 2012-2014. It was found out that public ICTs can assist in this priority (Panagiotopoulos, Bigdeli & Sams 2014)

Public ICT (mainly telecentres, public libraries, citizens' post office and internet cafes, Wi-Fi hot spots) are usually recognized as a vital resource for socio-economic advancement in both developed and developing countries (Sey 2008). According to Waiswa and Okello-Obura (2014) these public ICTs are aimed at empowering the citizens and enhance their participation through the provision of easy access to education, agriculture health and transport. Van Audenhove (2003) further stated that the South African Ministry of Communication perceived the public ICT segment as the epicenter of the development, improvement of the nation and getting citizens to participate in educational, political, agricultural and health activities.

According to Maldonado et al. (2006), the Government's national Communication and Information System was tasked in the Cabinet approved Comtask Report to; provide development communication and information to the citizens to ensure that they become active participants in changing their lives for the better. This was due to the growing recognition that public ICT could be utilized to:

- increase information transfer;
- increase the level of self-motivated learning and;
- increase communication and development around the globe.

According to Jacobs and Herselman (2006), this can only be achieved if public ICTs are operating effectively and the citizens that are supposed to utilize them are doing so.

Over the years studies have assured the huge possibility that public ICTs have the potential to assist citizens in staying connected globally thus improving the quality of life for citizens in aspects such as health, special needs, education, environment, agriculture, politics sharing of

knowledge and improving access to information (Glendenning et al. 2010). The problem with the effectiveness of public ICTs in empowering and enhancing citizens' participation has pointed out to its usage by citizens. This is because when citizens are not utilizing public ICTs there is no way they can be empowered (Glendenning et al. 2010). In some cases this can be as a result of citizens being unable to use public ICTs (Gui 2007).

The North-West province which is mainly dominated by rural areas has taken initiatives to incorporate public ICTs usage in order to bring innovation into the province. In 2012, the North-West provincial government officially launched Ulwazi Express, a public ICT initiative aimed at increasing access to information in both urban and rural areas. The programme was advocated for by the Department of Trade and Industry and sanctioned by the Department of Science and Technology. It has been functioning for two years and is presently operating at 27 sites in the province (Gillwald et al. 2012). The former North-West premier Thandi Modise highlighted the value the initiative would add in innovation through offering free access to educational and informative content and enhance public ICT digital infrastructure. This innovation is aimed at using public ICTs to enhance citizens' participation.

1.2 Problem Statement

According to Bello (2002) countries are investing in public ICT developments in order to gain economic advantages. Castells and Cardoso (2005) adds that public ICTs provide easy access to education, health and transport, enabling citizens to stay connected and attain all the benefits that are offered by public ICTs. It is evident that public ICT's can empower citizens and enhance citizens' participation more especially for the citizens based in the urban area. According to Bello (2002) public ICTs have the potential to empower citizens. This study is one of the studies that assumes that public ICTs can empower citizens and enhance their participation.

Most of the studies that have been conducted on public ICTs have focused on rural areas while overlooking urban areas (Sey 2008). According to Sey (2008), some of the public ICTs in both rural and urban areas have been closed in the past years because they were underutilized.

South Africa is no exception to investing in public ICTs so that citizens can be empowered and participate in education, politics, agriculture and health. A lot of ICT infrastructure have been put in villages and in urban areas in North West province. Some of these ICTs are working some are

not working, some have the capability to meet all citizens' needs including disabled citizens, while some do not. In some of these public ICTs citizens have privacy in some there is no privacy. Citizens are able to access up to date information regarding education, health, agriculture and politics, however in some ICTs information may not be up to date.

Furthermore, there is no evidence or records of how many citizens or what type of information that citizens get from these public ICTs. Also there is no evidence of difficulties that citizens encounter, and what benefits citizens derive from public ICTs. Thus no evidence that public ICTs can be used as a tool for empowering and enhancing citizens' participation in the North West province. This study therefore, aims to place the use of public ICTs as an artifact that can empower and enhance citizens' participation.

1.3 Research Aims and Objectives

1.3.1 Aim

This study is aimed at placing the use of public ICTs as an artefact that can empower and enhance citizens' participation in the North West (NW) province.

1.3.2 Research Objectives

The following are the objectives that will be addressed in the study:

- To appraise which public ICTs are available and their use by citizens
- To identify the factors that affects the use of public ICTs by citizens.
- To assess the level to which the use of public ICTs have affected public inclusion.
- To identify the factors that constitute to the closing down of public ICT centers.

1.3.3 Research Questions

The following are the research questions derived from the objectives:

- What public ICTs are available in the municipalities and what are they used for?
- What makes it difficult for citizens to use public ICTs to gain empowerment and enhance their participation?
- To what extent does the government utilize public ICTs to gain public inclusion?
- What are the factors that contribute to closure of some public ICTs centers in the province?

1.4 Significance of the study

The study conducted by Washington University Technology and Social change Group indicated that citizens prefer technical or content support and accessible safe space apart from their environment and homes. This includes people who live in urban areas (Castells and Cardoso 2005). As a result the importance of public ICTs has increased because of the ability to empower and enhance citizens' participation in education, health, agriculture and politics.

There are few studies that have been conducted to place public ICTs as an artifact that can be used to empower and enhance citizens' participation in education, health, agriculture and politics in the case of South Africa (Noruwana 2015).

According to Deibert (2003), ICTs are not neutral to every citizens and they bring about destructive forces, by its very nature ICTs are serving to change and disrupt the citizens. They argued that this use of ICTs has resulted to impairment of individuals' sense of time due to temporal acceleration and an indeterminacy regarding the present. As a result, ICTs have raised Ethical and moral dilemmas which has led to the destabilization and ultimate rejection of traditional concepts of value, culture and society.

Coward (2008) states that most previous research on public ICTs is more qualitative in nature and based on perceptions; and that from a research perspective, this is far from ideal. To try and look at the problem from all possible angles this study used a mixed method which is a combination of both qualitative and quantitative to reach its objective, the focus of this study was on the municipalities that are in urban areas.

Most researchers have done numerous studies on public ICTs, however, there has been a loophole in a sense that urban areas have been neglected in these researches (Noruwana, 2015). Researchers have mainly focused on rural areas (Castells and Cardoso 2005), the results from these studies show that public ICT has the potential to empower and enhance citizens' participation if they are used efficiently (Gui 2007). This is because ICTs are said to empower the citizens and increase their participation.

However, few studies have been conducted to find out if the use of ICTs to empower citizens and enhance citizens' involvement is effective in the case of South Africa. This has left most people with an assumption that public ICTs use can empower and enhance the citizens' participation. While a study that was done in 2010 showed that ICT disempowers the citizens

(Nel, Kroeze and Lotruet 2010). Nel, Kroeze and Lotruet, found out that ICT is a destructive force that takes away the reality of the society. Where one finds personnel who cannot interact face to face but rather hide behind technology.

For empowerment and enhancement of citizens participation through the use of public ICTs to be effective there is a need for all actors or stakeholders that are involved in the network to participate (Kroukamp 2005). For example the government as a provider of public ICTs to citizens through municipalities has a responsibility to make sure that public ICTs are used to empower and enhance citizens participation effectively by making sure that all the stakeholders in the network play their role. Previous researches, in the context of this study, did not use the Actor Network Theory to see the relationship that exists in using public ICTs to empower and enhance citizens' participation (Tlagadi 2007).

Additionally Sey (2008) states that there are three reasons that necessitate more research attention to public ICTs despite previous studies leaning to the conclusion that "public ICTs are not fulfilling their potential in achieving self-sustainability, reaching disadvantaged populations or bringing about noticeable socio-economic change".

1.5 Literature Review

1.5.1 Theoretical Framework

This study used two theories, Actor network theory and Unified theory of acceptance and use of technology. These theories were used to accommodate and to address the research approaches that are used in this study. ANT was used as a framework to address the qualitative section of the study and UTAUT was used as a framework to address the quantitative section of the study. These two frameworks were then consolidated for the benefit of the study at large. Further explanation of how these two frameworks were linked to one another is provided in chapter three of the study.

1.5.1.1 Actor Network Theory

This theory was created by French scholars Latour Callon and Law in 1981 in an attempt to understand the processes of technological innovation and scientific knowledge. This theory does not typically try to explain why a network exists, but the interest is on the infrastructure of actor-networks, how they are formed and how they can fall apart. This theory views all actors in a

network as equal and it integrates what is known as a principle of generalised symmetry; that is human and none human (Callon 1986).

This theory is different in that it intertwines people, objects and organisations, which all form part of actors. Meaning this theory comprises of both social and technical aspects and these are treated as inseparable.

This theory was chosen because this study consists of a relationship that needs to be analysed and needs to be understood in order to understand how public ICTs can be used as an artefact to empower and enhance citizen participation. This is because to empower people it involves a lot of actors, such as people (citizens) themselves, technological equipment, government, environment and organisations and these networks cannot be separated from each other as they share a network they have to work together to achieve the objectives.

An actor network theory considers both technical and social determines to be flawed and proposes instead of socio-technical account in which neither social nor technical positions are privileged This treats human and non-human objects as equal which is good for this study because there is an interaction to assess the use of public ICTs as an artefact to empower citizens and this requires the assessment of both non-human and human objects. Moreover, this theory is based on three principles agnosticism, generalised symmetry and free association. This means that there is no distinction between social, natural and technological aspects.

In this study it is difficult to separate human and non-human elements because they both play a significant role and have a direct influence in the use of public ICTs to empower citizens and enhance participation. For example technology that is used is non-human where as citizens to be empowered are humans therefore, with this relationship it is clear that these two elements are inseparable.

This study focuses on five actors that play a major role in placing the use of public ICTs as an artifact that can empower and enhance citizens' participation. These actors have a relationship with one another thus making it difficult to separate them or to do away with their network. The table below shows the roles that our actors play.

Table 1.1 Roles of actors in a network

Actor	Symbol	Responsibility
Government	G	Act as a provider of information and technology to the citizens. Moreover it detects the kind of environment which is suitable for the establishment of public ICTs
Citizens	C	Citizens act as participants they utilize the technology that is found in public ICTs. Citizens are also mega users of information hence they are the ones who need to be empowered.
Technology	T	The technologies that are found at these public ICTs enables the empowerment of the citizens by providing access to information.
Environment	E	The environments to which public ICT's are located play a vital role for the utilization of that facility by the citizens.
Information	I	Information empowers the citizens and helps the government to know how the citizens feel about a certain aspect.

The goal of these actors is to use public ICTs to empower and enhance citizens' participation. Therefore, none of these actors can act in a vacuum but rather under the influence of another. The figure below shows the relationship between all these actors towards achieving a goal of empowering and enhancing citizens' participation through the use of public ICTs: G= Government, C= Citizens, I= Information, T= Technology, E= Environment

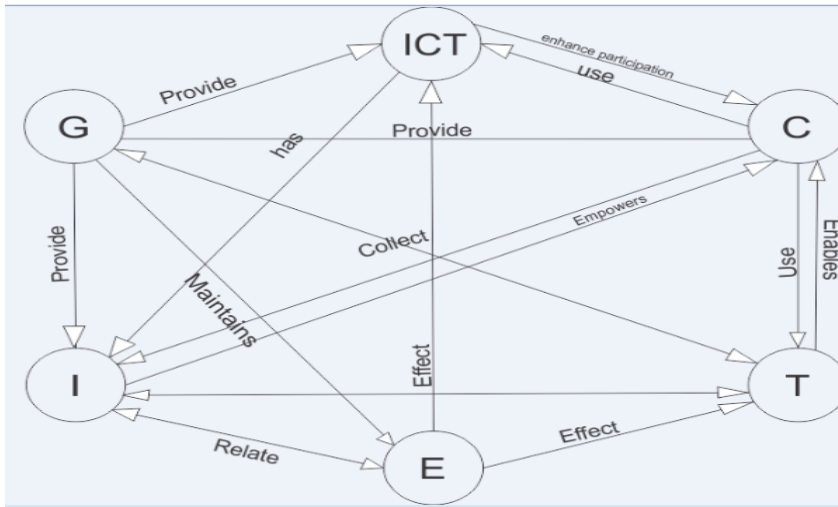


Figure 1.1 The network

The government is responsible for the provision of public ICTs, this provision is mostly done through municipalities, which fall under the government. The government is also responsible for providing information to public ICTs, the provided information is the one that empowers citizens. The information found in public ICTs is only accessible through the technologies that are available in public ICTs. Citizens are the users of technologies, public ICTs and information. Public ICTs are affected by the environment to which citizens live.

Therefore, it becomes the responsibility of the municipalities to maintain and ensure that the environment is an enabling one, so that Public ICTs can be used by citizens. Since all these actors connect to each other, it is important that they all play their roles. With this network that works together to provide and ensure that citizens use public ICTs to empower and enhance their participation, the researcher then derive the proposals that follows.

1.5.1.2 Unified theory of acceptance and use of technology (UTAUT)

This study used Unified theory of acceptance and use of technology as a guide for tackling the quantitative part of the study. This theory was developed by Venkatesh and others in “User acceptance of information technology: Toward a unified view (Venkatesh et.al 2003). The aim of UTAUT was to explain users’ intentions to using an information system and subsequently usage behavior as well. This theory holds that there are four key constructs: 1) performance expectancy, 2) effort expectancy, 3) social influence and 4) facilitating conditions. The first three are viewed as direct determinants of usage intention and behavior, the last one is viewed as a direct determinant of user behavior.

Age, gender, voluntariness and experience of use are posited to moderate the impact of the mentioned four key constructs on usage intention and behavior. This theory was developed through a review and consolidation of the constructs of eight theories that earlier research had employed to explain information system usage behavior (technology acceptance theory, theory of reasoned action, theory of planned behavior, motivational theory, a combined theory of planned behavior/technology acceptance model, diffusion of innovation theory, and theory of personal computer and social cognitive theory).

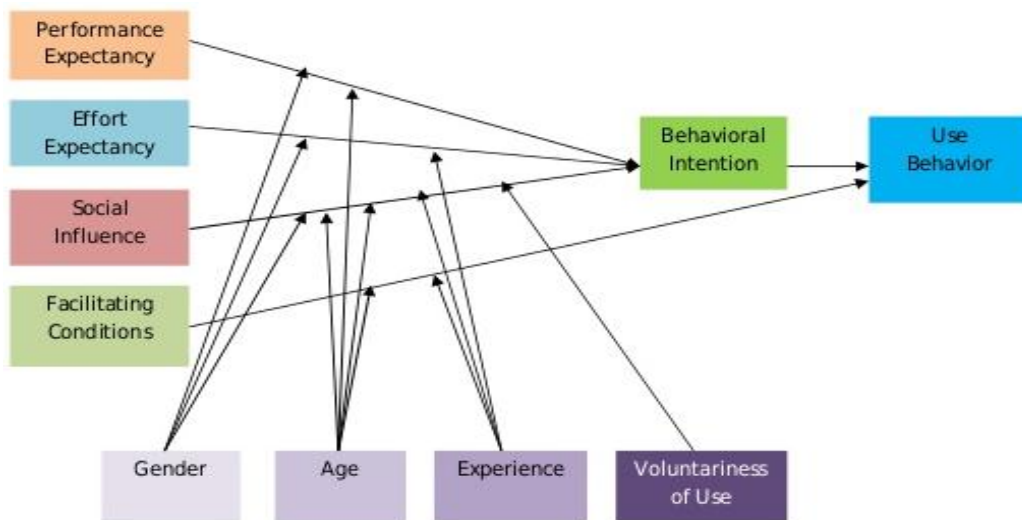


Figure 1.2 UTAUT

UTAUT (Figure 1) this diagram was formulated by Venkatesh et al. (2003), this consists of four main concepts, which were mentioned above, performance expectancy (PE), effort expectancy (EE), social influence (SI) and facilitating conditions (FC). These four concepts are independent variables which influence dependent variables, behavioral intention and usage. Gender, age, experience and volunteers of technology use have indirectly influenced the dependent variables through the four main concepts. Behavioral intention is seen as a critical predictor of technology use (Venkatesh et al. 2003). These four main concept are explained as:

Performance expectancy: This is the degree to which citizens believe that using public ICTs will benefit those who used them (Venkatesh et al. 2003). Performance expectancy is hypothesized to moderate the influence on behavioral intention by gender and age.

Effort expectancy: The degree of ease associated with use of public ICTs (Venkatesh et al. 2003).

Social influence: The degree to which each citizen perceives that important others, believe she or he should use public ICTs (Venkatesh et al. 2003).

Facilitating conditions: The degree to which each citizen believes that government and technical infrastructure exist to support the use of public ICT (Venkatesh et al. 2003).

This theory basically assesses whether users accept the technology and the users ability to use and deal with it. This theory assists decision makers, in this case government, who implements and provides technologies to citizens, to assess the success of introduction of technology to citizens and motivates them to accept those technologies.

This theory was chosen because without citizens using public ICTs, empowering and enhancing of citizens' participation in politics, agriculture, health and education through public ICTs will be impossible. Thus, the researcher deemed important to consider factors that play a role towards citizens' acceptance of technology, such as social influence, facilitating conditions, effort expectancy performance expectancy. If these concepts are not addressed by the provider of public ICT, it might lead to public ICTs not being used by citizens, thus defeating its purpose to enhance citizens' participation while empowering them.

After looking at the two theories, deriving what actors participate in the network and also studying the concepts that affect the acceptance of public ICTs by citizens. The researcher was able to generate propositions that will help in achieving the aim of the study, which is to place the use of public ICTs an artifact that can be used to empower and enhance citizens' participation.

The study is aimed at placing public ICTs as the artifact that can be used to empower and enhance citizens' participation in health, politics, agriculture and education. With this there are different aspect that need to be looked, for example the use of public ICTs by citizens. As a result UTAUT was employed. The networks that is also involved could not be neglected either as a result ANT was used as well.

In doing all of this the study started by developing hypothesis which were then turned into propositions. This is because ANT was the focus of the study, because the actors in the network are the ones that have the responsibility to ensure that citizens accept and use public ICTs, eg actor government. The following are the hypotheses that were developed:

1. If public ICTs are made available to citizens then empowerment and participation of citizens in educational, agricultural, health and political activities will increase.
2. If there is a lack of skilled personnel, lack of privacy and information that does not speak to citizens then citizens will not use public ICTs.
3. Public inclusion is attainable when public ICTs are used effectively by the government
4. The number of public ICTs shutting down can decrease if citizens are trained on how to use public ICTs

The conversion of the hypothesis to proposals was done so the networks are scrutinized effectively, because it is in this network that citizens accept or decline to use public ICTs. It is very important to understand that for public ICTs to empower and enhance citizens' participation, citizens must accept and willingly use public ICTs. Actor government must then make sure that citizens uses public ICTs.

For example UTAUT stresses that age should be considered when establishing public ICTs, so that the citizens which public ICTs is meant for should be well known. It further stresses the importance of facilitation with public ICTs that it should be designed in a way that citizens get all the help they need. With ANT stressing on collaboration between all the actors in the network. The two theories used together provide a good platform to achieve the objectives of the study

1.5.1.1 Proposition

The following four propositions were put forward as one of the factors that contribute negatively or positively in using public ICTs as artefacts that can empower and enhance citizens' participation. The participation referred to is participation in education, agriculture, health and politics:

- P1: The availability of public ICTs to citizens can increase empowerment and participation of citizens in educational, agricultural, health and political activities.
- P2: Lack of relevant information, skilled personnel and lack of privacy make it hard for citizens to use public ICTs.
- P3: The government can use public ICTs to gain public inclusion in different municipalities.
- P4: Providing training for citizens on how to use public ICTs will decrease the number of public ICTs being shut down.

1.6 Ethical Considerations

An ethical clearance form was received from the North West University research department. It contained specific policies to be followed when collecting data from participants. The researcher conducted this study in accordance with the ethical clearance. The names of the participants in the study are not mentioned as well as their confidential and personal information.

The research was honest in both the collection of data and interpretation of the findings. The participants were not asked to disclose confidential information and their participation was voluntary. The information that the participants provided was only used for the purpose of this study. All participants are kept anonymous.

1.7 Research Paradigm and Methodology

1.7.1 Research Paradigms and Approach

This study borrowed from both positivism and anti-positivism paradigms, this came as a result of using both quantitative and qualitative approaches to collect and analyse data. Using of both methods resulted in a study being a mixed method approach. This approach was chosen because there was a need for both questionnaire and interviews. Interviews were used to complement and cover questions that were not covered in the questionnaire. So to respond to objectives and questions of the study, a mixed method approach was seen relevant to the study. Future details are provided in chapter three.

1.8 Research Design

Research design is a researchers overall strategy towards answering questions (Goodwin 2002). In order achieve the objectives of this study both qualitative and quantitative approach. Quantitative data that was collected through the use of questionnaires and the data was analysed using SPSS. Moreover qualitative data that was collected through unstructured interviews was also used and the inductive data analysis was used for analysing collected data. Questionnaires were distributed randomly within the chosen municipalities and also those who took part in interviews were selected randomly.

Data was collected using a structured questionnaire and unstructured interviews. Questionnaires were divided to two types: Questionnaire A was administered to citizens who are general users

of public ICTs and Questionnaire B was administered to government representatives who are administrators of public ICTs, this was done before the interview.

The data collected through questionnaire A and Questionnaire B was analysed using Statistical Package for the Social Sciences (SPSS). Interviews were analysed using inductive data analysis whereby all transcripts from interviews were initially coded according to emerging data themes in the data. After this, categories were established so that patterns among the themes are ascertained; this was intended at fulfilling the aim of the study. More details will be elaborated in chapter three.

1.9 Research Method

A method to a research is a general tactic used for responding to the research questions of the study (Oates 2005). This study used a survey as the method for addressing and responding to research questions. A survey is a research method for collecting information from a selected group of people by using standardised questionnaires or interviews (Dillman 2000). Further details on how a survey was used and justification for using a survey are explained in chapter three.

1.10 Population and Sampling

1.10.1 Population

North West Province has an estimated population of 3 676 300, which is 6, 8% of the population of South Africa. It consists of three mega cities which are Klerksdorp, Potchefstroom and Rustenburg which have 100,000+ in population (Van der Berg and Louw 2004). North West province has a number of public ICTs allocated in different urban areas. For the purpose of this study, the researcher only focused on the public ICTs that are allocated in Rustenburg, Mafikeng, Klerksdorp and Potchefstroom. The participants whom were given questionnaires were randomly selected from some urban areas within selected municipalities.

The above mentioned cities were chosen because they represent the bigger population of urban people and with the assumption that since these are big cities then people have access to some kind of ICT infrastructures that they use on daily basis or part-time. Moreover, the target population for this study is urban areas around the North West province of which the above cities are well known urban areas of the province.

1.10.2 Sample

Owing to time limitations and distances, a sample of three municipal districts was used for sampling: (i) Mahikeng Local Municipality, (ii) Xhariep DM in Rustenburg Local Municipality and (iii) Tlokwe Local Municipality. The participants from these three municipalities were randomly selected. These selected municipalities represent most of the NW corners since they represent three out of four districts found in the province, the Ngaka Modiri Molema, Bojanala Platinum and Dr Kenneth Kaunda district municipality. Two members of the government that are administrators of public ICTs public from each local municipality were randomly selected and subjected to interview. In-depth details on sampling is provided in chapter three.

The participants who responded to the questionnaire were at least 16 to 75 years of age. This was to ensure all participants are citizens who are at least be in high school or have passed high school level, where they were introduced to basic ICT use skills.

1.11 Definition of concept according to the study

Public ICTs – These technological systems are designed so that information can be at the citizens' disposal at all times (Anon 2015). Public information systems exist in the public sector and in the private sector and these systems are easily accessible to the public. For the purpose of this study the focus will be on the following public ICTs which can be used to empower and enhance citizens' participation: MPPCC, Wi-Fi Hotspots, telecentres, Citizens' post office (CPO), public libraries as well as Personal Information Terminals (PITSI), cyber labs and cell phones.

Empowerment – According to (World Development Report 2000-2001) this is the process of increasing the capacity of individuals or groups to make choices and to transform those choices into desired actions and outcomes. The empowering of citizens plays a pivotal role in the eradication of poverty and may result in creating decent job opportunities for citizens. The study of empowerment means to have or take more control over certain aspects of one's life. The prerequisites include appropriate structure, procedure and protocols which are put in place to act as a catalyst that empowers citizens regarding: political, health, agricultural and educational empowerment.

Enhancement- In this study enhancement refers to the increase of citizens that are utilizing public ICTs thus increasing the number of those that take part in education, health, agriculture

and politics. When the number of citizens that use public ICTs increase, there will be a greater chance that the citizens will be empowered.

Participation – Refers to the action of taking part in something. Participation is the principal to citizens that is discussed both as a privilege and an obligation. According to (Carter & Belangar 2005) it generally concerns voluntary or pressured participation in local, state and national issues which include governmental decision making where public ICTs are used to convey the communicate to the citizens. In this study, participation refers to privilege or the willingness of citizens to use public ICTs in order to take part in educational, health, agricultural and political activities thus empowering them.

Citizens - These are people who legally belong to a country and have the rights and protection of that country, basically, it is a person who lives in a particular place (Svensson 2010). For the purpose of this study, citizens refers to the residents of the following selected municipalities in the North West Province (i) Mahikeng Local Municipality, (ii) Xhariep DM in Rustenburg Local Municipality and (iii) Tlokwe Local Municipality.

In the last two decades the world at large has witnessed improvement in the implementation of public ICTs by national and local governments to meet citizens' demands (Gillwald *et.al* 2012). Evidence from numerous public ICTs projects and initiatives worldwide show that well used public ICTs by the citizens offer new possibilities for improved governance efficiency, that leads to empowerment and enhancement of participation (Yang and Kang 2015). The study that was conducted by Acılar (2011) added that new ways of citizens' engagement and their more active participation in policy-making, resulting in re-building of trust and transformation of relations between governments and their citizens.

12 Provisional Chapter Outline

This study consists of five chapters, starting with the first chapter which introduces the study, this chapter explains in detail the purpose of the study and how the study was carried out. Following the first chapter is chapter two entitled Literature Review, chapter two reviews literature and attempts to merge concepts of the study into a clear theme that provides a theoretical premise.

This chapter is then followed by chapter three which is Data and Methodology, this chapter discusses in detail the research design and methods as well as the data acquisition and analysis

methods. Chapter four then follows which is Results and Analysis, chapter four present the research results analysis and discussions. The last chapter is the Conclusion and Recommendations which concludes the study and makes recommendations.

Chapter Two

Public ICTs to empower and enhance participation of citizens

2.1 Introduction

This chapter begins by describing concepts of interest according to or in relation to the study. It then explains the theoretical grounding of the study, paying more attention to the translation phase of the Actor Network Theory. Once the theory has been explained, which is the pillar to the study; it will further be related to the study which will be done by applying the research context. From then on, the research context and the public ICTs under study are explained. The empowerment and enhancement of the citizens' participation will also be elaborated.

The chapter will also touch on the background of public ICTs in South Africa and how they can be used to empower and enhance citizens' participation. Since this study will follow the ANT concept, all the actors, their roles and the networks that are involved in the use of public ICTs to empower and enhance citizens' participation will then be explained.

2.2 Theoretical Foundation

This section is divided into two subsections. The first subsection covers the ANT concept and the sociology of translation in particular. This is followed by the section that relates ANT to this study.

2.2.1 Actor- Network Theory (ANT)

To understand a little more about our study, the study provides a short overview of the ANT concept. It is referred to as recognizing the virtually overwhelming limitations of summarizing an over growing and ever-changing body of ideas. In this short summary of ANT, there will be close analysis of the translation phase of this theory. The objective of this section is to provide a brief overview of ANT and also demonstrate its applicability to this study.

ANT is taken from the study of sociology science. The idea was taken from (MacKenzie and Wajcman 1985), who argued that separation amongst non-humans and humans is irrelevant for understanding the world of human interactions. According to Law (2009), ANT is a theoretical

framework which describes the world as a network of mixture (social and technological) actants. As summarized in table1.1 (Roles of the actors in a network) and figure 1.1(The network), the idea of ANT involves actors or actants, where both non-human and human beings are perceived equally as actors. This makes it possible to analyze both technology and humans using the same tool.

Actor Network is a process of heterogeneous engineering whereby bits and pieces derived from social, conceptual and textual are fitted all together (Calloon 1986). Walsham (1997) adds by saying it is a network of aligned interest including organisation, people and standards.

Table 2.1 Summary of Actor Network theory (adopted from (Walsham 1997))

Actor (or actant)	Both non-human such as technological artefacts and human beings as actors
Actor-Network	Various network of aligned interest, including people, organization and standards
Enrolment and Translation	Creating a body of allies, non-human and human, through a process of translating their interest to be aligned with the actor-network
Delegates and Inscription	Delegates are actors who “stand in and speak for “ particular viewpoints which have been inscribed in them ,eg software as frozen organizational discourse
Irreversibility	The degree to which it is subsequently impossible to go back to a point where alternative possibilities exists
Black Box	A frozen network element, often with properties of irreversibility
Immutable mobile	Network element with strong properties of irreversibility and effects which transcend time and place, e.g. software standards

2.2.2 Translation Phase

The translation phase is one the most important phases of ANT, as it is the phase that creates a bond of allies amongst non-human and human beings within the ANT framework.

The translation process can enhance a deeper understating of relationships or interplay between various actors in this study. This can be done by assessing details of all strategies through which

an actor identifies other actors and arranges them in relation to each other. This process requires us to be able to understand how actor networks are created. The translation process has four phases which are not sequential and can be overlapped. These phases are: problematization, interssement, enrolment and mobilization.

In the *problematization* phase, various actors define their challenges and objectives that need to be resolved. In this phase of the process the focal actor defines identic and the interests of other actors that are consistent with its own interest then establishes itself as an obligatory passage point (OPP). OPP is defined as a situation that has to take place in order for all actors to satisfy the interest that have been attributed to them by the focal actor (Callon 1986). Other actors are then approached to join in solving the problem through the forming of an alliance.

In the *interssement* phase actors convene around an issue in order to strengthen their determination towards moving through the OPP (Rhodes 2009). The focal actor seeks physical action and negotiations to define and coordinate the role of other actors. The device helps create a favourable balance of power for all the groups involved and connects the actors in order for them to enrol in the network.

The *enrolment* phase, which is also known as successful enrolment, is dependent on the negotiation and consolidation amongst actors during the intersegment phase (Callon 1986). Therefore, enrolment is a group of actors that has different interests and negotiations amongst them and they synthesize their interest with the common goal.

In the *mobilization* phase the focal actor seeks to ensure that commitment to the problematic course of action is maintained and it also ensures that the OPP's position continues. The focal actor is accepted and it acts as the main voice which speaks on behalf of all the actors in the network.

Looking at the nature of the mixed method of the research approach and the involvement of different identified actors in the use of public ICTs to empower and enhance citizens' participation, this study uses ANT as a theoretical lens. This is because this theory can provide a lens for more understanding of the actors in the network and how they can work together to achieve a goal.

Table 2.2. Four phases of translation process (Callon 1986)

Problematization	What is the problem that needs to be solved? Who are the relevant actors?
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	Forming obligatory passage point.
Interssement	After identifying the relevant actors and forming the OPP, getting the actors interested and negotiating the role and terms of their involvement. Establishing a device to make power balance.
Enrolment	Actors accept the role that has been defined for them during intersegment.
Mobilization	This phase investigates whether the delegate actors in the network adequately represent the masses.

2.3 Research Context

The aim of the study is to place public ICTs as an artefact that can be used to empower and enhance citizens' participation. With the intended aim there was a need to identify an actor or participants and understand the network because the empowering and enhancement of citizens' participation is not an overnight thing but a process that requires different participants or stakeholders to take part. The research identified 6 actors which form the network for the study, see Figure 1.1 in chapter one. The explanation that follows scrutinises the translation process in relation to this study.

- **Problematization**

The problem that needs to be solved is how public ICTs can be utilized as an artefact that can be used to empower and enhance citizens' participation? The relevant actors for the study were identified to be: government, technology, information, public ICTs centres, citizens and the environment. OPP formation, as explained previously, is a state that has to exist for all actors to attain their interest as defined by the focal actor and is a contact point to connect all actors that are involved in the network. Certain municipalities were chosen as the OPP for this study since they control the resources needed to achieve the goal of all actors (Rhodes 2009).

- **Interssement**

After all the relevant actors have been identified and the OPP has been formed, all actors in the network have to work together to ensure that citizens are empowered and their participation through the use of public ICTs is also enhanced. Government, technology, information, public ICTs, citizens and the environment must all know their roles in the network. The government as a focal actor has to establish a device or a mechanism that balances power among actors because in ANT all actors must be viewed and treated equally.

- **Enrolment**

All actors must accept the roles given to them so that the goal can be achieved. Government, technology, information, public ICTs, citizens and the environmental actors have to accept their roles.

- **Mobilization**

Municipality, as an OPP, must ensure that all actors in the network equally represent the masses and they are all working towards achieving the goal.

In summary the actor networking mixes non-humans and human beings with inscriptions of all types. It can be understood through the study of translation operations, which describes the mutual definitions of relevant actors in their intended circulation. In this type of network it is clear that the behaviour of an actor is not fixed, it changes with the state of the network, which is also the product of a previous action.

The following are the research questions of the study:

1. How can public ICTs best be used by citizens to gain empowerment?
2. What measures are in place to bring awareness to citizens regarding public ICTs?
3. To what extent does the government utilize public ICTs to gain public inclusion?

These are the questions that the study aims to provide answers to, with ANT being the pillar of the study. These research questions are derived from the research objectives which produce a very important question: How can public ICTs be used effectively to empower and enhance citizens' participation?

In order to completely answer the question, it is important to understand all stakeholders or the actors involved in the network because these actors are the ones that communicate directly to the aim of the study, which is to place the use of public ICTs as an artefact that can empower and enhance citizens' participation. In the light of the characteristics of an interpretive study that will be discussed in chapter 3 of this dissertation, it seems appropriate that an interpretive epistemology should be adopted in this study from the perspective of the actor network theory.

The justification for using ANT as the pillar of this study is based on the fact that it provides a theoretical concept in a form of viewing elements in the real world, at the same time it suggests

how these elements need to be traced and it is concerned with the investigation of social and technical issues of technology.

From the description of the above concept, it is clear that Public ICTs empowerment, enhancement and participation are very important. In order for all the actors in the network to have achieved the objective, the use of public ICTs should empower and enhance citizens' participation.

The following table shows the public ICTs in which the study focuses on and how they can empower and enhance citizens' participation.

Table 2. 3. Public ICTs to empower and enhance citizens' participation

Public ICTs	Empowerment	Enhancement	Participation
Telecentres	Promote self-employment Enables the citizens to online courses	Enhance access to ICTs and the internet in places where individual access to ICTs is unavailable or unaffordable (Colle & Roman 2001)	Enable the community to participate in a lots of things like: education and politics
Public Libraries	Provide the citizens with information regarding the current affairs of their cities	Equip the community in order for them to be able to find, evaluate and even use information	The community can vote, learn more about their own history through books. Also enables citizen linkage.
Multi-Purpose Community Centres(MPCCs)	They increase accessibility for citizens to government service and information	Enable the community to access relevant information more especially the one that is provide by the government	They improve communication between the citizens and the government (Conradie <i>et.al</i> 2003)
Cyber-labs	They educate citizens in the use of opportunities presented by the internet	Cyber-Labs enable government agencies and the community at large to connect technologically at a universal level, improve education & security. Health sector: Tracking a patient's sample from the initial order and collection to arrival in the lab, processing of specified tests, review of test results, and posting to the patient's record to generate a clinical report.	Cyber-labs can be used in community schools to combat illiteracy: open source software such as open office and educational software.
Personal Information Terminals (PITs)	Provide information on various courses from different education institutions	The internet give users access to create their own email accounts	Provide business services, allowing for the selection of advertised businesses goods and services
Department of Communication Web Internet Laboratories	To enable human resources development at historically disadvantaged learning institutions,	Emphasise skills development through the use of public	They provide local or community businesses with skills to create their business websites and the community at large can improve

(DoCWILs)	thus empowering the citizens (Roodt and Conradie 2003).	information communication technologies (ICTs) in areas such as network management, creating websites, use of e-mail and the World Wide Web, multimedia applications and intranet development (Roodt and Conradie 2003).	communication by learning how to create and use e-mail accounts.
Wi-Fi	The use of Wi-Fi in Communities, local governments, non-profit organizations, and development agencies empower them to collaborate in creating locally-appropriate communication tools.	Enables access to internet using ICT gadgets anytime and everywhere	Allows citizens to participate or have access to information on their own personal gadgets.
Cell Phones	They empower people to connect to anyone around the globe.	Enables the citizens to call, text, find information and entertain	Allows citizens to improve communication with fellow community members.

As it was explained previously, ANT is a theory that works with a network that is made up of actors that have to work together to achieve a certain goal or objective. The objective of all the public ICTs that are mentioned in the table above is to empower and enhance citizens' participation. All the actors must have clear roles that they must execute within the network.

2.4 The role of government, municipality and citizens

ANT emphasizes that the actors in a network are related to each other therefore no actor can exist in isolation, be it human or none human. This network enables the achievement of a goal and in this case it's the use of public ICTs to empower and enhance citizens' participation. In chapter one it was mentioned that government, citizens, information, public ICTs, environment and technology are major actors in the network for the use of public ICTs to enhance and empower citizens' participation.

The diagram that follows zooms into the three most vital actors in this network. Of the three actors, municipality is added as the fourth actor so that the relationship between the actor and the other actors and their roles can be explained in the context of municipalities in South Africa which form part of the government. The actors are government, municipality, public ICTs and citizens.

Government's Role: Government, being the main financial provider of public ICTs to the citizens in South Africa, establishes the initiative to building public ICTs for the citizens. The role then of the government will be to establish the legal and institutional framework, start-up

pilot projects and develop national or regional support (Wellenius 2003). The government reduces its roles at a support function, this is done by giving full responsibilities to the municipalities.

Municipality's role: The municipality is tasked with the role of implementation and regulatory responsibilities. Since municipalities deal directly with the citizens, it is their responsibility to make sure that public ICTs empower and enhances citizens' participation. This will also make them responsible for providing training and support to the citizens thus ensuring that these public ICT centers are fully functional.

Citizens' role: Citizens are the reasons why public ICTs exist. This is because they are the main users of public ICTs. According to Kingston (2002). Citizens use public ICTs to keep themselves informed and knowing what is happening around the world so that they can become active participants in changing their lives for the better.

As actors in a network; government, municipality and citizens have to work together. None of the three actors should abandon their duties as this might lead to the network not being fully & effectively functional. The diagram that follows diagrammatically demonstrates how each of these three actors connect to each other in fulfilling the use of public ICTs to empower and enhance citizens' participation.

Public ICTs' role: Public ICTs are at the center of the citizens' empowerment and enhancement of their participation. The use of public ICTs is a powerful tool that can be used to empower and enhance citizens' participation in education, politics, agriculture and health (Makhaya and Roberts 2003). They adds that different public ICTs empower and enhance citizens' participation in various ways or aspects. Makhaya and Roberts (2003), further explains that public ICTs are mostly used to empower and enhance citizens' participation in education, agriculture, health and politics. Each of these sectors are explained individually and a flow diagram illustrating how the use of public ICTs can empower citizens and enhance their participation on the mentioned sectors or aspects is given below.

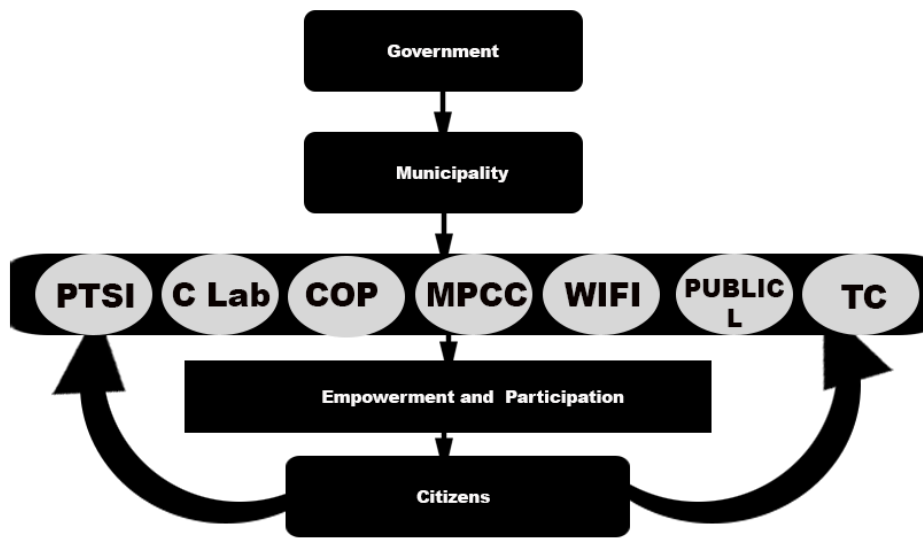


Figure 2.1 Flow of interaction

Through municipality the government provides public ICTs to the citizens. These public ICTs are aimed at enhancing citizens' participation and empowering them in the: education, health, political and agricultural aspects. For the empowerment to be possible there is a need for the community to utilise these public ICTs. In order to enable citizens to participate without any hindrances, the municipality should make sure that these public ICTs are fully functional.

2.5 Public ICTs in South Africa

In South Africa the government has established and identified a number of public ICT centres which serve as an access point for both the urban and rural communities. These public ICT centres found within different municipalities function as access points on a part time and a full time basis. Some are owned by the government and some are privately owned (McNamara 2008).

Due to South Africa's historical factors and monopolistic policies, South African citizens or a significant proportion of the South African population does not have equitable access to public ICTs. In order to try and overcome this, the government has advocated for the establishment of public ICTs both in rural and urban areas through municipalities thus bridging the gap (Dlodlo 2009). In 2006 the government of South Africa launched the accelerated and shared growth initiative of South Africa (ASGISA). This group identified that participation is a major factor

that is affecting citizens' empowerment through public ICTs thus affecting economic growth (Dlodlo 2009).

In South Africa the government has a responsibility to be a donor, technology provider and ICT policymaker, to ensure that the citizens' participation is enhanced and the citizens are empowered by public ICTs which are provided for them. This has resulted in the government partially owning the ICT sector through the following departments: (i) Department of communication (ii) Department of public services and administration and (iii) Department of public enterprise. For example, the South African post office (SAPO) plays an important role in providing access points for public ICTs. The following are public ICTs that are found within different municipalities in South African.

2.5.1 Telecentres

Multi-Purpose Community Centres (MPCC) and some other public ICTs can be found in post offices. Using PITs allows the users to access the following services.

- Internet to give users access for creating their own e-mail accounts.

Educational services that provide information concerning various institutions and different courses that are offered. Moreover it gives the users a chance to apply online. The department of communications and USAASA came up with the idea of using telecentres to enhance citizens' participation through the dissemination of information and provision of internet to the citizens in South Africa. The availability of telecentres plays a huge role in citizens' empowerment because of access to the internet and some needed communication tools that citizens can use to empower themselves (Attwood et al. 2013).

Telecentres in South Africa are not only owned by the government. There are other stakeholders and organisations that have ownership for example (i) Community based organisations (CBO); (ii) Individuals; (iii) Small or Micro enterprise (SMMES); and NGOs (Attwood et al. 2013).

According to (Attwood et al. 2013) telecentres offer different kinds of services that are relevant for empowering citizens. Most of these services are easy to use thus making participation easy, for example (i) typing; (ii) computer skills training; (iii) computer service; (iv) video (DVD and CD- Rom); (vi) fax; (vii) voice telephone; (viii) photocopying and data facilities (internet and E-mails). USAASA in 2010 estimated that there is a total number of 154 telecentres which are distributed among 73 municipalities in South Africa (Attwood et al. 2013).

Out of the 154 telecentres in South Africa, the North West province has only two fully functional telecentres; namely MSC College (Klerksdorp) and Rustenburg Local Municipality (Rustenburg) this is due to the closing down of previously existing centres in the province (Stats SA 2012). According to (Stats SA 2012) 36 private telecentres which were opened between November 2001 and February 2004, of the 36, 32 telecentres had closed down by May 2005 due to various reasons.

It is challenging that most municipalities are experiencing closures of telecentres which were established for empowering citizens and this will subsequently lead to most citizens not being empowered. Due to the mentioned challenges, this study's objective is to assess the factors that lead to the closing down of some public ICTs.

2.5.2 Public Libraries

According to the South African Mathebula (2014), South Africa has more than 1800 public libraries located in different municipalities. From the 1800 public libraries only 97 of them are located in the North West province (Mathebula 2014). Out of these 97 libraries 20 public libraries have been burnt down during service delivery protests (Mathebula 2014).

A majority of these public libraries offer access to digital resources such as online catalogues and general information via internet and they play a crucial role in empowering the citizens. These libraries are seen as logical places for ICT facilities because most citizens, predominantly students, rely on obtaining information from a library since it's the hub of information (Raju 2013). In addition, Raju (2013) stress the importance of citizens' participation in discussing the roles of libraries in the community because if citizens do not participate in such discussions they might end up destroying what can empower them.

2.5.3 Multi-Purpose Community Centres (MPCCs)

These kinds of public ICTs serve as a base for local, provincial and national government. MPCCs improve communication amongst the citizens and government thus increasing participation of citizens in health, agricultural, educational and political activities (Conradie et al. 2003). According to Kangala (2003), the main aim of Multi-purpose community centres is to empower citizens. This will allow them to participate in government decisions and also have the ability to access government information, services and resources that will benefit them.

In the year 2000, the South African government came up with a plan to establish MPCCs in some municipalities. The plan was that all districts must have at least one MPCC. By 2001 there was a total of 23 MPCCs in South Africa with the North West province only having one. To date there are 71 MPCCs deployed amongst 48 municipalities (Attwood et al. 2013). MPCCs empower citizens with information using or addressing the following topics:

- Policies and programs of the government
- Information about government campaigns
- Development opportunities and how to access them
- Duties and rights of the citizens

2.5.4 Cyber-labs

E-school cyber-labs have been developed by USAASA around the country in different municipalities particularly in peri-urban, rural and under developed townships and it is mostly responsible for making sure that network points and air conditioners are installed and that there is adequate security personnel to safe guard the labs (Attwood et al. 2013).

According to (Attwood et al. 2013), Cyber-labs empower citizens through the provision of computer skills and computer literacy training and it also provides ICT services that focus on the following four areas:

- Promoting human resources development in ICT software
- Educating students in the use of opportunities provided by internet
- Providing a managed facility that enables students to understand and learn to utilise the internet and related network and software.
- Providing universal access for students under controlled circumstances and in a regulated environment.

According to Vyas-Doorgapersad (2013) a total of 186 cyber-labs are distributed amongst 101 municipalities in South Africa which is 38.6% of South African municipalities. The North West province only has 10 cyber-labs.

2.5.5 Personal Information Terminals (PITs)

In order to bridge the digital gap, there is a need to divide the provision and availability of PITs to the citizens. The department of communication and SPO launched a joint project that was aimed at ensuring the availability of PITs to citizens in urban and rural areas.

- According to Attwood et al. (2013), there are 698 PITs in total across South Africa and they are available as a customized computer touch screen internet kiosk with the aim to provide cost effective access to all internet related services. PITs can also be found or accessed in other sites like
- Government information and services (government forms and new vacancies).
- Business services for opportunities to select services and goods from advertised businesses.

2.5.6 Department of Communication Web Internet Laboratories (DoCWILs)

DoCWILs is responsible for providing internet facilities for universities and colleges in a narrowed community approach. They have shown to have enhanced citizens' participation in the provinces that have access them.

The department of communication and Telkom are the initiators of these DoCWILs, where each one of them have between 20 to 27 network computers and internet connection. However some of the provinces in South Africa do not have these DoCWILs. The total number of 10 DoCWILs is distributed over 6 provinces in South Africa.

2.6 Sectors that incorporate Public ICTs to empower and enhance citizens' participation

According to Linders (2012), public ICTs are mostly used in the educational, agricultural, health and political sectors in order to empower and enhance citizens' participation. Each of these sectors are individually explained together with the role that they play in empowering citizens through public ICTs.

2.6.1 Education

The Department of communication (Doc) established the electronic and communication transaction act, No.25 of 2002, with the aim of leading all ICT initiatives into enhancing the education system in South Africa; these include public ICTs in South Africa as well. With this

achieved, the plan was then to develop a five year national e-strategy system which would empower all citizens more especially in the education sector.

The Policy provides a statement for the provision and expansion of quality distance education at higher education institutions. This clearly shows that our government has placed trust in public ICTs because it promotes the increase of distance learning thus the need for the citizens to use public ICTs (Nielsen and Heffernan 2006).

Public ICTs have shown to have empowered lots of citizens around the globe, this was demonstrated by the improved and increased utility of the distance learning education system through the use of computers and internet which empowers citizens to studying online. Example, Hole-in-The-Wall training system, was initiated in India to enable people to learn with minimum human guidance (Selwyn 2003).

In South Africa, the education system is experiencing an increasing number of students who opt for distance learning in South Africa due to a variety of reasons (Mujumdar and Shantaram 2009). Public ICTs provide a point where citizens can be educated. It has also increased innovativeness in schools and increased the access of community members to adult education and literacy (Nielsen and Heffernan 2006).

Education is reflected as a key element of public ICT usage, coupled with a general perception that such services are targeted at elite members of society (Sey and Fellows 2009). Despite the fact that public ICTs can't supplant the important educator learner relationship or supplant individual direction, public ICTs are progressively being utilized as an apparatus to supplement conventional curricula and showing routines and to open new doors for aptitude preparation.

For example, ICTs are being utilized to give low cost access information and empower citizens by enabling distant learning for students in remote regions or who for different reasons cannot physically attend class; bolster research networks; give specialized and professional training, including "long lasting" training opportunities; and enhance and streamline education organization.

2.6.2 Agriculture Sector

Agriculture can be a very important stimulus for economic growth in developing countries. Public ICTs play an important role in the achievement of such; they convey agricultural information to the citizens and empower farmers with new farming skills (Swanson and Rajalahti 2010). For this reason, in South Africa, public ICTs are perceived as drivers of agricultural advancement as they are a proficient tool for reaching citizens in remote areas and improving farming.

Public ICTs can assist farmers in the North West province by empowering them with new and existing farming information that is used around the globe while enabling them to share their experiences. Public ICTs also enables farmers to maintain partnerships and open channels or links for shared learning between farmers, scientists and other stakeholders in agriculture (Nielsen and Heffernan 2006).

These other stakeholders can be citizens who are customers that participate in this sector and give farmers feedback and elaborate on customer satisfaction by sharing their experiences and satisfaction/dissatisfaction. The incorporation of public ICTs in agriculture means that farmers who are willing to learn will be trained to use advanced machinery and systems in this sector, therefore enhancing, empowering their knowledge and promoting competitiveness amongst other provinces or even other countries.

2.6.3 Health Sector

Public ICTs are progressively being utilized to empower and enhance citizens' participation and convey medicinal service benefits in the developing world, particularly to patients in remote regions where social services like healthcare administrations are rare. Ashraf, Swatman and Hanisch (2007) further proves that there is a telecentre project in Bangladesh which showed that through public ICTs, community members can be empowered: this empowerment was by gaining knowledge on basic hygiene practices.

Public ICTs in the health sector can empower citizens by providing them with information related to: service delivery, finance, governance, quality of care, the workforce and accessibility of information (Whiteside et.al 2014). This can also allow citizens to participate by giving their views or feedback. This will assist in the way in which health facilities in the North West Province can be upgraded to benefit the citizens and enable them to participate. This can also be

done by making information available in public ICTs for the citizens to access so that they can participate and be empowered (Whiteside et al. 2014).

According to Choffnes (2007), public ICTs are assuming a focal part in projects to battle HIV/AIDS, tuberculosis, jungle fever like malaria and different illnesses. Therefore there is a need to ensure that citizens participate so that they can be greatly empowered especially in remote urban and rural areas where customary (western) healthcare practises and services are rare.

2.6.4 Political Sector

A minute number of researches have concluded that access to public ICTs has facilitated civic activity. This has been achieved by the provision of both physical and informational resources, for example by providing access to meeting rooms, and assisting with voter registration etc. (Creech 2004, Ashton 2007). In some locations, public ICT users have been found to develop leadership characteristics, becoming more active in local and national politics, as well as the public access centres themselves acting as meeting grounds for civic activity (Sey and Fellows 2009). Public ICTs enable citizens to contribute their expertise and knowledge, learn and share skills with others (Ashton 2007).The Figure below demonstrate how public ICTs Empower citizens in the above explained sectors.

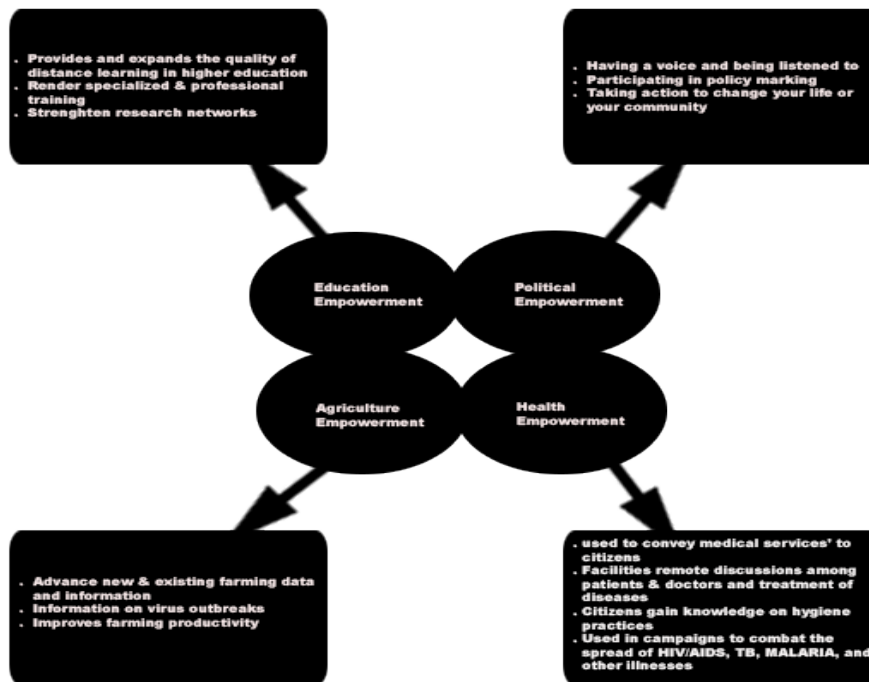


Figure 2.2 Empowerment of citizens by public ICTs

2.7 Citizens empowerment and enhancement of participation

The use of public ICTs by citizens has over the years proven to be an effective way to empower citizens and to also get them to participate in various civil matters. According to Damodaran and Olphert (2007), public ICTs play a key role in citizens' empowerment. Different public ICTs empower citizens in various ways. Public ICTs have over the years proven to have the potential to empower citizens. The following figure demonstrates roles that public ICTs play in empowering and enhancing citizens' participation.

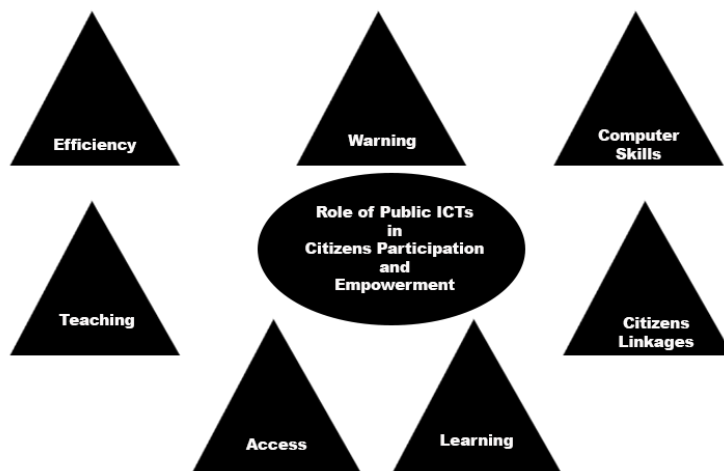


Figure 2. 3 Role of public ICTs in citizens' participation and empowerment

When public ICTs are presented to the citizens, the aim is to make sure that citizens are empowered and participate in various citizenship activities, be it political, educational, health or agricultural. When citizens participate in such activities they learn a lot therefore, they become empowered.

According to Castells (2009) public ICTs empower and enhance citizens' participation through providing access to information via the internet, they act as a linkage between citizens and other citizens as well as the government, they become a learning and teaching environment for the citizens, they provide relevant warnings regarding different disease outbreaks, they also play a major role in equipping the citizens with computer skills making citizens productive.

When these roles meet, citizens are guaranteed to participate and become empowered. Therefore, it is the responsibility of all municipalities to make sure that public ICTs play their role in enhancing citizens' participation and empowerment.

2.8 Public ICTs vision for 2020 in South Africa

After the 2009 election, the appointment of new leadership in the Ministry and Doc was heralded by the ICT industry association, the South African Communications Forum (SACF). A new era of co-operation and dialogue between the government and citizens is to set clear targets and goals for bridging the wildering information communication divine in South Africa, as well as creating sustainable jobs through the development of public ICT, aimed at coming up with strategies that can be used to ensure that public ICTs are used effectively for empowering the community and enhancing citizen participation (Kekana 2013) .When minister Sipiwe Nyanda

was delivering his Budget Vote Speech of June 2009, he launched the ICT Vision 2020 process. At this launch he also announced his intention of developing an integrated national ICT Policy Framework. This framework was to ensure that public ICTs empower and enhance citizens' participation. This ICT Vision 2020 entails:

- Providing a road map on how public ICTs can be used to empower and enhance citizens' participation.
- Developing a strategy on how citizens, municipalities and the government can work together to ensure that public ICTs do not end up being closed.
- Providing technological equipment that is user friendly to all public ICTs in South Africa

In this information age, public ICTs have become a vital tool to accessing and the distribution of information. The provision of public ICTs to the citizens has made it easy for citizens to make trades, learn new ways of doing things and stay connected as a community.

The use of public ICTs as a means to empower and enhance citizens' participation has been an important strategy that has assisted in improving circulating information by government to the citizens (Chisenga 2004). Using wireless technology and flexible access points provided by Wi-fi hot spots has created a new economic and social opportunity for the citizens. The platforms at which businesses, government and citizens communicate help them to engage in commercial activities and participate in public life which requires technological equipment and this equipment is not affordable to all citizens. But through public ICTs citizens are able to communicate, learn and engage in social and intellectual discussions.

Public ICTs in Africa are major providers of public information that relate to education, health, politics and agriculture. This has caused a radical increase in the use of ICTs as well as the increase in citizens' participation (Chisenga 2004). The Information edge and internet have changed the way in which people live. This means that many people, particularly in urban areas, now rely on internet for their daily living. This can be achieved through public ICT only if the community is participating otherwise they will fall behind with regards to their environmental knowledge because not every household owns a personal computer or has access to internet (Ashraf, Swatman and Hanisch,). This is the reason why there has been an increase in the number of citizens using public ICTs.

In this information edge the government is also using internet to communicate with the people in developing and developed countries and in most cases the information that is wildly

communicated concerns health, politics, education and agriculture. This enables the government to make use of ICTs in order to interact and communicate with one another and with citizens thus assisting them to deliver effective services (Kroukamp 2005, Mnjama and Wamukoya 2007).

The use of wireless technology is a means of empowering citizens and increasing community participation and improving the efficiency, effectiveness, operations, services delivery and accountability of government (The World Bank 2006 as fed in Singh and Sahu 2008, Kumar and Best 2006, Kroukamp 2005, Saxena 2005 and). Public ICT has evolved the information-age model of transferring information and enhancing communication that seeks to realise the structures for harnessing the potentialities of information and communication technologies (ICTs) (Saxena 2005).

As the use of public ICTs spread, they created new economic and social opportunities this has said to be achieved by rendering of platforms over which business, government and citizens can communicate, engage in commercial activities and participate in public life, for this reason platforms like public ICTs came to existence. For this reason too, public ICTs have ushered a change in the way of doing business and interacting socially in developing countries. This has caused markets to connect, linked people with each other and has allowed global coordination of economic activities, creating jobs, increasing income, facilitating trade and reducing costs that are associated with distance and time (Linders 2012).

2.9 Public ICTs policy in South Africa

The use of public ICTs is rapidly changing the manner in which citizens interact and do business. The department of Cooperative Governance (The DGoG), has been exploring ways in which public ICTs can be used to support more open and effective communication between Government and its citizens. The main interest is to better link Government with citizens as a way to advance perception about Government and its responsiveness, accountability and feedback between citizens and Government in real time.

The South African Constitution (1996), makes provision for Local Government to adopt inclusive approaches that will foster citizens' participation. Such approaches should be aimed at removing obstacles to and actively encouraging participation of citizens and civil society in matters of Local Government. In response to the challenges facing municipalities the Government has launched the "Back to Basics" programme aimed at empowering citizens and

enhancing their participation. “Back to Basics” will enable citizens to hold the municipalities accountable and measure if they are living up to their promises. Thus the use of public ICTs form a part of an artefact that will empower citizens and ensure transparency and accountability thus enhancing participation.

In October 1996 a report of a specialized communication task group was presented to the government, its responsibility was the development of policy and structural framework for the South African government information system. In this report, the establishment of the GCIS; an agency that was aimed at promoting and accelerating the development of public ICT, was introduced in order to facilitate citizens’ empowerment, enhancement and participation.

- South Africans have a right to access public information through communication services like public ICTs in order for the citizens to be active participants in the political and social life.
- Reduced digital divide
- Citizens’ economic empowerment
- Universal service access
- Citizens’ development

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This has been a guiding principle for public service in South Africa. This principle is provided for by the Act on transformation of public service delivery, (BATHOPELE, 1997). This principle also touches on public ICTs in a way that states that citizens should be regarded as customers with a need to be empowered. Therefore, this need should be provided to them.

2.10 Use of public ICTs by the citizens

According to Roman and Colle (2002), illiteracy is one of the major factors around the globe that affect the use of public ICTs by citizens, Roman and Colle further state that citizens across the globe will face limitations in using public ICTs and accessing ICT services if they are not well trained on how to use the equipment.

Colle (2005) argued that for citizens to utilize public ICTs it is important that the content of service and information offered in these public ICTs is relevant to the local context, in that way the participation of citizens will increase and so will empowerment too.

A study conducted by Njeru (2014) pointed out the importance of training citizens on how to use the equipment. They also added that it is vital to shape and maintain an infrastructure that fits citizens' needs and offers a supportive learning environment that enables participation and the empowerment of citizens.

Yusop et al. (2010), in their study claimed that the location where the public ICT is situated is very important, because it can lead to the public ICT being used or not being used. This was also supported by the study conducted by Bailey and Ngwenyama (2009), which also pointed out the importance of the location of public ICT. In this study it was pointed out that public ICTs located in urban areas are easily accessible as compared to those in rural areas.

The study conducted by Hunt (2001), suggested that most citizens do not use public ICTs because of the staff that works in these public centers. This is because some of the employees are not literate as well; therefore they cannot assist citizens when they need of help. Hunt recommended that employees and leaders in public ICTs should be trained and given technical support skill. This, according to him is because without well trained staff, citizens will not use public ICTs and this will negatively affect citizens' participation and empowerment.

According to Gomez (2012), poor quality infrastructure and the complete absence of infrastructure (such as internet and electricity) and the cost of connectivity also prevent citizens from using public ICTs.

2.11 Level to which the use of public ICTs have affected public inclusion

Public inclusion refers to an interaction between people and the government. This is by utilizing public ICTs to enhance participation and empower citizens by providing means for them to access information (Harris 2001).

Over the past decades, non-governmental organisations and governments organisations have invested a huge amount of financial resources in public ICTs with the aim of public inclusion (Gessi et al. 2007). This was done with an aim to empower and enhance citizens' participation. According to (Gil-Garcia and Martinez-Moyano 2007) public ICTs have affected public inclusion positively in a sense that citizens are now able to access information technology for free. Citizens have also received training on how to use the facilities; this training has benefited all members of the community.

According to Gomez (2012), public ICTs have closed the gap between those who are included and those who are not. He further pointed out that public ICTs have allowed citizens to get information and communicate with the government and to also communicate with each other, which results will in an increase in participation and the empowerment of citizens. (Sharma et al. 2012), adds that public inclusion also has to do with providing service delivery; this is to provide services of public interest and needs. Examples are educational information, healthcare information, agricultural information and political information.

According to Mattes (2002), South Africans are passive when it comes to citizens' involvement, however this has changed since the introduction of public ICTs; citizens find it easy to participate in various informative activities. Therefore, in South Africa, as in many developing countries public inclusion has closed the gap between the "haves" and "have-nots", because even the poor are included and can access public ICTs.

2.12 Factors that constitute to the closing down of public ICT facilities

Public ICTs provide public access to information and Communication technologies for political, health, agricultural and educational purposes. But as soon as these public ICTs are shutdown, citizens are the first to be affected, therefore the level of participation and empowerment decreases.

According to Haseloff (2005), closing down of public ICTs comes as a result of untrained staff, if the employees of certain public ICTs are unable to assist citizens in using the equipment, this alone can result in a complete shutdown of the entire center. This is because citizens will eventually stop using that public ICT (Hudson 2001).

A study conducted by Kaiser (2005), showed that not only the employees of the public ICTs but also citizens need to be trained, so that they will not depend only on the help from the staff. If citizens are not trained on how to use the equipment found in public ICTs, this may result in a decrease in the number of citizens using public ICTs which in turn may lead to shutting down that public ICT.

According to Hudson (2001), public ICTs that are located in urban areas should be accessible even after hours, because most people who live in urban areas are free during those hours. Kaiser (2005) added that in urban areas most citizens prefer using public ICTs after working hours. If this is not taken into consideration it can result in public ICTs being less effective.

Gamage and Halpin (2007), added that a lack of infrastructure and the complexity of the equipment can also lead to shutting down public ICTs. Therefore it is important that all infrastructures in public ICTs are in usable condition. According to Sawhney and Jayakar (2007), the usability of the equipment can also constitute to the shutting down of public ICTs. The equipment found in public ICT must cater for all citizens and this includes people with disabilities and older citizens.

2.13 Chapter Summary

This chapter began with explaining the concept that was used in the study, then it moved on to explain the theoretical framework (ANT) which is the pillar of this study. When explaining the theoretical framework of this study, more focus was on the translation phase because the translation phase is the one that creates a bond of allies amongst actors in the network.

Then it related the theoretical framework to the study, after this, it explained the roles and responsibilities of actors in the network. This chapter showed how each of the public ICTs that were chosen for the study can empower and enhance citizens' participation. Then the focus was on how public ICTs can empower citizens in education, agriculture, health and politics. After this it looked at public ICTs policies that exist in SA.

This chapter also critically discussed literature to find factors that constitute to the closing down of public ICT facilities, the level at which the use of public ICTs have affected public inclusion, factors that affect the use of public ICTs by citizens.

Chapter Three

Research Methodology and Design

3.1 Introduction

This chapter gives insight with respect to the research methodology and design of this study. It begins by explaining what research is. Once it is established what research is, a diagrammatic layout of this study method and design from a philosophical establishment to information acquirement is shown. Then it explains the philosophical grounding for this study. As the research continues, the research paradigm and research method that the study uses, which is a mixed method, is also explained. It then gives a highlight on the instruments that were used for the collection of data.

After data collection instruments, the population size of the study and the sample size are further explained. Lastly, the sampling method that was used to choose the number of participants for the study is also explained. This chapter is concluded with a chapter summary.

3.2 Definition of Research

Research is a precise sort of everyday thinking, a kind of thinking done on most days that achieves the formation of new information which is not thought about some time recently (Mavetera and Kroeze 2010). Moreover, research is the formation of new learning, utilizing a proper methodology to the salinification of the users of the study (Oates 2005). According to Pries-Heje et al. (2008) conducting great research means taking after a fitting appropriate methodology. In this process, the researcher discovers sufficient and proper wellsprings of information, where one appropriately records, breaks down and analyzes that information and reaches all around established inferences in light of the confirmation found. From there on, the researcher can introduce the discoveries in a worthy route as a report, journal article, meeting presentation or thesis.

According to Myers (1998), a research procedure ought to be in view of a philosophy underlying the decision of the research question(s) and research methodology of responding. The theory can likewise rely upon an individual's perspective of the world we live in and in this way about how they may investigate it (Oates 2005). Moreover Denscome (2003), said that the theory and philosophy directs the researcher into picking a proper way to deal with the examination.

In this study a research is perceived as an undertaking to investigate into and study of non-humans and humans' experience, feelings, views, behavior and perceptions in order to establish facts and derive new conclusions on their being. This is because this study follows an ANT and UTAUT as its theoretical foundation, the ANT views both non-human and human as equal without separating one from the other, while UTAUT takes into consideration diverse factors that affect the acceptance of public ICTs by citizens and the behavior thereof.

Each study has aims and objectives to give a researcher directions and boundaries, also these aims and objectives of every study states precisely what the research is aimed at. As stated in chapter one (1.3) which outlined the research aim and objectives, it is repeated in this chapter also to emphasize what the study focused on. So that what is not in the scope of the study is eliminated.

3.3 Aims and objectives of the study

Aim

This study aims to place the use of public ICTs as an artefact that can empower and enhance citizens' participation in the North West (NW) province.

Objectives

(i) To appraise public ICTs are available and their use by citizens, (ii) to identify the factors that affect the use of public ICTs by citizens (iii) to assess the level to which the use of public ICTs has affected public inclusion (iv) to identify the factors that constitute to the closing down of public ICT centers. To respond to these objectives, the following research questions were used.

Research questions

- What public ICTs are available in the municipalities and what are they used for?
- What makes it hard for citizen to use public ICTs to gain empowerment and enhance their participation?
- To what extent does the government utilize public ICTs to gain public inclusion?
- What are the factors that contribute to closure of some public ICTs centers in the province?

For the research aim, objectives and research questions to be achieved, the researcher had to use some sort of a methodology and design and the study also had to take or adhere to a research paradigm as it is explained in following diagram.

Layout of the study

There are two primary methodologies that can be connected in an examination, which can be either qualitative or quantitative. The methodology decides how the rest of the study process is structured. Fig. 3.1 shows a layout of the study methods and design from the philosophical establishing to information acquirement.

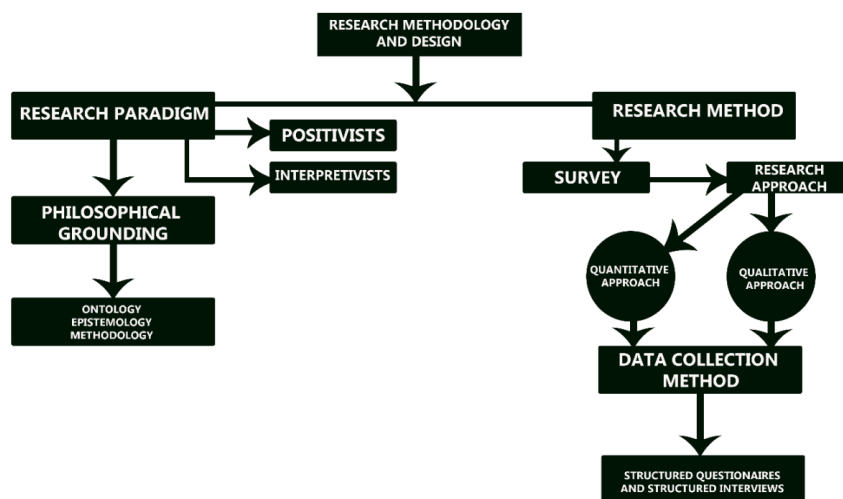


Figure 3.1 Layout of the study method and design

3.4 Philosophical grounding

According to Mavetera (2004) philosophy assumes a basic part in the social circumstances included in research and practice. According to Meyer (2001), constantly applying a philosophy prompts a definitive achievement of any resultant research. Philosophy benefits researchers and readers by being under-labor, that is, passing the ground a little and uprooting a percentage of the

garbage that lies in the method for learning (Dobson 2012). The comprehension of distinctive philosophical positions makes a difference in researchers to contend for the adequate or tolerable state of mind and picking their own particular manner of exercises (Dobson 2012).

According to Denscombe (2003), it is essential that one comprehends the researcher's paradigm(s) in a study. It ought to be additionally comprehended that these paradigms can generally be known if the fundamental suspicions or philosophical groundings about the study get to be clear to the researcher.

It is essential to know these occasionally shrouded ideas so that fitting paradigms and research methods can be chosen (Chen et al. 2010). The philosophical groundings are the bases on which the decision of paradigm(s) can be gotten from, thus the research paradigms are some of the time alluded to as philosophical paradigms (Mavetera and Kroeze 2010).

These philosophical groundings can be:

Ontology: indicates the way of actuality that is to be contemplated; it assists the researcher to comprehend what exists in the world and what can be thought about this world (Dobson 2012).

Epistemology: indicates the relationship amongst the researchers (and what can be identified (Meyer 2001).

Methodology: determines how the researcher may go about basically considering whatever he accepts can be known (Chen et al. 2010).

Table 3.1 below demonstrates the distinctions in research paradigms in view of the philosophical groundings and after that a dialog on paradigms will follow.

Table 3.1. Research Paradigms Vs Philosophy (Adapted from Burrell and Morgan 1979)

	Philosophy		
Paradigm	Ontology	Epistemology	Methodology
Positivist	+ Stable external reality + Law like	+ Objective + Detached Observer	+ Experimental + Quantitative + Hypothesis testing

Interpretive	+ Internal reality of subjective experience	+ Empathetic +Observer inter-subjectivity	+ Interactional + Interpretive + Qualitative
Critical Social	+ Socially constructed reality + Discourse	+ Suspicious, political + Observer constructing versions	+ Deconstruction + Textual analysis + Discourse analysis

Table 3.2 Research Paradigm vs Philosophy

	Philosophy		
Paradigm	Ontology	Epistemology	Methodology
Positivist	There is a single objective reality to this study	Objective Research does not form part of the study. The quantitative nature of this study focuses more on the generalization of the results.	Quantitative: The study was quantitative when it used questionnaires to collect data. Hypothesis testing
Interpretive	Reality is multiple and relative	Reality is multiple and relative The qualitative nature of the study seeks to understand a specific context in the use of	Qualitative: The study was qualitative in nature when it used interviews to collect data. Interpretive

		public ICTs by citizens	
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3.4 Research Paradigm

According to Taylor (2006), a paradigm is “a wide perspective or point of view of something”. Furthermore Weaver and Olson’s (2006), meaning of paradigm uncovers how research could be influenced and guided by a certain paradigm by expressing, “paradigms are examples of convictions and practices that direct requests inside a control by giving lenses, casings and methods through which examination is expert”. Subsequently, to elucidate the researcher’s structure of request and methodological decisions, an investigation of the paradigm received for this study is examined before any discussion on the particular methodologies used in this study.

This study used a mixed method methodology to investigate the use of public ICTs to empower citizens and enhance a citizens’ participation in the North West province or to place the use of public ICTs as an artefact to empower and enhance citizens’ participation. The utilization of both the quantitative and qualitative methodologies is important in order to incorporate the diverse parts of citizens’ participation and empowerment through public ICTs. To address the diversity and complexity of citizens’ empowerment and participation, a mixed methodology was viewed necessary.

The choice of using two paradigms was because the researcher was aiming at subjecting some participants to questionnaires. To complement what was not attained through questionnaires some participants were interviewed.

Based on the philosophical assumptions adopted, a study can be classified as positivist, interpretive and critical (Myers and Walsham 1998). As it was mentioned, this study only borrowed from two paradigms, which is positivist and interpretive. The following provide a brief description of these two paradigms.

3.4.1 Positivist

Positivist paradigm assumes that the association among humans and social reality is autonomous or independent and objective of the cause and-effect type. This paradigm has, though, been criticised in the literature on Public ICTs for its handling of organisational reality, which is

regarded as difficult and not easily projected to statistical deduction. It is also viewed as being too deeply rooted in functionalism and too concerned with causal analysis at the cost of getting close to the phenomenon being studied (Galliers 1991).

In this study, a quantitative methodology was used as an approach to collect data, which is much in line with positivist. The following provides a slight explanation of this approach which is also explained in depth later in this chapter.

This methodology shares its philosophical basis with the positivist paradigm (Weaver and Olson 2006). The positivist paradigm emerged from the philosophy recognized as logical positivism and is in light of unbending guidelines of logic, estimation, truth, absolute ideologies and predictions (Neuman 2000).

The positivist philosophy contends that there is one target reality. Hence, as an outcome, substantial research is shown just by the level of verification that can be compared to the phenomena that the study results stand for (Hope and Waterman 2003).

However, due to the inflexibility of beliefs, quantitative methodology does not have the capacity to accommodate the investigatory features of this study which deals with the social and human experiences. Because of this, a qualitative methodology was used as well.

3.4.2 Interpretive

Interpretive paradigm works under the theory that access to reality is only conceivable through social constructions like language and shared meanings. It has its philosophical base in hermeneutics and phenomenology. Walsham (1995) states that the purpose of the interpretive paradigm in Information Systems, is to create an understanding of the context of Public ICTs and the process whereby Public ICTs influence and are influenced by the context. Interpretive paradigm contributes to the research in-depth scope to address matters of influence and impact, and allows the researcher to ask questions such as ‘why’ and ‘how’ from participants (Boland 1985, Orlikowski and Baroudi 1991, Doolin 1998).

In this study a qualitative methodology was also used to compliment the shortfalls of quantitative methodology as an approach to collect data, which is much in line with interpretive. The following provides a slight explanation of a qualitative approach which is also explained in depth later in this chapter.

Qualitative methodology imparts its philosophical establishment to the interpretive paradigm which underpins the perspective that there are numerous truths and various realities. This sort of paradigm centers on the comprehensive point of view of an individual and the environment which is more harmonious with this study. Moreover, the interpretive paradigm is related more with methodological methodologies that give a chance to the voice, concerns and practices of research members to be listened to (Chen and Hirschheim 2004). Chen and Hirschheim further contends that qualitative researchers are “more worried about revealing learning about how individuals feel and think in the circumstances in which they discover themselves, than making judgments about whether those musings and sentiments are legitimate”.

Because of the complexity of this study, there is no single ideal paradigm that can tastefully manage the greater part of the obliged methodological viewpoints. In this manner, the researcher thought that it is important to consolidate the quantitative/positivist paradigm with the qualitative/interpretive paradigm. The mixing of both paradigms gives the researcher the capacity to statistically break down the investigative information whilst additionally getting direct experience of the participants or of the users and providers of public ICTs through interviews.

In addition, Mavetera and Kroeze (20010), noticed that different research paradigms have distinctive perspectives about the ways of the world (ontology) and the ways to which information is obtained (epistemology). The quality and importance of any research is essentially reflected in the research paradigms utilized and acknowledged as fitting.

3.5 Research Method

A method to a research is a general tactic used for responding to the research questions of the study (Oates 2005). Deriving from the paradigm of the study which is positivist and interpretive in nature and in that order making the study to use both quantitative which is the main focus of the study and qualitative approach which was used to cover what quantitative approach had failed to cover. Because the main focus of the study is on quantitative approach and qualitative was used to supplement the quantitative approach, the study used a Survey as the method for addressing and responding to research questions.

This method was used because from the problem statement of the study coupled with the theoretical framework, what one observes in public ICT sector, empowerment and enhancement are contributory factors for citizens that need ICTs. This is for them to get information so that

they can make informed decisions. It is due to the relationship between these main actors in a network, that there is a need to investigate further in order to answer the research question.

3.5.1 Survey Study – Introduction

According to Dillman (2000) a survey is a research method for collecting information from a selected group of people by using standardised questionnaires or interviews. A survey requires choosing the population for inclusion, pre-testing instruments, determining delivery methods, ensuring validity and analysing results.

According to Gambino and Gough (2005) a survey is any activity that collects data in an organised and methodical manner about characteristics of interest from some or all units of a population using well-defined concepts, methods and procedures, and then compiles such information into a useful summary form. A survey can be thought to consist of several interconnected steps which include: defining the objectives, choosing a survey frame, defining the sample design, designing the questionnaire, collecting and processing the data, analysing and disseminating the data and documenting the survey.

Survey research designs are procedures in quantitative study whereby the investigators administer a survey to a sample in order to describe the attitudes, behaviours, opinions or characteristics of the population.

According to Oxlund (2010) a qualitative survey is generally the study of variety in a populace and not distribution as it is the case with quantitative. Therefore this study also took a qualitative way of defining and investigating the difference in populations to find their opinion about the use of public ICTs to empower and enhance citizens' participation. This was because the researcher was trying to determine the diversity of some topic of interest within the selected municipalities and to establish meaningful variation among the population.

3.5.2 Characteristics of a Survey

The characteristics of the survey study are outlined by Survey Methods and Practices (2003) as follows:

- (i) The purpose of the survey is to produce quantitative descriptions of some aspects of the studied population; this means that the survey analysis may be primarily concerned with the relationship between variables or with projecting findings

descriptively to predefine the population. The subject of the study might be communities, organisations, groups or individuals and they might also be systems, applications or systems.

- (ii) The main way of collecting information is by asking people structured and predefined questions. The answer which might refer to some other unit of analysis or themselves constitutes the data to be analysed. The researcher used both questionnaires and interviews to ask people questions. The questionnaire used was structured and interviews were unstructured.
- (iii) Information is generally collected from about a fraction of the population under study, which is a sample that is collected in such a way that allows for the generalization of the findings to the entire population. Usually the sample is large enough to allow extensive statistical analysis. The researcher chose a sample of 334 from each municipality and two administrators of public ICTs representing the government from each municipality were also interviewed.

3.5.3 Justification for Survey study

The survey is described by Duxbury (2003) as being like an onion, with data from questionnaires similar to peeling off some outer layers of skin, but being supplemented by interviews to get to the in-depth layers. The current study as it is using both questionnaires and interviews to try and get the in-depth fillings of the participants on the use of public ICTs to enhance and empower citizens' participation, the survey is seen as a useful method to use in carrying out the study.

As the focus of my study is not a well-researched topic in the province, there was a need for the researcher to get the feelings of the citizens through questionnaires. However, as Edwards & Talbot point out that a questionnaire is useful; on the minus side they provide in depth returns. For this reason, interviews were needed to complement the questionnaire and provide in-depth information. The survey methods accommodate both questionnaire and interviews. Surveys also help identify or measure satisfaction levels and determine specific areas of improvement. In this study the researcher found out the grievances of the citizens regarding the use of public ICTs to empower citizens, and the areas of improvement.

This study attempts to understand citizens' feelings towards the topic as well as their experiences on the use of public ICTs to empower and enhance citizens' participation. For this reason a survey is best suited as it incorporates both quantitative and qualitative approaches.

3.5.4 Stages of a Survey study

A brief description of each step follows

Formulation of the Statement of Objectives

In this phase the researcher determines what is to be included in the survey and what to exclude; what the researcher needs to know and what will be pleasant to know.

A research question is a statement that defines the phenomenon to be studied (Lee and Baskerville 2003). In this phase it is vital for the researcher to formulate questions that will enable him or her to critically assess the phenomena that is being studied in a way that allows for a sufficient way to address the problem.

Determination of the Sample Design

There are two kinds of surveys: sample surveys and census surveys. In a sample survey, data is collected for only a fraction (typically a very small fraction) of units of the population while in a census survey data is collected for all units in the population.

In this phase a researcher must be able to justify and explain the criteria they used in choosing the population target. Also at this phase the researcher must determine the data gathering and analysis techniques (Lee and Baskerville 2003).

Questionnaire Design

A questionnaire (or form) is a group or sequence of questions designed to obtain information on a subject from a respondent. Questionnaires play a central role in the data collection process since they have a major impact on data quality and influence the image that the statistical agency projects to the public. Questionnaires can either be on paper or in a computerised format. In this phase the researcher should be in a position to come up with a questionnaire that addresses the objectives of the study.

Data Collection

Data collection is the process of gathering the required information for each selected unit in the survey. The basic methods of data collection are self-enumeration, where the respondent completes the questionnaire without the assistance of an interviewer, and interviewer-assisted

(either through personal or telephone interviews). Other methods of data collection include direct observation, electronic data reporting and the use of administrative data.

Three municipalities were used to collect data with 334 citizens participating from each municipality and these participants were randomly selected and given a questionnaire to fill. Two administrators of public ICTs representing the government from each municipality were selected and subjected to a questionnaire that is supplemented by interviews as explained in (the sample).

Data Capture and Coding

After the data is collected, it is coded and, if a computer-assisted collection method was not used, it is captured. Coding is the process of assigning a numerical value to responses to facilitate data capturing and processing in general. Some questions have coded response categories on the questionnaire; others are coded after collection during a manual or automated process. Data that was collected through a questionnaire was captured into SPSS and the responses of the participants were assigned to a numerical value from one to five. Data that was collected through interviews was transcribed then analysed using inductive analysis, which is explained later in this chapter

Editing

Editing is the application of checks to identify missing, invalid or inconsistent entries that point to data records that are potentially in error. The purpose of editing is to better understand the survey processes and the survey data in order to ensure that the final survey data is complete, consistent and valid.

When data has been captured the researcher checked if the captured data is free of errors or missing values since this may have a negative impact on the results.

Data analysis

Data analysis involves summarising the data and interpreting its meaning in a way that provides clear answers to questions that initiated the survey. Data analysis should relate the survey results to the questions and issues identified by the Statement of Objectives. It is one of the most crucial steps of a survey since the quality of the analysis can substantially affect the usefulness of the whole survey.

In this study, two different approaches were used, which are quantitative (questionnaire) and qualitative approaches (unstructured interviews). For the quantitative data a statistical tool called

SPSS was used and for qualitative inductive analysis was used with a help of a software called ATLAS.ti 7.

Data Dissemination

In this phase all the analysis done in phase five was well documented in a logically structured manner with regard to the collected data. For this study the researcher formulated suggestions based on each analysis of both quantitative and qualitative data.

3.6 Research Approach

This study employed both quantitative and qualitative approaches (mixed research method), and provided responses to the following research questions: (a) what are the factors that contribute to public ICTs' closure? (b) How can public ICTs best be used by the citizens to gain empowerment? (c) What measures are in place to bring awareness to citizens regarding public ICTs? (d) To what extent does the government utilize public ICTs to gain public inclusion? This interpretive study employed interviews and questionnaires for the collection of data.

According to Mavetera (2004) there are two essential ways to deal with social research that is represented by whether one is a positivist or is hostile to positivism. For the purpose of this study a mixed method approach was used and it was taken from both the positivism and anti-positivism design, this is because quantitative and qualitative data collection methods were used including questionnaires and interviews. Both methods were be discussed in the segment that follows and there after the support of the decision of methods for this research is likewise discussed. A sequential explanatory design was used.

Furthermore a quantitative approach provided data that focuses on the objectivity of the research and it is also useful when dealing with large a sample and provided numerical analysis (Angen 2000). The role of the researcher is only limited to data collection and interpretation of the results through an objective approach. A qualitative approach is also important for this study because there is a need to understand the feelings, values and perception of the citizens that use ICT. Hence, this study employed mixed method research approach for the research design and methodology.

3.6.1 Quantitative Approach

This methodology is by large connected with precise estimation, measurable examination and numerical models (Su et al. 2003). According to Denscombe (2003), a quantitative approach is mostly concerned with the investigation of numerical information. Hodges et al. (2007), mentions that a quantitative approach manipulates variables and controls common phenomena thus making it indifferent and experimental.

The primary useful viewpoint is that it gives the means to partition out the large number of frustrating elements that regularly cloud the fundamental qualitative findings, thus permitting the report of outlined results in numerical terms to be given with a predetermined level of certainty (Abeyasekera 2005).

3.6.2 Qualitative approach

Qualitative approach includes the utilization of qualitative data, for instance, interviews, documents and part observation to understand and clear up social phenomena (Myers 1997). Reichstadt et al. (2010), characterizes it as the technique of study which delivers descriptive information, individuals' own composed or spoken words and detectable conduct. In the case of this study interviews were conducted, meaning words and sentences were recorded and qualified information regarding the use of public ICTs to empower the community and enhance its participation thus showing that the study took some attribute from the qualitative approach (Mavetera, 2012).

Additionally Reichstadt et al. (2010), characterizes a qualitative approach as a methodology that finds out what things exist as opposed to its quantity (Fitzgerald and Howcroft 1998). This is good for the study in a sense that the study also found out which public ICTs are available to citizens. Qualitative approach does not depend on quantitative estimation, scientific and mathematical models; it rather utilizes sensible conclusions to disentangle collected information dealing with the human component (Reichstadt et al. 2010).

Moreover, using the qualitative methodology gives the subject of the study an opportunity to express themselves. With a qualitative approach the researcher interacts with the participants or actors and tries to comprehend their point of interest through careful discussions and addressing, there is no restriction concerning how far the respondent or member can go in noting the inquiries (Mavetera and Kroeze 2010). According to Myers and Avison (2002), this is so that the

ground of accentuation is on communicating words and emotions as opposed to numbers, therefore there is a mixed bag of data from which a researcher can make reasoning.

3.7 Data collection methods

According to Creswell (2009), in a mixed method, the information accumulation techniques will vary, relying upon the sort of mixed method design. A supportive approach to conceptualize information accumulation amongst the design is to consider information gathering as happening simultaneously or successively. In this study, data collection occurred simultaneously, meaning quantitative and qualitative data was collected roughly at the same time, and this is because the quantitative and qualitative data are independent of each other.

3.7.1 Questionnaires

According to Gray (2009), questionnaires are research tools utilised through which people are asked to respond to the same set of questions in a determined order and should be used when they fit the objective of the study. For this study questionnaires were used and data was collected from a large number of people in different municipalities. Moreover the researcher also needs to get the users' perspective and preferences with regard to the topic.

In this study the researcher utilized a self-controlled questionnaire, which according to Fouché and Delport (2005) is given to the respondents, who then complete it themselves, however the researcher is accessible in the event that any issues may arise. This study had two different questionnaires, which is explained later in this chapter.

A structured questionnaire was administered to the sampled populates from all three municipalities. This questionnaire was the same for all municipalities and it used close ended questions. This was done in six different weeks, the participants completed the questionnaire on their own but the researcher was available in case an issue arose. Since the researcher was focusing on a large population, a structured questionnaire with single responses that is nominal was helpful and since closed ended questions were used, they were easier to code and analyse.

The participants were between the ages of 16 and 75 this was because, when one reaches the age of sixteen there able to utilise most of ICT and are already in high schools where they are taught how to find information on the internet. Before the questionnaire was distributed to the participants, the researcher firstly administered a pre-test questionnaire using a small group of participants.

Pre-testing the questionnaire

According to Dillman (2000), it is important to subject the proposed questionnaire to a pre-test, this helps the researcher to identify whether the participants will be able to understand the questions. Prior to the distribution of the questionnaire, the researcher tested the tactical reliability of the questionnaire. This was done by recruiting a small group that was used to complete the questionnaire. This group provided their input on their understanding of the questions and the ability to complete it. This was also done to find out the following:

- (i) The clarity of questions
- (ii) Any terms or words that were unfamiliar
- (iii) The actual time required to complete the questionnaire
- (iv) The flow of the questionnaire

Questionnaires

Questionnaire A

This questionnaire targeted the general public or the general citizens from all three municipalities. The questions here focused on the broad picture of the use of public ICTs to empower and enhance citizens' participation. The questions that were asked in this questionnaire were responding to research question number One, Two and Three. This questionnaire was distributed randomly to the citizens and they were given time to complete it before it was collected.

Questionnaire B

This questionnaire was directed to those participants that were also interviewed. The interviewee was given time before the interview to respond to the questionnaire. This questionnaire was aimed at responding to research questions number Two and number four which speaks to objective Two.

This questionnaire was then accompanied by the interview that started immediately when the interviewee had completed the questionnaire. Interviews responded to research question number Four and also give in-depth information on Objective number Four. The interviews also speak to objective number Three.

3.7.2 Interviews

According to Oates (2005) an interview is a specific sort of discussion between individuals that is arranged and has a plan where one individual and the researcher plan to pick up data from the other; in this case the interviewee. Interviews are regularly unstructured or as peaceful or casual dialogues (Olivier 2009). Interviews can be separated into three types, namely: structured, semi-structured and unstructured interviews. For the purpose of this study we discussed the unstructured interview, which was used to collect data.

3.7.2.1 Unstructured Interviews

According to Blumberg (2007) unstructured interviews use a pre-determined, consistent and duplicate questionnaire for every participant interviewed where an interviewer can ask follow up question. In an interview situation, the inquiries are read out and the researcher takes note of the interviewee's reactions and responses (Mavetera 2012). It is vital that all the inquiries are read out in the same way and answers are noted without remarks, in apprehension that the researcher may show their own particular perspectives to the interviewee (Bless et al. 2006). Therefore the main discussion that is admissible with these interviews is the point at which the interviewee looks for elucidation of the questions asked.

For the purpose of this study government employees who are responsible for ensuring that public ICTs get to the citizens were interviewed in each municipality. Unstructured interviews were chosen because the interview questions were designed to fit the study.

The researcher had no interest in other issues apart from those that speak to the study. Also unstructured interviews enabled the researcher to put or subject all municipalities under one scope of questions without giving any municipality an advantage or disadvantage. Thus all participants were responding to the same questions. This did not mean that if a respondent wanted to extend or explain more they were restricted. All data collected was recorded.

3.8 Population and Sample size

The population is the object of the study comprising of individuals, organisations, human product, groups and events or the situation to which they are exposed. According to Polite-O'Hara and Beck (2006) "a population is the sum of people or elements that fit the specific set of specifications of the study, which is a target population. Therefore every research problem

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relates to a specific population and population encompasses the total collection of all units of analysis about which the researcher wants to make a specific conclusion (Myers 2002).

This study focuses on public ICTs in the urban areas of the North West province as it was said in chapter one that North West province has an estimated population of 3 676 300 and out of this population most of the people have moved to urban areas. For the purpose of this study, the researcher only focused on the public ICTs that are allocated in Rustenburg, Mafikeng, Klerksdorp and Potchefstroom. This study covered three municipalities out of four that are found in the province.

3.8.1 The sample

Sampling is a practice of choosing a part of the population to represent the total population and the results or findings from the sample must represent the rest of the group (Pfeffermann and Rao 2009). Selecting a sample gives an advantage because it is less costly and time saving as opposed to gathering data from a large group of participants. Therefore it is vital that a selected sample has similar attributes to the population under study, allowing generalizability of the results to represent the entire population (Polit-O'Hara and Beck 2006). There are two types of sampling, non-probability and probability (Cochran 2007). In this study only probability sampling was used.

According to Pfeffermann and Rao (2009) a sample frame is a set of people that have a chance to be selected, given the chosen sampling approach. Hypothetically speaking, a sample can only be a representative of the population included in the sample frame for the study. The sample of this study was randomly selected which is explained below.

Random sampling

This is a sampling technique which involves a process of selecting respondents into the study, which also ensures that all members or elements of the population have an equal chance of being chosen for the study. This prevents subjectivity, biasness and allows the outcome to be generalized to the target population. This technique does not allow the researcher to intentionally exclude a certain portion of the population. To achieve this probability the sample must be chosen randomly (Coughlan et al. 2007).

Coughlan et al. (2007), Polit-O'Hara and Beck (2006), mention that it is important that the sample represent the entire population. The participants that were selected from all three municipalities were selected randomly, this random selection decreased biasness and subjectivity which allowed the results to be generalized to represent the target population.

The results that were attained at the end represent the views of all the citizens residing in that urban municipality. For this reason a probability sampling was chosen, through it, all citizens of each municipality had an equal chance of being selected as a participant; thus leading to a selected sample showing similar characteristics with the population. Since the research focused on a large population it was then vital to have a sample size that represented the entire population.

3.8.1.1 Sample size

Burns and Grove (2001) state that there is no hard or fast rule with regards to the sample size, however a sample must at least have 200 respondents. According to Polit and Beck (2006) quantitative research designs require large samples to increase repetitiveness and reduce sampling error. According to Noordzij et al. (2010), a good maximum sample size is usually 10% as long as it does not exceed 1000. This is because 1000 will normally give fairly accurate results. He further said that sampling more than 1000 people will not add much to the accuracy given extra time and money it will cost.

Due to the limited scope of this study a sample of 334 respondents from each municipality was used and two government representatives from each municipality were interviewed separately. The responses that were collected from the chosen sample was analysed so that the researcher could derive meaning from them, therefore a data analysis method that best fits what we want to achieve was chosen from many.

3.9 Data Analysis

A Statistical technique called Categorical data analysis was used to analyse quantitative data. To analyse data, responses were converted into numerical scales according to the following descriptions: Strongly agree: 5, Agree: 4, Disagree: 3, Strongly disagree: 2 and Maybe: 1. The data analysis included the calculation of the level of Chi Square test for categorical variable in questionnaire A. This was done to see if there is a relationship between variables. Since it is a

five point scale, the maximum average score would be five and the minimum possible score would be one. Inductive data analysis was used to analyse qualitative data to these analysis a software called ATLAS.ti 7 was used to help with the analysis.

3.9.1 Categorical data analysis

According to (Ullrich 2010) categorical variables represent types of data that can be divided into groups. For this study those groups may be sex, race, age group, and municipalities. The analysis of categorical data involves the use of data tables. This is a two way table that shows categorical data by counting the number of observations that fall into each group for two variables, with one divided into rows and the other divided into columns. Categorical analysis is useful in producing suitable information in a sense that it gives the researcher the correlation and regression analysis for continuous data.

Categorical data analysis was seen fit for this study in a sense that this study was studying three different municipalities. These municipalities were used to define the categories of the participants because one participant can only be a citizen to only one municipality. Also from these categories the researcher derived feelings and experiences of the citizens per municipality through the contingency table.

A contingency table represents all combination of levels of explanatory and response variables. The researcher used meanings from this table to derive the respondents view as per municipality against our variables and in this case being our questions. After the contingency table a Chi Square was used to determine whether an association between two categorical variables exists. This was done to see whether our variables influence each other.

Chi-Square is represented by the following:

H_0 : The is no association between the variables

H_1 : There exists an association between the variables

This means that we reject H_0 if the probability value is less than the significant level (0, 05) vice versa. Qualitative data was analysed using inductive analysis.

3.9.2 Inductive data analysis

Qualitative data analysis is mainly an inductive method of organizing data into categories and categorising the patterns and associations between those categories. According to McMillan and

Schumacher (2014) inductive analysis is a process by which a researcher creates and makes meaning from the collected data, which begins with specific data and ends with categories and patterns. The names of categories can come from the researcher, the participants or literature as suggested by Merriam (1998). Merriam provided the following guidelines that regulate the effectiveness of categories.

- Categories must reflect the purpose of the study. The categories surfaced and were determined as data is collected and analysed.
- Categories must be thorough. Everything that is identified as important data to the study must be placed in the same category.
- Categories must be mutually exclusive. Each unit of data only fits into one category.

In this study, all transcripts from interviews were initially coded according to emerging data themes in the data. After this, categories were established so that patterns among the themes are ascertained. By refining data in this particular way common threads emerged from the gathered data.

3.9.3 Software

The following provides information on the software that were used to analyse quantitative and qualitative data, which is SPSS (Statistical Package for Social Sciences) for quantitative and ATLAS.ti 7 was used to analyse qualitative data.

3.9.3.1 SPSS (*Statistical Package for social sciences*)

According to Carver and Nash (2011), SPSS is a Windows based software that can be utilised to perform data entry and analyses, it can also be used to create tables and graphs to explain data. They further said that SPSS is capable of handling large amounts of data. Since the study was dealing with large amount of data, SPSS was seen fit as the software to be used. However, it is not all the collected data that was analysed using SPSS. This software was used to analyse data that was collected through questionnaire A and B which is quantitative and it is the largest part of data that was collected.

In using SPSS the researcher categorized collected data then contingency table represents all combination of levels of explanatory and response variables were arrived at, after contingency tables the researcher did Chi-Square test to determine whether or not association exist between two categorical variables.

3.9.3.2 ATLAS.ti 7

ATLAS.ti 7 is a data analysis tool that is associated with qualitative data, this tool is mostly used to analyse literature or interviews, literature or data that captures the views and feelings of the participants in a study (Mavetera 2012). This study consists of six separate interviews conducted at three different municipalities. The interviews were first transcribed then they were stored inside a hermeneutic unit (HU) created in ATLAS.ti. At this stage the interviews are known as primary documents (PD). Each of the PD's was read into this software so that each unit of data only fits into one category. These assigned categories then formed a guide to compare the PD's so that a general view or opinion on particular issues can be easily identifiable.

The assigned categories were used to formulate propositions from each interviews, these propositions were the initial propositions which were later revised when all the data that was collected was grouped and fitted within the chosen categories. An iterative process is used to formulate propositions for all the cases being presented until the final propositions encompassing results from all the categories presented. Then the responsibility is on the researcher to interpret the qualitative data in a way they believe to be appropriate.

3.10 Chapter Summary

In this chapter, the research design and method were presented. This was done through the exploration of different concepts that are involved with the research design and method like paradigms, approach of the study and philosophy.

In this chapter the method that was used in this study was explained, the population was defined and the size was determined. Chapter four describes how the methodology was put into practice during the study. Moreover, it focuses on the presentation analysis and interpretation of the data that was collected from both questionnaires and interviews as described in chapter three.

Chapter Four

Results and Discussions

4.1 Introduction

This chapter gives the presentation and discussion of the data as collected through the research methodologies described in chapter three. The data collected during the study is analyzed and used to respond to the use of public ICTs to empower and enhance citizens' participation. The data was collected from questionnaires distributed to respondents from three different municipalities from the North West province, the other data was collected through interviews with government officials responsible for providing and ensuring that public ICTs are working. The Survey research method and quantitative and qualitative research approaches were used for this study. Qualitative approach was used to supplement or close that gap that the quantitative approach could not.

The presentation and discussion of data provides quantitative and qualitative evidence while responding to the four research questions asked. The problem statement states that there is limited research that has been done to research the utilization of public ICTs as an artefact that can empower and enhance citizens' participation in South Africa. As a result, public ICTs are not used fully to empower and enhance citizens' participation. Hence this study was aimed at closing that gap.

4.1.1 Link between research objectives and research questions

The following are the objectives of the study together with formulated research questions, each research question formulated is linked to one objective or speaks directly to one objective. Research question one: How can public ICTs best be used by the citizens to gain empowerment? This research question is linked to objective number one; to identify the factors that affect the use of public ICTs by citizen.

Research question two: What measures are in place to bring awareness to the citizens regarding public ICTs? This research question directly addresses objective number two; to identify the factors that affect the use of public ICTs by citizens. Research question three: To what extent does the government utilize public ICTs to gain public inclusion? This research question speaks directly to objective three; to assess the level to which the use of public ICTs has affected public inclusion.

Research question four: What are the factors that contribute to public ICTs' closure? This research question is linked to objective number four which is to; identify the factors that contribute to the closing down of public ICTs.

4.1.2 Research questions partially answered in literature

Some of the research questions were partially answered in literature, however the researcher wanted to get in-depth understanding regarding the answers that came from literature and also to contribute and build on existing literature. From literature it was clear that most citizens use public ICTs to keep themselves informed, look for jobs and do research (Roman and Colle 2002).

Linders (2012) writes that public ICTs empowers and enhances participation of citizens mostly in education, agriculture, politics and in health, this is through different services offered in in public ICTs. Also from literature it was pointed out that most of public ICTs closed down is a result of untrained personnel (Haseloff 2005).

Chapter Four provides a thorough presentation of the actual data collected from questionnaires and interviews. The data collected from the respondents is analysed to respond to the four questions asked during the study. Moreover, it discusses the measures of association and correlation between two or more variables.

4.2 Response rate

A total of 1002 questionnaires were randomly distributed among three different municipalities in North West province. The questionnaires were distributed equally among all three municipalities with each municipality receiving 334 questionnaires. Of the 1002 questionnaires distributed, 1002 were received back from the participants and all of them were usable. This represents 100 percent return rate from the quantitative data.

A total of 3 government representatives who are responsible for providing public ICTs to citizens were interviewed to get their feeling and experience on the subject from each municipality. Data that was gathered from the participants was summarized on a spreadsheet and statistics were calculated using the SPSS which is a Statistical Package for the Social Sciences. Some qualitative data was analyzed using inductive data analysis.

4.3 Demographics

This section presents the demographic of the respondents. They were asked questions about themselves regarding their Age, Gender and Municipality.

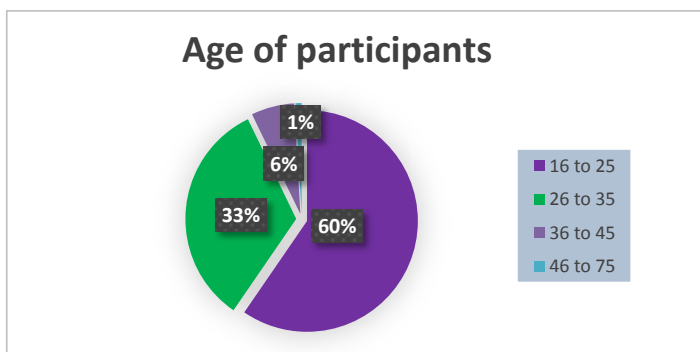


Figure 4.1 Age of the respondents

Figure 4.1 displays that of the 1002 participants that took the questionnaire, 60% of them were between the ages of 16 to 25 years, 33% were between 26 to 35 years, 6% were between 36 to 45 years and 1% of them were between the ages of 46 to 75. This indicates that the majority of public ICT users in the North West province are the youth. Figure A in Appendix A also shows the Chi-square test, since the p-value of the calculated Chi-square is greater than 0.05 we fail to

reject the null hypothesis and it can be concluded that there is no association/relationship between the variables. This means the use of public ICTs to empower and enhance citizens' participation is independent of age, therefore citizens can be empowered and participate across the given ages.

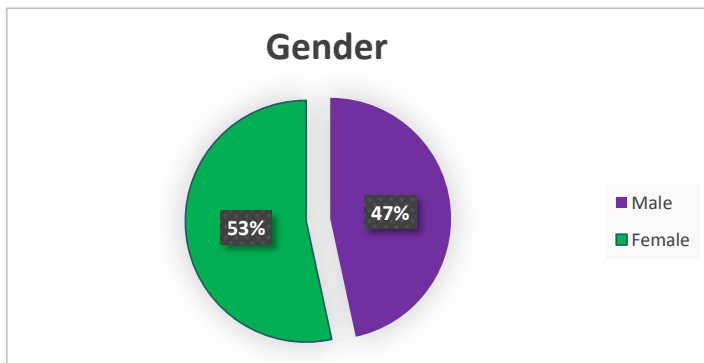


Figure 4.2 Gender of the respondents

According to Figure 4.2, of 1002 participants that took the questionnaire, 53% were females and only 47% were males. The sample breakdown is considered to be a fair representation of gender. Preference was not given to any gender. Females are slightly higher in number and this may be because of the increase in women using technology. Based on these findings the researcher can conclude that most of public ICTs users are females.

Figure B in Appendix A also shows the Chi-square test, since the p-value of the calculated Chi-square is greater than 0.05 we fail to reject the null hypothesis and it can be concluded that there is no association/relationship between the variables. This means the use of public ICTs to empower and enhance citizens' participation is independent of gender, citizens can be empowered and participate regardless of gender.

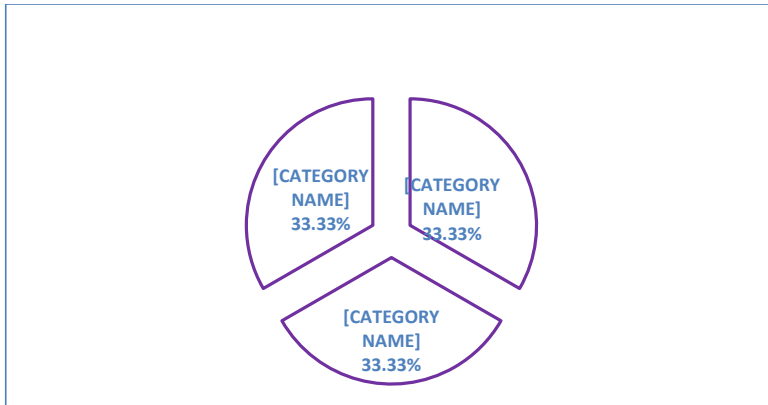


Figure 4.3 Municipality of the respondents

Figure 4.3 shows that out of 1002 participants who responded to the questionnaire 33.33% were from Tlokwe local municipality, 33.33% were from Rustenburg local and 33.33% were from Mafikeng local municipality. This demonstrates that no preference was given to any municipality.

4.4 Results of Investigation

This section presents the analysis of the actual data collected from the respondents in response to research questions. These results are from a questionnaire that was distributed among the three municipalities in the North West province. From the distributed questionnaire a 100% return rate was obtained.

4.4.1 Results according objective number one: The use of public ICTs by citizens

To respond to objective number one: Part Two A, the respondents were asked this question: Which of the following public ICTs do they use in their municipality? From all the 7 public ICTs that the study focused on, it was derived that WIFI hot spot, Telecentre, Citizens Post Office, Cell phone and Public Library are the most used public ICTs in all three municipalities. With Cyber labs and PITSI being the least used from all municipalities. As shown in figure 4.4.

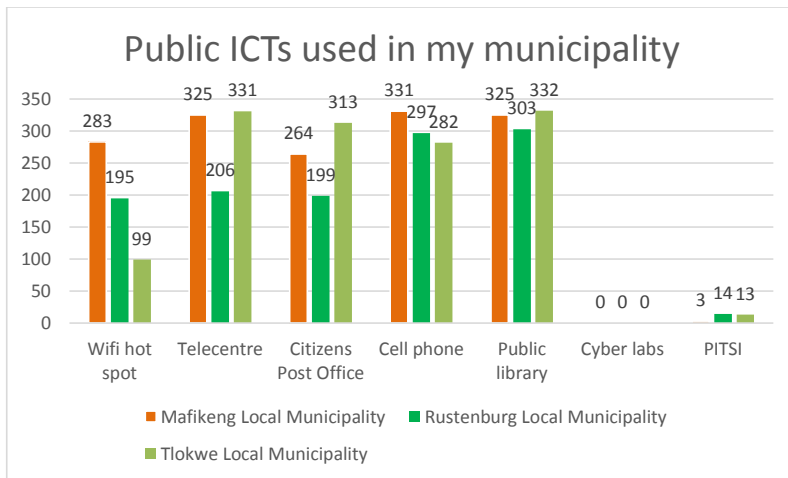


Figure 4.4 Public ICTs used in my municipality

To respond to objective number one Part Two B, the respondents were asked to indicate how they agree with the statements that were aimed at finding out what citizens use public ICTs for in their municipalities.

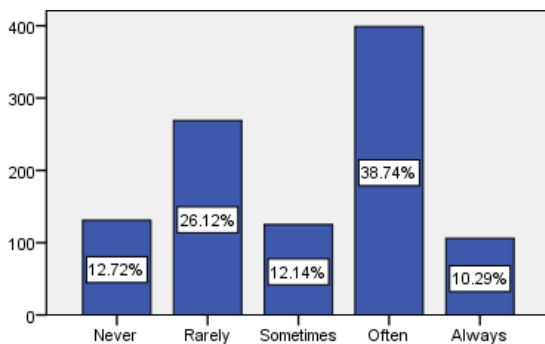


Figure 4.5 I use public ICTs to learn, improve computer skills and to develop digital literacy

Figure 4.5 presents responses regarding the use of public ICTs in all three municipalities to learn, improve computer skills and to develop digital literacy. From the above figure, majority of the respondents stated that they often use public ICTs to learn, improve computer skills and to develop digital literacy. The conclusion from these responses is that across all municipalities, citizens agree to often use public ICTs to learn, improve computer skills and to develop digital literacy.

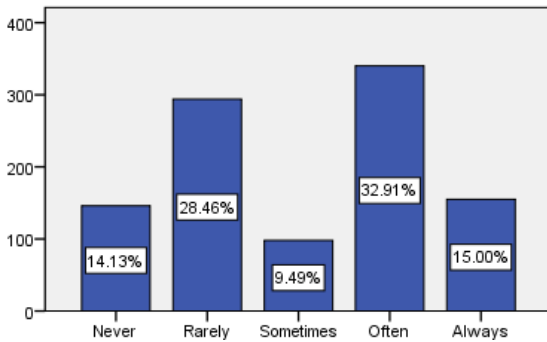


Figure 4.6 I use public ICTs to find employment online and read online news and keep better informed

Figure 4.6 presents responses regarding the use of public ICTs in all three municipalities to find employment, read news online and keep better informed. From the above figure one can conclude that citizens in these municipalities utilise public ICT to empower themselves, this is because majority said they often use public ICTs to find employment, read news online and keep better informed.

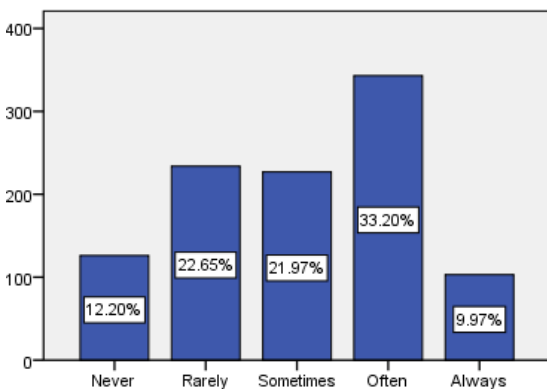


Figure 4.7 I use public ICTs to participate in politics

Figure 4.7 presents responses regarding the use of public ICTs in all three municipalities to participate in politics. The above results indicate that the availability of public ICTs to the citizens has assisted citizens to participate in politics, since the majority of respondents agree to use public ICTs to participate in politics. This is indicated by the total of 65.14% who said they sometimes or often and always use public ICTs to participate in politics.

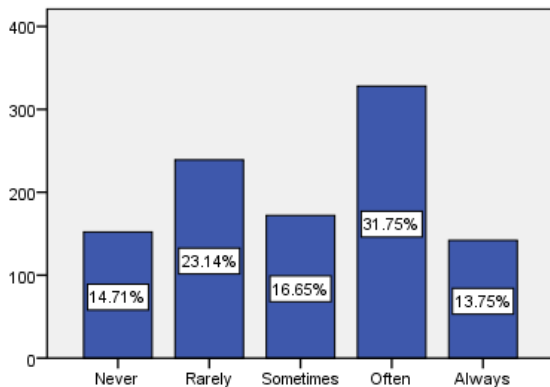


Figure 4. 8 I use public ICTs to participate in health related

Figure 4.8 presents responses regarding the use of public ICTs in all three municipalities to participate in health. Majority of the respondents say that they often use public ICTs to participate in health related activities. It can therefore be concluded that, public ICTs can be used to inform citizens about various health hazards and information. This is indicated by the total of 62.15% who said they sometimes or often and always use public ICTs to participate in health related.

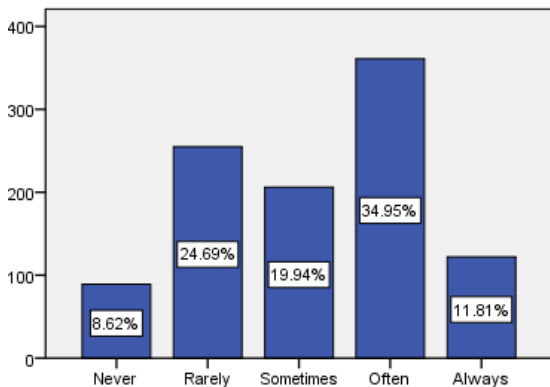


Figure 4. 9 I use public ICTs to participate in agriculture

Figure 4.9 presents responses regarding the use of public ICTs in all three municipalities to participate in agriculture. Majority of the respondents say that they often use public ICTs to participate in agricultural activities. This means that public ICTs assist in providing and empowering citizens with information regarding agriculture. This is indicated by the total of 66.7% who said they sometimes or often and always use public ICTs to participate in agriculture.

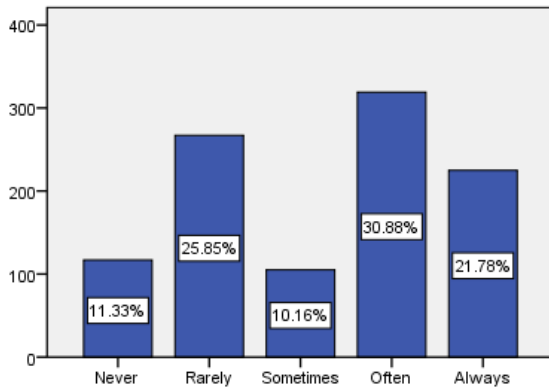


Figure 4. 10 I use public ICTs to participate in education

Figure 4.10 presents responses regarding the use of public ICTs in all three municipalities to participate in education. From the results of the above figure, majority of the respondents stated that they often or always use public ICTs to participate in education, this include to type CVs, do assignment, conduct research and access government information. Thus one can conclude that public ICTs create a platform for citizens to participate in educational activities and be empowered. This is indicated by the total of 62.82% who said they sometimes or often and always use public ICTs to participate in education.

4.4.2 Results according objective number two: To identify the factors that affects the use of public ICTs by citizens

To respond to objective two, respondents were asked to indicate their views with regard to the statements that were stated. They were to respond by stating if they Strongly agree, Agree, Neutral, Strongly disagree or Disagree with the statement.

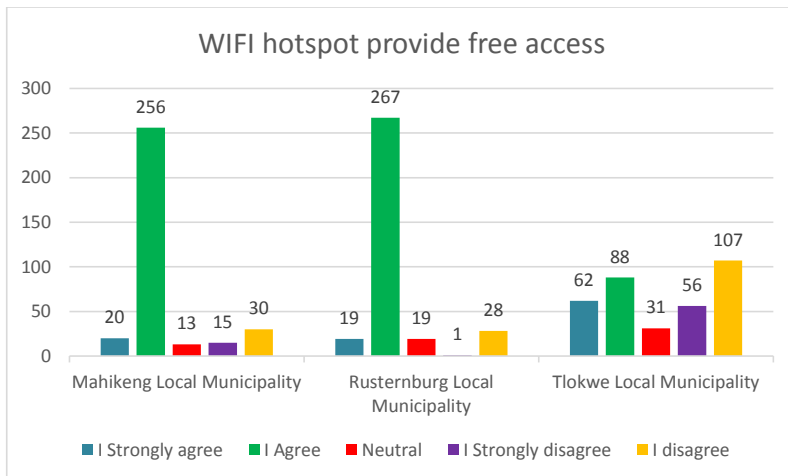


Figure 4. 11 WIFI hotspot provide free access

Figure 4.11 presents responses regarding the availability of free access to WIFI hotspots in all three municipalities. Mafikeng and Rustenburg had most participants agreeing to having free access 256 and 267 people respectively. The participants from Tlokwe municipality had the highest number of participants that disagreed with the statement, 107 people disagreed and 56 strongly disagreed. Then it can be concluded that in Tlokwe municipality citizens have to pay in order to use WIFI even when they are at WIFI hotspots.

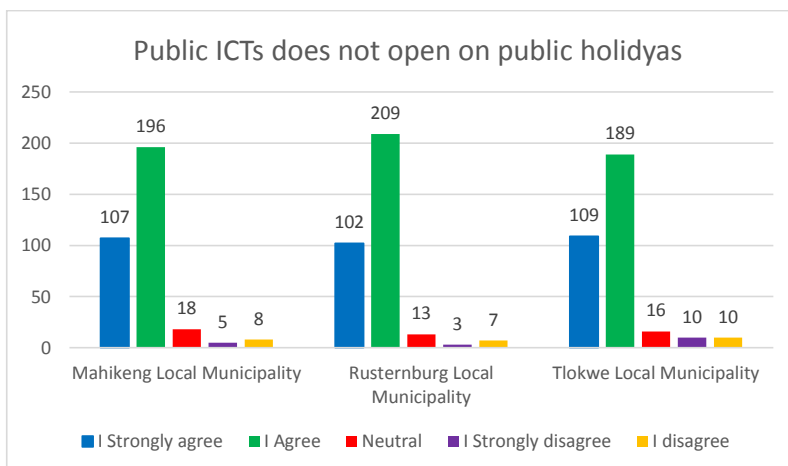


Figure 4. 12 Public ICTs does not open on public holidays

Figure 4.12 shows that out of all three municipalities, no municipality opens public ICTs after working hours. This is indicated by the majority of participants who strongly agreed and those who agreed that public ICTs in their municipalities do not open on public holidays. This means that citizens are unable to utilize public ICTs during public holidays due to the fact that, at that time they are closed. Figure C in Appendix A also shows the Chi-square test, since the p-value of the calculated Chi-square is less than 0.05 we reject the null hypothesis and conclude that there is an association/relationship between the variables. This means that public ICTs not opening on holidays have an impact on their potential use to empower and enhance citizens' participation.

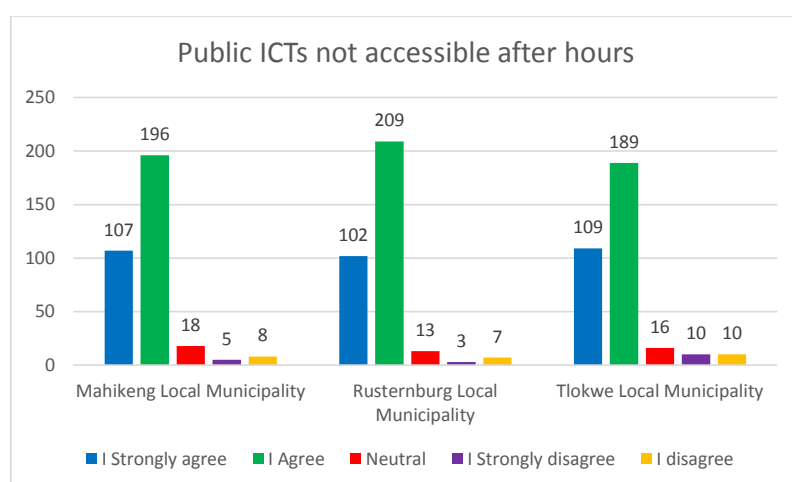


Figure 4. 13 Public ICTs not accessible after hours

According to 4.13 public ICTs in all municipalities do not open after working hours, as it is shown by the highest number of participants who agreed that public ICTs are not accessible after working hours. From these findings, it is clear that public ICTs tend to close early thus not allowing citizens an opportunity to utilize public ICTs after work. Figure D in Appendix A also shows the Chi-square test, since the p-value of the calculated Chi-square is less than 0.05 we reject the null hypothesis and conclude that there is an association/relationship between the variables. This means that public ICTs not being accessible after working hours have an impact on their potential to be used to empower and enhance citizens' participation.

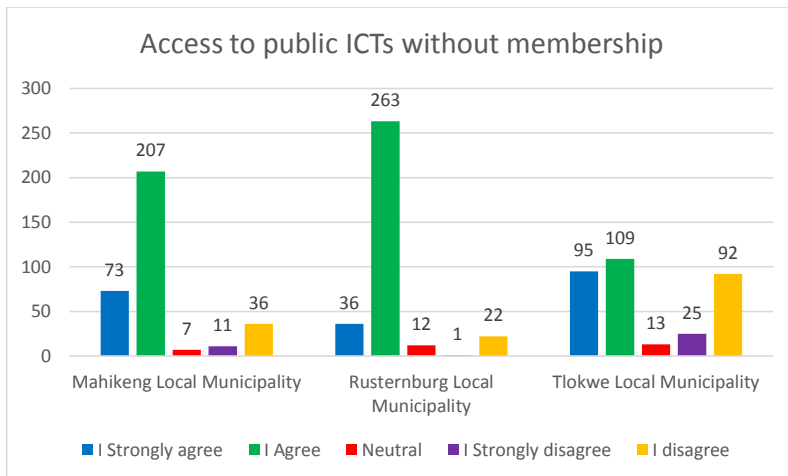


Figure 4. 14 Access to public ICTs without membership

Figure 4.14 indicate that public ICTs in the three municipalities are accessible without membership. 280 participants from Mahikeng municipality, 299 from Rustenburg municipality and 204 from Tlokwe municipality agreed that they do not need to have a membership card for them to use public ICTs. This means that all citizens are allowed to use public ICTs as they wish, nothing restricts them from using these facilities.

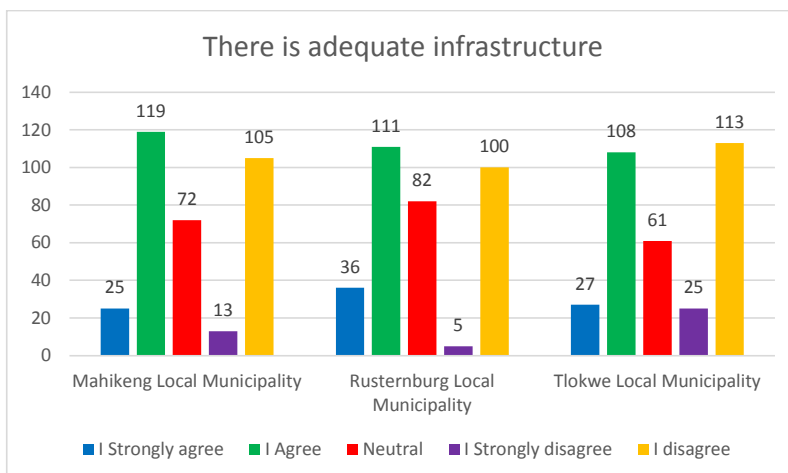


Figure 4. 15 There is adequate infrastructure

Figure 4.15 presents responses regarding the infrastructure. When participants were asked whether their public ICTs have adequate infrastructure only two municipalities agreed in majority that there is adequate infrastructure in their public ICTs. These municipalities are

Mafikeng and Rustenburg municipality with 144 and 147 participants respectively. Majority of participants from Tlokwe municipality disagreed, out of 334, 138 disagreed and 61 decided not to say anything. This means there is a need to improve infrastructure in public ICTs. This is also supported by the small difference between those who agreed and disagreed.

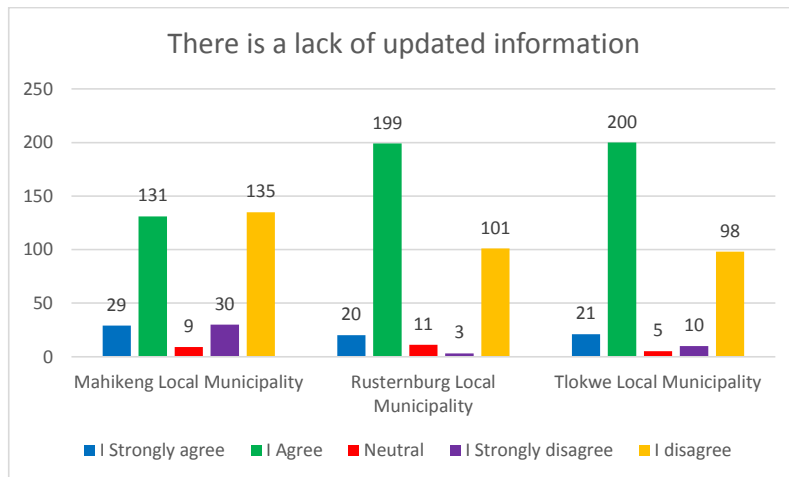


Figure 4. 16 There is a lack of updated information

According to Figure 4.16 most public ICTs in Rustenburg and Tlokwe municipality have a lack of updates when it comes to information, 219 and 221 participants respectively from the two municipalities agreed that there is a lack of updated information in their public ICTs. Only the Mafikeng municipality is shown to have updated information; this was indicated by 165 participants who did not agree with the statement that there is a lack of updated information in their public ICTs. Figure E in Appendix A also shows the Chi-square test, since the p-value of the calculated Chi-square is less than 0.05; we reject the null hypothesis and conclude that there is an association/relationship between the variables. This means that public ICTs not having updated and relevant information for citizens can affect the use of public ICTs to empower and enhance citizens' participation.

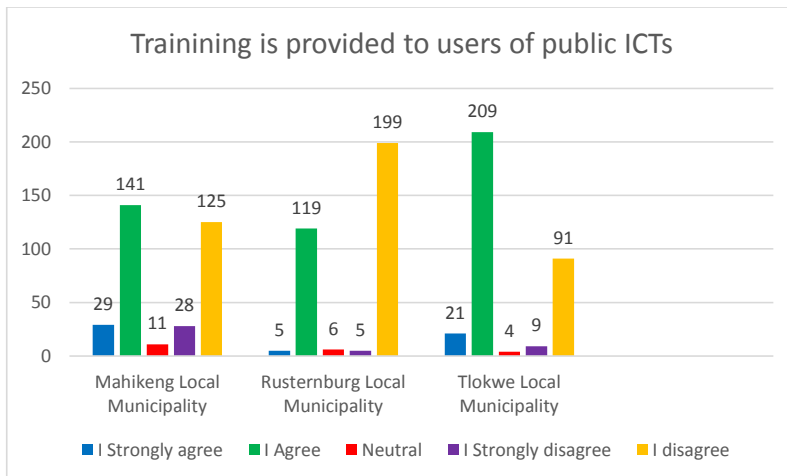


Figure 4. 17 Training is provided to users of public ICTs

Figure 4.17 presents responses regarding training of citizens on how to use facilities found in public ICTs. From this figure, Rustenburg municipality tends to lack in regard to providing training to users; 204 participants disagreed, saying that training is not provided to users. Mafikeng municipality also showed there is a small difference between those who agreed and those that disagreed with only 17 difference. It can be concluded that the government still has a long way to go to ensure that public ICTs are provided together with the necessary training for citizens. Figure F in Appendix A also shows the Chi-square test, since the p-value of the calculated Chi-square is less than 0.05 we reject the null hypothesis and conclude that there is an association/relationship between the variables. This means that it is vital to train citizens on how to use public ICTs, because the lack thereof can affect the potential of public ICTs to empower and enhance citizens' participation.

To further respond to objective number two, the respondents were also asked questions that responded to only objective number two which was to identify the factors that affect the use of public ICTs by citizens. Therefore, this section presents the results and analysis of factors viewed as affecting the use of public ICTs as confirmed by citizens.

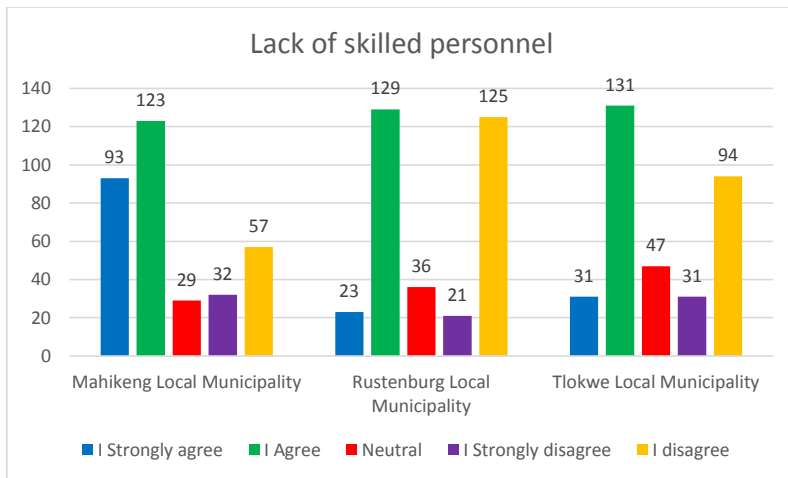


Figure 4. 18 Lack of skilled personnel

Figure 4.18 shows that out of 334 participants from each municipality, majority of them agree that the personnel put in public ICTs, lack some skills when it comes to assisting them. As shown in the above figure 216 participants from Mahikeng municipality, 215 from Rustenburg municipality and 162 from Tlokwe municipality agreed that personnel in public ICTs lack some IT skills. This is a concern because if workers who are trusted to assist citizens are not skilled, this can lead to the public ICTs closing down. Figure G in Appendix A also shows the Chi-square test, since the p-value of the calculated Chi-square is less than 0.05 we reject the null hypothesis and conclude that there is an association/relationship between the variables. This means that it is vital to have skilled personnel working in public ICTs, because the lack thereof can affect the potential of public ICTs to empower and enhance citizens' participation.

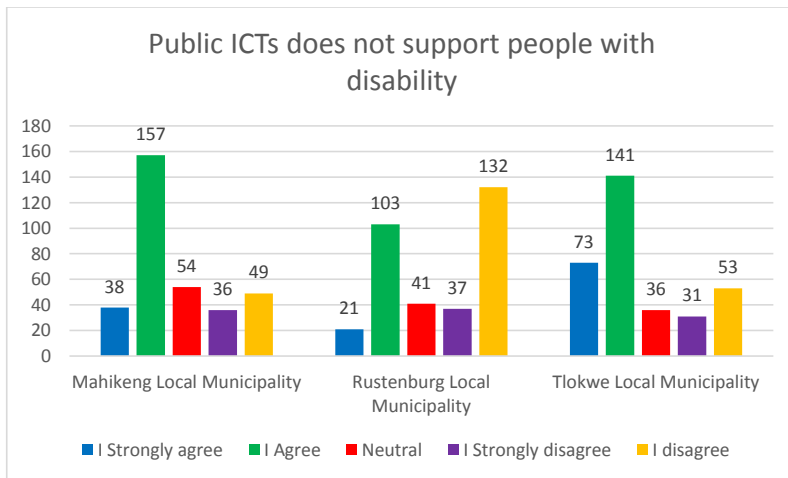


Figure 4. 19 Public ICTs does not support people with disabilities

According to Figure 4.19 people with disabilities are not supported by public ICTs and this is demonstrated by the 195 participants from Mafikeng and 235 from Tlokwe municipality who agreed with the statement. However, majority of the participants from Rustenburg municipality feel that in their municipality, public ICTs support people with different disabilities as stated by 169 participants. Figure H in Appendix A also shows the Chi-square test, since the p-value of the calculated Chi-square is less than 0.05 we reject the null hypothesis and conclude that there is an association/relationship between the variables. This means that it is vital that public ICTs support all citizens because if they do not, some citizens might not want to use them thus affecting the potential of public ICTs to empower and enhance their participation.

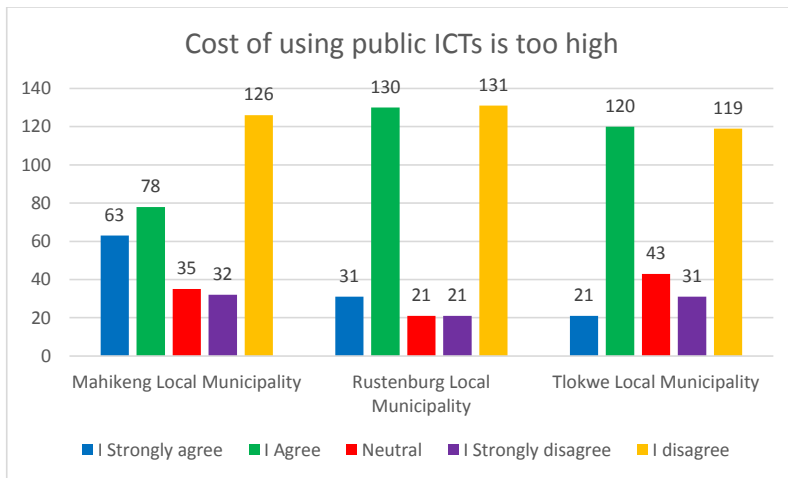


Figure 4. 20 Cost of using public ICTs is too high

Figure 4.20 shows how respondents responded when they were asked if they think the cost of using public ICTs is too high. Most of the participants from Mahikeng and Tlokwe municipality disagreed, saying that the cost of using public ICTs is not too high; with 158 and 150 participants respectively. Conversely, participants from Rustenburg municipality tended to be in support of the statement that the cost is too high and this is represented by 161 participants.

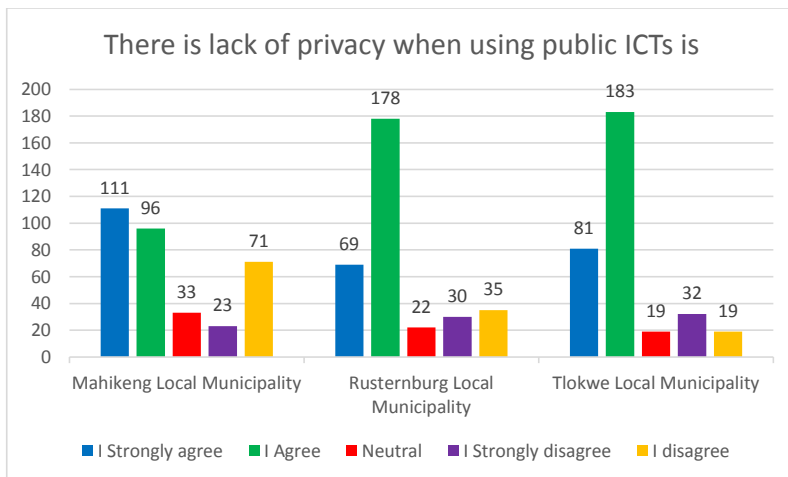


Figure 4. 21 There is a lack of privacy when using public ICTs

Figure 4.21 shows that out of 334 participants from all three municipalities, 207 from Mafikeng, 247 from Rustenburg and 264 from Tlokwe municipality agreed that there is a lack of privacy when using public ICTs. This is not good at all because as long as citizens feel as if their privacy is invaded they will not use public ICTs and this will therefore, lead to their closure.

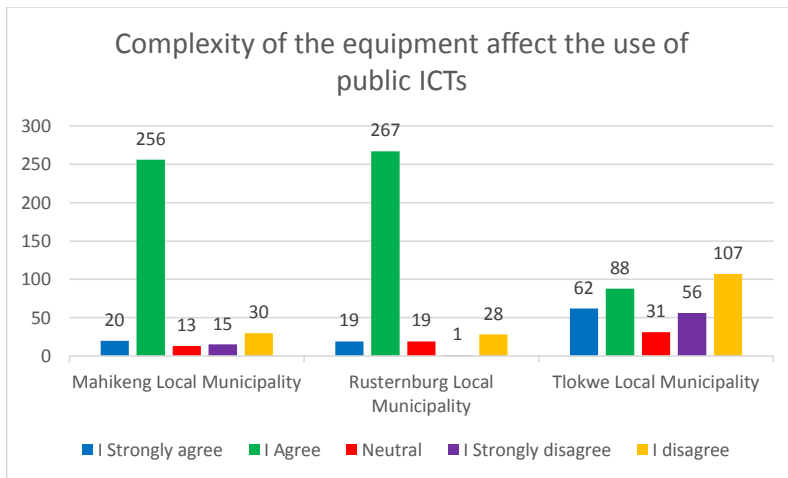


Figure 4. 22 Complexity of equipment affect the use of public ICTs

According to Figure 4.22 most participants from Mafikeng and Rustenburg, 276 and 287 respectively feel that the equipment is complex; thus the level to which they use public ICTs is negatively affected. This is a result of poor training provided to the personnel and citizens, because if citizens are trained on how to use the equipment then they will not find it complex. 163 participates from Tlokwe do not think that the complexity of the machine affects the use of public ICTs.

4.4.3 Results according objective number three: To assess the level to which the use of public ICTs has affected public inclusion.

To respond to objective number three, respondents were asked to rate how much they agreed with the provided statements.

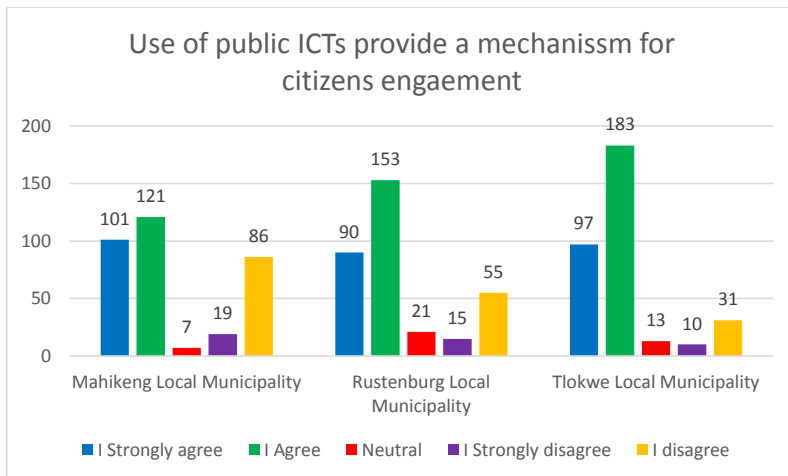


Figure 4. 23 Public ICTs provide new mechanism for citizen engagement

Figure 4.23 presents responses regarding the use of public ICTs providing new mechanisms for citizens' engagement. Majority of respondents strongly agreed as represented by 222 participants from Mafikeng, 243 participants from Rustenburg and 280 participants from Tlokwe. Therefore one can conclude that public ICTs have made it easy for citizens to engage in various things.

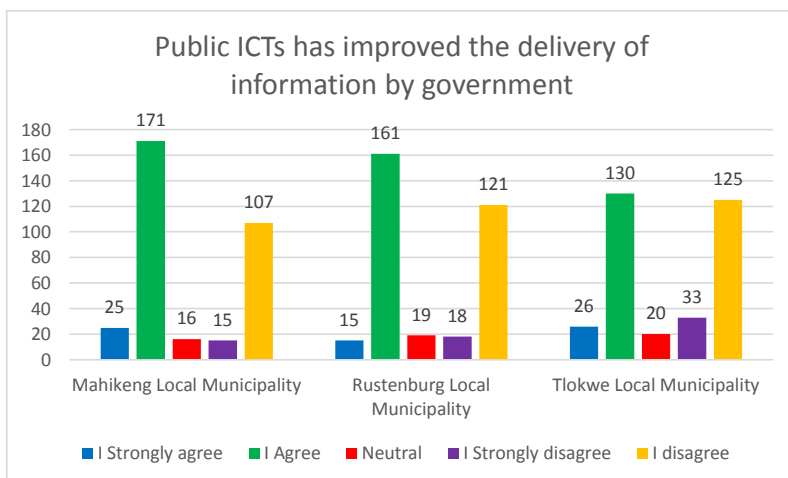


Figure 4. 24 Delivery of information by government through public ICTs

Figure 4.24 presents responses of whether the delivery of information by the government has improved using public ICTs or not. Out of 334 participants from each municipality only 196 participants from Mafikeng, 176 participants from Rustenburg and 156 participants from Tlokwe disagreed. Majority agreed that the delivery of information by government has been improved through the use of public ICTs. One can then conclude that public ICTs have enhanced information delivery by the government to the citizens. However, the small difference between

those who agreed and those that disagreed in Tlokwe municipality shows that there is still more to be done in improving the delivery of information through public ICTs.

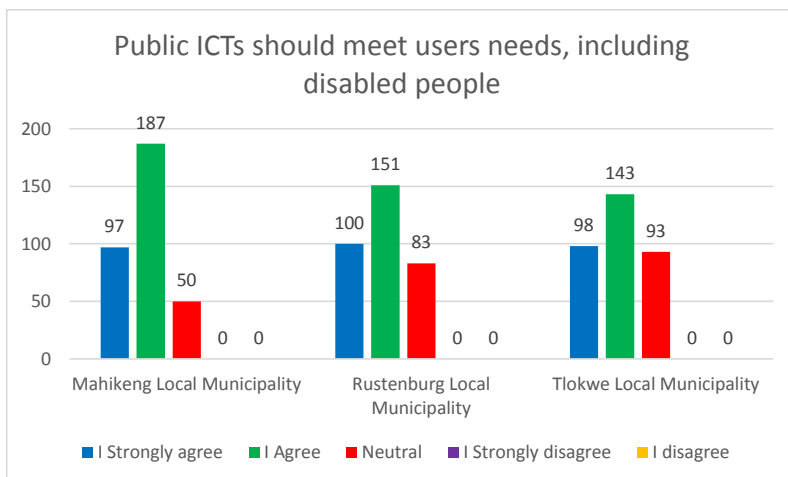


Figure 4. 25 The design of public ICTs should support people with different disabilities

Figure 4.25 represents responses regarding the design of public ICTs. From a total of 334 participants in each municipality, 287 participants from Mafikeng, 251 participants from Rustenburg and participants from Tlokwe 241 were in support of the statement. This means that majority of the participants strongly agreed that public ICTs should be designed in a simple way that is open and meets the needs of persons with disabilities and other social groups.

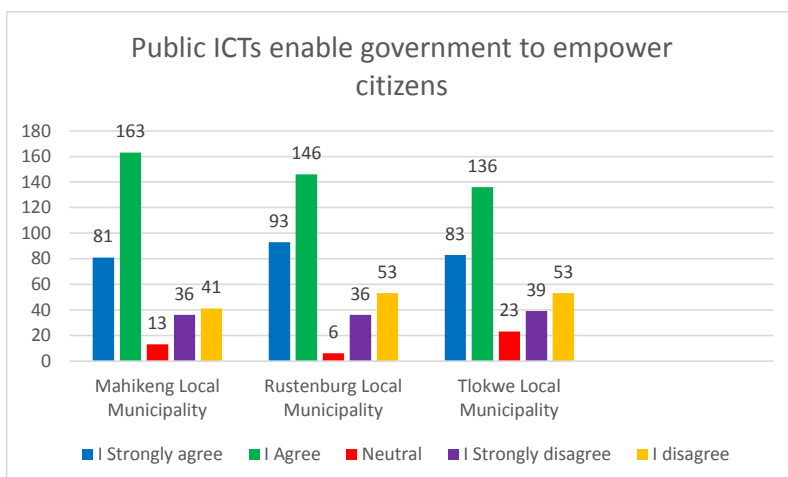


Figure 4. 26 Public ICTs enable government to empower citizens

Figure 4.26 represents responses with regards to public ICTs enabling the government to empower citizens. Majority of participants across all three municipalities agreed that public ICTs enable the government to empower citizens. Therefore, one can conclude that public ICTs play a role in citizens' empowerment. This is indicated by the 244 participants from Mafikeng, 239 participants from Rustenburg and 219 participants from Tlokwe who supported the statement.

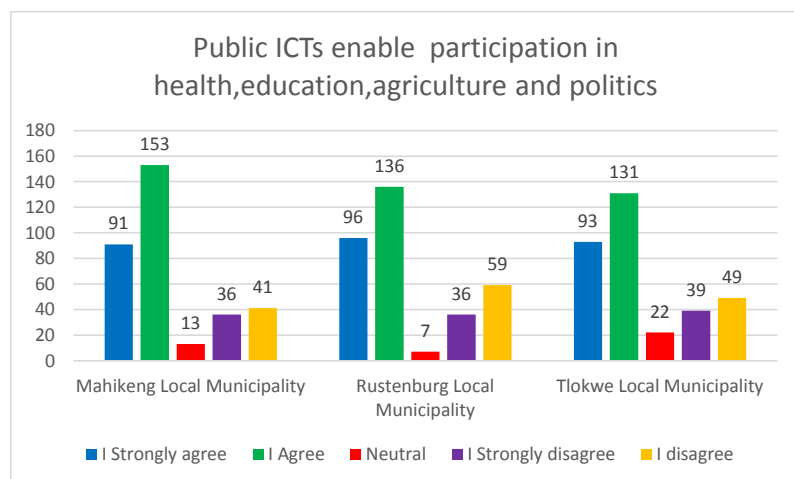


Figure 4. 27 Participation of citizens through public ICTs

Figure 4.27 represent responses with regards to public ICTs enabling citizens to participate in health, education, agriculture and politics. Majority of the participants from all three municipalities agreed that public ICTs enable them to participate. One can then conclude that public ICTs have enhanced citizens' participation in health, education, agriculture and politics, as the statement was supported by 244 participants from Mafikeng, 232 participants from Rustenburg and 224 participants from Tlokwe municipality.

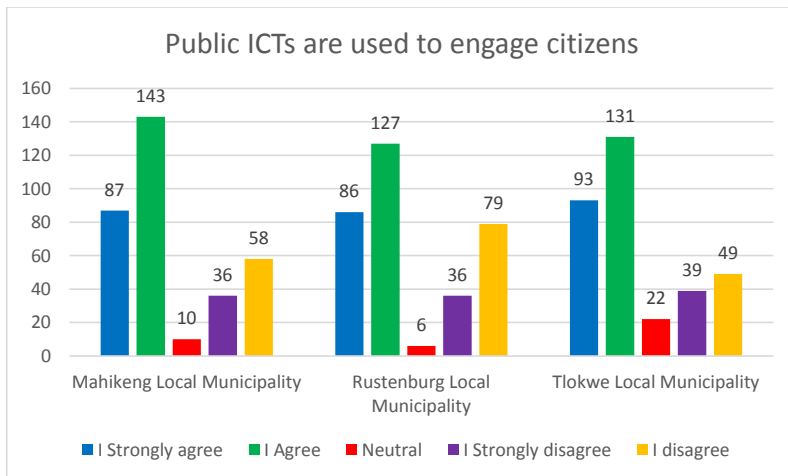


Figure 4. 28 Public ICTs used to engage citizens

Figure 4.28 represents responses that refer to public ICTs being used to engage citizens in discussions. Majority of the participants across all three municipalities agreed that public ICTs assist them to engage in discussions regarding health, education, agriculture and politics. From this figure, one can conclude that public ICTs have enhanced the link between the government and people, in a way that citizens can engage with the government regarding different matters.

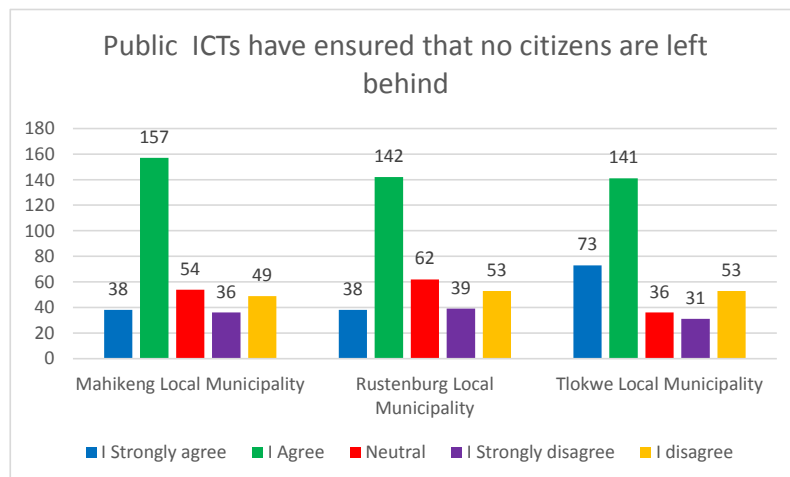


Figure 4. 29 Public ICTs for inclusion

Figure 4.29 above presents responses with regards to public ICTs ensuring that no citizens are left behind. Majority of the participants across all three municipalities agreed that public ICTs

ensure that all citizens are on the same page and no citizen is left out. One can conclude that public ICTs enhance public inclusion.

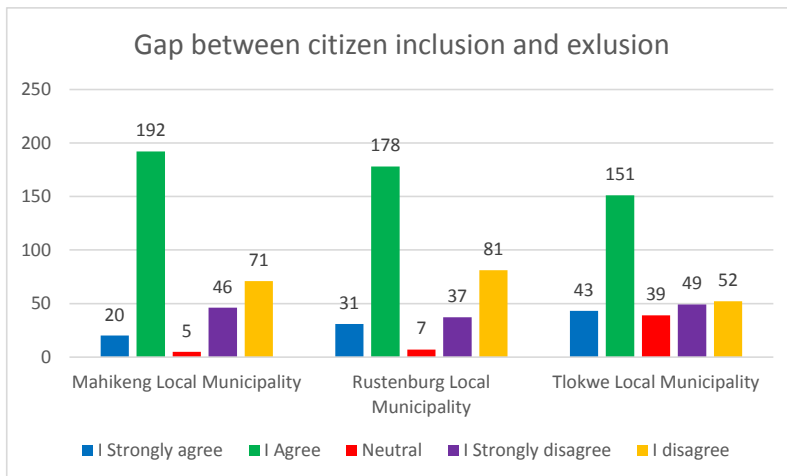


Figure 4.30 Public ICTs and citizens exclusion

Figure 4.30 above presents responses with regards to public ICTs closing the gap between citizen inclusion and exclusion. Majority of the participants from all three municipalities have agreed that indeed public ICTs have closed the gap between citizens' inclusion and exclusion. This figure confirms the findings of figure 4.29 which presides before it.

4.5 Responses according to interviewees

Unstructured interviews were used to conduct at least two interviews from each municipality that was part of this study. The interview structure allowed the researcher to lead the interview and enabling the interviewees to respond to provided questions freely. Before the interview could start the interviewees were given a questionnaire to fill. When the questionnaire was complete then the interview started.

Hence this section of the report begins with their responses to questionnaire B, which was given to them before the interview, as explained above and in the previous chapter (chapter three). Then it proceeds to the analysis of and reporting of data collected during the interview.

4.5.1 Responses according to questionnaire B

4.5.1.1 Results according objective number four: To identify the factors that constitute to the closing down of public ICT facilities

Table 4.1 Objective number four

		I Strongly agree	I Agree	Neutral	I Strongly disagree	I Disagree
1.	Citizens participate in different government or community activities	M,T	M,R,R,T			
2.	People with disabilities are catered for in public ICTs	R	M,T,			M,R,T
3.	Public ICTs have enabled citizens to participate in agriculture, health, education and politics	M,R	M,R,T,T			
4.	The current public ICTs enable citizen to participate in civic engagement	R	M,M,R,T,T			
5.	Public ICTs cater for elderly citizens		M,T			M,R,R,T
6.	Citizens do not need to be an affiliated member for them to use public ICT	M,R,R	MT,T			
7.	The government provides current information about agriculture, health, education and politics		M,M	R,T		R,T
8.	Complexity of the equipment affects public inclusion of public ICTs negatively	R,R,T	M,M,T			

M= Mafikeng Local Municipality

R= Rustenburg Local Municipality

T= Tlokwe Local Municipality

The table above represents responses according to two government representatives from each municipality that were also interviewed. Table 4.1 shows that there is still a huge concern about public ICTs catering for people with disabilities and elderly citizens. This is because the participants that took the questionnaire also pointed out the same concept. The issue of the complexity of equipment was also pointed out as an issue that affects public inclusion.

4.5.2 Responses derived from the interviews

After examining the data for meaning and analysing it, the data was assigned to the emerging categories. Some of the categories were then combined and this grouping of categories leads to only four categories. The study started off with 21 categories, as more analyses was done the categories kept decreasing until they were four categories left and the researcher could not merge the categories anymore. The categories that were arrived at are as follows: *Conditions in public ICTs, Usability of the equipment, Relevancy of information and updated information found in public ICTs last but not least Inclusion of all citizens.*

4.5.2 .1 Conditions in public ICTs

Conditions in most public ICTs in the province are in a good state for citizens to use provided that the particular user is literate. One of the participants interviewed described these conditions as follows:

In most cases, when citizens or a community member come to use public ICTs they find the equipment in a good and usable state. At some point we experience malfunctioning of some of the equipment and we have to wait for long periods to get a technician to fix it. When this happens citizens become impatient ... (Administrator).

4.5.2.1.1 Proposition

It will be best for each public ICTs to have at least one technician who is always on standby, this technician will deal with the matters of malfunctioning of the equipment or software's as they arise. This will decrease the period in which the citizens have to wait until a certain machine or software is back to its functional form.

4.5.2 .2 Usability of the equipment

Technological equipment in public ICTs is a bit complex for some users to use without assistance. For this reason there are employees who assist in that regard. Three of the participants described the usability of the equipment:

The equipment that our government provides is sometimes complex, but our employees are trained, so that they are able to help citizens... (Administrator).

It is often hard for some citizens to use some of this equipment; therefore they rely on the help they get from the working staff... (Administrator).

Public ICT equipment is complex for most citizens and staff members, especially equipment for disabled citizens. Some staff members fail to operate it efficiently. This can be as a result of poor training ... (Administrator).

4.5.2 .2.1 Proposition

Citizens training on the use of equipment found in public ICTs should be prioritised, this is because at times the personnel that helps in public ICTs might not be available to provide assistance.

4.5.2.3 Relevancy of information and updated information found in public ICTs

Information that is provided by public ICTs is relevant and up to date. In most cases the administrators provide information on current affairs in all municipalities but not neglecting international current affairs. Three of the participants described the relevancy of information and it's up to date nature:

Information provided to citizens by public ICTs, in most cases is information that speaks to the issues facing the municipality ... (Administrator).

In this public ICT we make sure that citizens get first-hand information which is up to date ... (Administrator).

Public ICTs provide relevant and up-to-date information, we provide information that touches on education, politics, agriculture and health. Over the weekends this place has an influx of students who are looking for bursaries, be it online or in the newspapers that we make available to them ... (Administrator).

4.5.2.3.1 Proposition

Information provided should not only be international but it must also address current and local affairs. Therefore, it should be a duty of every municipality to provide its citizens with local information in public ICTs.

4.5.2 .4 Inclusion of all citizens

Inclusion of all citizens seems to be a problem. This is a result of the equipment that is used in public ICTs. Some equipment does not support people with disabilities and older citizens thus, this affect their participation and empowerment. Three of the participants described inclusion of all citizens:

We have tried to make sure that every citizen is included and is given an equal chance to use public ICTs but we usually encounter problems with disabled citizens ... (Administrator).

Inclusion of all citizens is a problem because of the equipment that is used in public ICTs. Majority of the equipment does not support elderly citizens as well as some people with different disabilities ... (Administrator).

Even if some of the equipment does not support certain citizens, assistants are always available to those citizens ... (Administrator).

4.5.2 .4.1 Proposition

The government must make sure that all citizens are catered for, no citizen should be excluded due to disability, gender, age or any other form of exclusion that can happen. Therefore, all public ICTs must have equipment that is user friendly and usable to all citizens.

4.6 Chapter summary

Chapter Four presented and discussed the data collected through questionnaire A and B, it further presented and discussed data collected through interviews. The presentation and discussion of the data provided quantitative and qualitative evidence while responding to the four research questions that were asked during the study.

A statistical method was used to give detailed findings of the study. Different tools such as tables and graphs have been used to present the findings of the study

Chapter Four gave a detailed presentation, statistical analysis and discussion of all the data that was collected from participants. The following chapter (chapter Five) presents the final research conclusion and recommendations regarding the use of public ICTs to empower and enhance citizens' participation, based on the analysis presented in Chapter Four.

Chapter Five

Summary, Conclusion and recommendations

5.1 Introduction

Chapter five is a synthesis of the whole thesis and covers the summary of the research findings, conclusions arrived at during the study, recommendations and suggestions for further researches. The South African government has seen improvements in the way it enhances citizens' participation and empowerment, this improvement came through the use of public ICTs. Public ICTs have made access to information for citizens easy, this information may be related to education, health, politics and agriculture. The use of public ICTs to empower and enhance citizens' participation by the government has closed the gap between those who can afford to access information and other services offered in public ICTs and those who do not have the means to do so. As a result, both the poor and the rich have an equal chance to be empowered and have access to different kinds of information.

Most importantly, public ICTs also provide equal chances of empowerment and participation to all citizens, be it females, males, elderly citizens and disabled citizens. As a result, social inclusion has been in a way attained. This then clearly shows that public ICTs can be used as an artefact to empower and enhance citizens' participation in North West province.

It is with this in mind that the study was seen as essential. The researcher believes that public ICTs are one of the most important artefacts that the government can use to empower and enhance citizens' participation. It is obvious that citizens in urban areas already have access to public ICTs; all that is needed is to make sure that these facilities are operating and are in a condition to empower and enhance participation by citizens (Bertot et al., 2012).

5.2 Research Contribution

Education, agriculture, health and politics still remain the most vital sectors in South Africa, there is a need to empower and have citizens participating in all these sectors. Public ICT is one of the most effective artefacts that can be useful in attaining citizens' empowerment and participation in these sectors. Assets such as information remain extremely important in the empowerment of citizens, and the only place where citizens can have access to information without having to pay will be in public ICTs. With regards to this study, public ICTs are viewed

as an important artefact that the government can use to make sure that citizens are empowered and that they do participate.

The study aimed at finding out if public ICTs can be placed as an artefact that can be used to empower and enhance citizens' participation as suggested by (Bertot et al., 2012). There researcher therefore aimed to make contribution to literature by attempting to prove that public ICTs can be used as an artefact to empower and enhance citizens participation.

5.3 Limitations and future work

While the study was able to achieve its objectives, there are some limitations which should be regarded as opportunities for future studies. The study could not produce a framework showing how the government can implement the use of public ICTs to empower and enhance citizens' participation. Due to time limitations, the researcher was not able to subject the participants that took the questionnaire to interviews; this would have helped to get more information from them.

Regardless of these limitations, the study makes an important contribution in literature and has raised a concern in the use of public ICTs to empower and enhance citizens' participation.

For future research, a framework describing how the government can use and ensure that public ICTs are used to empower and enhance citizens' participation should be used; a study of the overall effectiveness of public ICTs in empowering the youth in South Africa.

5.4 Results of the study

This unit presents brief highlights of the research findings discussed according to the aim and objectives of the study. Citizens from three municipalities namely Mafikeng local municipality, Rustenburg local municipality and Tlokwe local municipality were randomly selected and a questionnaire was distributed to them. This was done to get their views on the use of public ICTs to empower and enhance citizens' participation. Public ICTs' administrators that represent the government had to respond to questionnaire B and then they were interviewed to get their views on the public ICTs in their municipalities.

- (i) **Research question One** - *what public ICTs are available in the municipalities and what are they used for?*

To address research question number one, questionnaire (A) was used. We found out that from the seven public ICTs the study focused on Cyber labs and PITSI were the least used

and in some municipalities they do not exist at all. The study also found that citizens use public ICTs to find information and participate in politics, health, education and agriculture. It was also found that public ICTs are used as a platform to hold the government accountable. Most participants pointed out that they use public ICTs to learn, improve computer skills and develop digital literacy. It was also found that citizens use public ICTs to find employment and do their research.

(ii) **Research question Two** – *What makes it hard for citizens to use public ICTs to gain empowerment and enhance their participation?*

To respond to research question two, questionnaire (A) was used. Participants were asked questions relating to the factors that affect their use of public ICTs. One of the major factors that were pointed out in all three municipalities was that public ICTs do not open after working hours and during public holidays. Lack of privacy and the complexity of equipment, together with lack / inadequate skills shown by personnel working in public ICTs were found to also affect the use of public ICTs negatively. The other factors that were found are that there is a lack of citizens' training and that the equipment does not support citizens with disabilities and elderly citizens.

The evidence from data collected reflected that, the major problem that affects the usage of public ICTs for empowerment and enhancing participation by citizens can be pointed out to lack of citizens training; opening days and time of public ICTs; complexity of the equipment and lack of skilled personnel working in public ICT centers.

(iii) **Research question Three** - *To what extent does the government utilize public ICTs to gain public inclusion?*

To respond to research question number three questionnaire (A) and interviews were used. Citizens were asked a lot of questions on their view about the extent to which the government has used public ICTs to close the gap between public inclusion and exclusion.

According to findings from section 4.4.3, public ICTs have provided a new mechanism for citizens' engagement, it allows them to engage with government and also engage with each other as citizens. Findings also showed that public ICTs enable the government to provide information to citizens and empower them.

Through public ICTs, citizens participate in politics, education, health and agriculture. Findings also show that the use of public ICTs have closed the gap between public inclusion and public exclusion. But when it comes to disabled citizens there is a problem. Interviews also confirmed that most equipment in some public ICTs does not support all disabilities hence they are excluded.

(iv) **Research question Four** – *what are the factors that contribute to closure of some public ICTs centers in the province.*

To respond to research question number four, questionnaire (B) and interviews were used to respond. The questionnaire was given to the representatives from the government just before they could be interviewed.

Research findings show that usability of equipment is one of the factors that can lead to public ICTs closing down. This is made worse by the lack of training provided to citizens, which can also lead to their closure. The other factor that was pointed out is that personnel are not well skilled to use some of the equipment. The relevancy of information provided to citizens has also been questioned.

P1: The availability of public ICTs to citizens can increase empowerment and participation of citizens in educational, agricultural, health and political activities.

From the entire study finding, it was proven that a well governed public ICT with operating and usable equipment that supports different citizens including the old and the disabled, can be an artefact that is used to empower and enhance citizens' participation.

P2: Lack of relevant, unskilled personal and lack of privacy make it hard for citizens to use public ICTs.

It is evident from the study that most citizens in the North West province use public ICTs to keep themselves informed and participate in government activities, this include participation in politics, agriculture, education and health.

From the results, it was found that the more citizens utilised public ICTs the more they were empowered and also their participation in politics, agriculture, education and health increased. This in turn assisted them to better their lives and make informed discussions.

Therefore most participants expressed their disappointment regarding lack of privacy and lack of skilled personnel.

P3: The government can use public ICTs to gain public inclusion in different municipalities.

The study found that if government wanted to empower and enhance citizens' participation, public ICT is the relevant artefact that can be used. This is because if public ICTs are used by citizens, public inclusion will be attained. All citizens would be empowered, this includes the young, old and the disabled.

Public inclusion can be access through public ICTs. However, this will require the government to ensure that all citizens have access to public ICTs. Moreover the information that is provide should be that which address the issues that touches the citizens, more like local issues.

P4: Providing training for citizens on how to use public ICTs will decrease the number of public ICTs being shut down.

We found out that one of the major reasons why public ICT centres shutdown is because of lack of training. This lack of training maybe be, training of citizens or of personnel. If citizens are not trained on how to use public ICTs, the number of users decrease and it becomes costly to maintain the centre while citizens are not utilizing the ICTs.

When all this happens it may lead to public ICT centres shutting down, as a result citizens would miss out on a chance of being empowered and enhancing their participation.

5.5 Conclusion of the study

This study provides valuable insights on the role that public ICTs can play in empowering and enhancing citizens' participation in education, health, agriculture and politics. It also provides insights on the use of public ICTs in developing contexts, and the issues faced by public ICTs in their ongoing operations. The study concludes that the use of public ICTs helps in strengthening empowerment and participation. Public ICTs can be used to inform citizens about public issues and facilitate debates amongst citizens.

The study found out that citizens are already using public ICTs, all that is needed for government to do, is to direct this use to empowerment and participation. However, for the government to be

able to use public ICTs to empower and enhance citizens' participation, it is important that staff members are trained and skilled in using technological equipment. Citizens also need to be trained so that they use public ICTs effectively.

The study also revealed that public ICTs should be structured in a way that is accommodating or usable to all citizens. This includes those citizens who are disabled and elderly citizens. Based on the findings of the study, operating hours of public ICTs should be extended to after working hours and also during public holidays.

5.6 Recommendations

This section presents the recommendations emanating from the findings of the study as presented in the previous chapter (Chapter four).

- Staff members who work in public ICTs must be provided with adequate training, this will enable them to assist citizens effectively.
- Training should also be provided to citizens, because as long as there are citizens who are unable to use some of the equipment found in public ICTs, empowerment and participation will be hindered.
- Public ICT should accommodate all citizens, those who are disabled and elderly ones.
- Understanding what citizens want: it is imperative to understand the type of information that is provided to citizens therefore, information should be relevant.
- Public ICTs should also open during public holidays and after working hours.

The recommendations emanating from the study deem important that all actors in the network are treated equal, that is non-human and human actors. This will ensure a smooth usage of public ICTs by citizens. If the equipment found in public ICTs is treated well, it will stay in good usable condition enabling it to function effectively without giving citizens problems.

Deleted:

It is recommended that citizens be consulted when public ICTs are introduced to them. This will give citizens a chance to state what exactly they need and in which areas they will need capacitation. The government must make sure that the actors in the network works together, because if one network is broken the entire network might not work the way it suopse to as a result citizens will not be able to use public ICTs to be empowered and participate in politics, health, agriculture and education.

5.7 References

- Abeyasekera, S., 2005. Quantitative analysis approaches to qualitative data: why, when and how?.
- Acilar, A., 2011. Exploring the aspects of digital divide in a developing country. *Issues in Informing Science and Information Technology*, 8, pp.231-244.
- Angen, M.J., 2000. Evaluating interpretive inquiry: Reviewing the validity debate and opening the dialogue. *Qualitative health research*, 10(3), pp.378-395.
- Ashraf, M.M., Swatman, P. and Hanisch, D.J., 2007. Some perspectives on understanding the adoption and implementation of ICT interventions in developing countries. *The journal of community informatics*, 3(4).
- Ashraf, M.M., Swatman, P.A. and Hanisch, D.J., 2008. An Extended Framework to Investigate ICT Impact on Development at the Micro (Community) Level. In *ECIS* (pp. 1010-1021).
- Ashton, H. and Thorns, D.C., 2007. The role of information communications technology in retrieving local community. *City & Community*, 6(3), pp.211-229.
- Attwood, H., Diga, K., Braathen, E. and May, J., 2013. Telecentre functionality in South Africa: Re-enabling the community ICT access environment. *The Journal of Community Informatics*, 9(4).
- Bailey, A. and Ngwenyama, O., 2009, January. Social ties, literacy, location and the perception of economic opportunity: Factors influencing telecentre success in a development context. In *System Sciences, 2009. HICSS'09. 42nd Hawaii International Conference on* (pp. 1-11). IEEE.
- Bello, H.M., 2002. The role of information and communication technology in the fight against poverty-the: Nigerian experience. In *Symposium on ICT and the Society of Information. 9th-11th December*.

Bertot, J.C., Jaeger, P.T. and Hansen, D., 2012. The impact of policies on government social media usage: Issues, challenges, and recommendations. *Government information quarterly*, 29(1), pp.30-40.

Bless, C., Higson-Smith, C. and Kagee, A., 2006. *Fundamentals of social research methods: An African perspective*. Juta and Company Ltd.

Blumberg, R.L., 2007. Gender bias in textbooks: A hidden obstacle on the road to Gender Equality in Education. "Paper commissioned for the EFA Global Monitoring Report 2008, Education for All by 2015: will we make it.

Boland, R., 1985. "Phenomenology: A Preferred Approach to Research in Information Systems," in *Research Methods in Information Systems*, E. Mumford, R.A. Hirschheim, G. Fitzgerald, and T. WoodHarper (eds.), NorthHolland, Amsterdam, 1985, pp. 193-201.

Breitenbach, M.C., 2013. Telecentres for sustainable rural development: Review and case study of a South African rural telecentre. *Development Southern Africa*, 30(2), pp.262-278.

Buhigiro, S., 2013. *The role of telecentres in promoting socio-economic development in Rwanda* (Doctoral dissertation).

Burrell, G. and Morgan, G., 1979. *Sociological paradigms and organisational analysis* (Vol. 248). London: Heinemann.

Callon, M., 1986. The Sociology of an Actor-Network: the Case of the Electric Vehicle. In M. Callon, J. Law and A. Rip (Eds.) *Mapping the Dynamics of Science and Technology: Sociology of Science in the Real World*. London, Macmillan: 19-34.

Callon, M., and Law, J. 1981. On the Construction of Socio-technical Networks: Content and Context revisited. *Knowledge and Society* 9: 57-83.

Callon, M., 1997. 'Actor-Network Theory - The Market Test (draft)' *Actor Network and After Workshop*. Centre for Social Theory and Technology (CSTT), Keele University, UK, <http://www.keele.ac.uk/depts/stt/stt/ant/callon.htm>, 31 July 1997.

Carver, R.H. and Nash, J.G., 2011. *Doing data analysis with SPSS: version 18.0*. Cengage Learning.

Castells, M. and Cardoso, G., 2005. *The Network Society: From Knowledge to Policy* (Washington, DC: Johns Hopkins Center for Transatlantic Relations).

Carter, L. and Bélanger, F., 2005. The utilization of e-government services: citizen trust, innovation and acceptance factors. *Information systems journal*, 15(1), pp.5-25.

Castells, M., 2009. Communication power: Oxford University Press.

Chen, X., Wang, W., Li, S., Xue, J., Fan, L., Sheng, Z. and Chen, Y., 2010. Optimization of ultrasound-assisted extraction of Lingzhi polysaccharides using response surface methodology and its inhibitory effect on cervical cancer cells. *Carbohydrate Polymers*, 80(3), pp.944-948.

Chen, D.Q., Mocker, M., Preston, D.S. and Teubner, A., 2010. Information systems strategy: reconceptualization, measurement, and implications. *MIS quarterly*, 34(2), pp.233-259.

Chen, W. and Hirschheim, R., 2004. A paradigmatic and methodological examination of information systems research from 1991 to 2001. *Information systems journal*, 14(3), pp.197-235.

(Chisenga, J., 2004. ICT in libraries: An overview and general introduction to ICT in libraries in Africa. INASP ICT Workshop, Kopanong Hotel & Conference centre, Johannesburg S. Africa 21st-23rd July.

Choffnes, E.R., Sparling, P.F., Hamburg, M.A., Lemon, S.M. and Mack, A. eds., 2007. *Global Infectious Disease Surveillance and Detection:: Assessing the Challenges--Finding Solutions, Workshop Summary*. National Academies Press.

Cochran, W.G., 2007. *Sampling techniques*. John Wiley & Sons.

Colle, R.D., 2005. Memo to telecenter planners. *The Electronic Journal of Information Systems in Developing Countries*, 21.

Conradie, D.P., Morris, C. and Jacobs, S.J., 2003. Using information and communication technologies (ICTs) for deep rural development in South Africa.

Coughlan, M., Cronin, P. and Ryan, F., 2007. Step-by-step guide to critiquing research. Part 1: quantitative research. *British journal of nursing*, 16(11), pp.658-663.

Coward, C., 2008. Why Do Telecenters Deserve Ongoing Attention? *Telecentre magazine*.

Creech, H., 2004. Evaluation of UNESCO's Community Multimedia Centers: UNESCO Internal Oversight Service. *International Institute for Sustainable Development o. Document Number*.

- Creswell, J.W., 2009. Editorial: Mapping the field of mixed methods research. *Journal of Mixed Methods Research*, 3(2), pp.95-108.
- Creswell, J.W. and Garrett, A.L., 2008. The "movement" of mixed methods research and the role of educators. *South African Journal of Education*, 28(3), pp.321-333.
- Dagada, R., Mukwevho, H.S. and Schofield, A., 2011. Telecommunication Revolution in a Developmental State: South Africa Becomes ICT Phenomenon.
- Deibert, R.J., 2003. Black code: Censorship, surveillance, and the militarisation of cyberspace. *Millennium-Journal of International Studies*, 32(3), pp.501-530.
- Denscombe, M., 2003. The good research guide: for small scale social projects. *Maidenhead, PA: Open University*.
- Dillman, D.A., 2000. *Mail and internet surveys: The tailored design method* (Vol. 2). New York: Wiley.
- Dlodlo, N., 2009. Access to ICT education for girls and women in rural South Africa: A case study. *Technology in society*, 31(2), pp.168-175.
- Dobson, P., 2002. Critical realism and information systems research: why bother with philosophy?.
- Dobson, P.J., 2012. Critical realism and IS research: some methodological implications. *Research methodologies, innovations and philosophies in software systems engineering and information systems*, pp.63-68.
- Doolin, B., 1998. Information technology as disciplinary technology: being critical in interpretive research on information systems. *Journal of Information Technology*, 13(4), pp.301-311.
- Duxbury, J., 2003. Testing a new tool: The management of aggression and violence attitude scale (MAVAS). *Nurse Researcher*, 10(4), pp.39-52.
- Ellen, D., 2000. *Telecentres and the provision of community based access to electronic information in everyday life* (Doctoral dissertation, Department of Information and Communications in the Faculty of Humanities and Social Sciences, Manchester Metropolitan University).

Farrell, G., 2007. ICT in Education in Rwanda. A Survey of ICT and Education in Africa. A Rwanda Country Report. *Retrieved August, 31*, p.2010.

Fitzgerald, B. and Howcroft, D., 1998, December. Competing dichotomies in IS research and possible strategies for resolution. In *Proceedings of the international conference on information systems* (pp. 155-164). Association for Information Systems.

Fouché, C.B. and Delport, C.S.L., 2005. Introduction to the research process. *De Vos, AS, Strydom, H., Fouché, CB & Delport, CSL*, pp.71-85.

Fyfe, T. and Crookall, P., 2010. *Social media and public sector policy dilemmas* (p. 52). Toronto, Canada: Institute of Public Administration of Canada.

Galliers, R., 1991. Choosing appropriate information systems research methodologies: a revised taxonomy. *Information Systems Research: Contemporary Approaches and Emergent Traditions. Amsterdam: North Holland*.

Gamage, P. and Halpin, E.F., 2007. E-Sri Lanka: bridging the digital divide. *The Electronic Library*, 25(6), pp.693-710.

Gambino, J. and Gough, H., 2005. Teaching sampling in a government statistical agency: The Canadian experience. In *Proceedings of the 55th Session of the International Statistical Institute*.

Gessi, T., Ramnarine, D. and Wilkins, J., 2007. Introducing a new e-governance framework in the commonwealth: From theory to practice. *Asia Pacific Journal of Public Administration*, 29(2), pp.131-151.

Gil-Garcia, J.R. and Martinez-Moyano, I.J., 2007. Understanding the evolution of e-government: The influence of systems of rules on public sector dynamics. *Government Information Quarterly*, 24(2), pp.266-290.

Gillwald, A., Moyo, M. and Stork, C., 2012. Understanding What is Happening in ICT in South Africa. *Evidence for ICT Policy Action. Policy Paper 7*.

Glendenning, C.J., Babu, S. and Asenso-Okyere, K., 2010. Review of Agricultural Extension in India. *Are farmers information needs being met?*

- Gomez, R., 2012. Users' Perceptions of the Impact of Public Access Computing in Colombia: Libraries, Telecenters and Cybercafés. *Information Technologies & International Development*, 8(3), pp.pp-19.
- Gray, G.L., 2009. XBRL Doing Research in the Real World problems. *International Journal of Disclosure and Governance*, 6(3), pp.207-223.
- Gui, M., 2007. Formal and substantial Internet information skills: The role of socio-demographic differences on the possession of different components of digital literacy. *First Monday*, 12(9).
- Harris, R., 2001. Telecentres in rural Asia: Towards a success model. *Europe*, 40(23.4), pp.13-7.
- Haseloff, A.M., 2005. Cybercafés and their potential as community development tools in India. *The Journal of Community Informatics*, 1(3).
- Hill, J., 2004. Locke's account of cohesion and its philosophical significance. *British journal for the history of philosophy*, 12(4), pp.611-630.
- Hodges, N.N., DeLong, M., Hegland, J., Thompson, M. and Williams, G., 2007. Constructing Knowledge for the Future Exploring Alternative Modes of Inquiry From a Philosophical Perspective. *Clothing and Textiles Research Journal*, 25(4), pp.323-348.
- Hope, K.W. and Waterman, H.A., 2003. Praiseworthy pragmatism? Validity and action research. *Journal of Advanced Nursing*, 44(2), pp.120-127.
- Hudson, H.E., 2001. The Acacia programme: Developing evaluation and learning systems for African Telecentres. *Telecentres: Case studies and key issues*, p.159.
- Hunt, P., 2001. True stories: telecentres in Latin America and the Caribbean. *The Electronic Journal of Information Systems in Developing Countries*, 4.
- Isaacs, S., 2005. ICT for Education in South Africa. *Population*, 46, p.3.
- Jacobs, S.J. and Herselman, M.E., 2006. Integrated service delivery to communities: from model to prototype. *SA Journal of Information Management*, 8(3).
- Kaiser, S., 2005. Community technology centers and bridging the digital divide. *Knowledge, Technology & Policy*, 18(2), pp.83-100.

Kangala, K.R., 2003. *Towards Participatory Development Communication?: A Case Study of the Soshanguve Multipurpose Community Centre*. University of the Free State.

Kanter B, Fine A. *The networked nonprofit: Connecting with social media to drive change*. John Wiley & Sons; 2010 Jul 1.

Kekana, A.G., 2013. *The evolution of broadband policy and regulation in South Africa* (Doctoral dissertation, School of Public and Development Management, University of the Witwatersrand).

Kingston, R., 2002, July. The role of e-government and public participation in the planning process. In *XVI Aesop Congress Volos*, available at: http://www.ccg.leeds.ac.uk/democracy/presentations/AESOP_kingston.pdf.

Klang, M. and Nolin, J., 2011. Disciplining social media: An analysis of social media policies in 26 Swedish municipalities. *First Monday*, 16(8).

Klein, H.K., Myers, M.D. and TRAUTH, E., 2001. Qualitative Research in IS: Issues and Trends. *Qualitative Research in IS: Issues and Trends*.

Kroukamp, H.J., 2005. E-governance in South Africa: are we coping?. *ACTA ACADEMICA-UNIVERSITY OF THE FREE STATE*, 37(2), p.52.

Kumar, R. and Best, M.L., 2006. Impact and sustainability of e-government services in developing countries: Lessons learned from Tamil Nadu, India. *The Information Society*, 22(1), pp.1-12.

Lathrop, D. and Ruma, L., 2010. *Open government: Collaboration, transparency, and participation in practice*. "O'Reilly Media, Inc."

Law, J., 2009. Actor network theory and material semiotics. *The new Blackwell companion to social theory*, 3, pp.141-158.

Lee, A.S. and Baskerville, R.L., 2003. Generalizing generalizability in information systems research. *Information systems research*, 14(3), pp.221-243.

Linders, D., 2012. From e-government to we-government: Defining a typology for citizen coproduction in the age of social media. *Government Information Quarterly*, 29(4), pp.446-454.

MacKenzie, D. and Wajcman, J., 1985. 1999. *The social shaping of technology*.

Makhaya, G. and Roberts, S., 2003. Telecommunications in developing countries: reflections from the South African experience. *Telecommunications Policy*, 27(1), pp.41-59.

Maldonado, E.A., Pogrebnyakov, N.A. and Van Gorp, A.F., 2006. ICT policies as a means to inhibit social exclusion: the South African case. In *Social inclusion: Societal and organizational implications for information systems* (pp. 137-150). Springer US.

Malina, A. and Ball, I.W., 2005. ICTs and community and suggestions for further research in Scotland. *The journal of community informatics*, 1(3).

Mamba, M.S.N. and Isabirye, N., 2015. A framework to guide development through ICTs in rural areas in South Africa. *Information Technology for Development*, 21(1), pp.135-150.

Mathebula, N., 2014. Service Delivery in Local Government through Socio-Economic Programmes: Successes and Failures of the Comprehensive Rural Development Programme (CRDP). *Mediterranean Journal of Social Sciences*, 5(20), p.132.

Mattes, R.B., 2002. South Africa: democracy without the people?. *Journal of Democracy*, 13(1), pp.22-36.

Mavetera, N., 2004, December. The Philosophy of Ontologies: A New Information Systems Development Paradigm. In *proceedings of the International Science and Technology Conference (ISTC'04)*.

Mavetera, C.G., 2012. *An evaluation of the supportiveness of systems development methodologies to strategic goals during business process reengineering/Mavetera CG* (Masters dissertation, North-West University).

Mavetera, N. and Kroeze, J.H., 2010. An ontology-driven software development framework.

McMillan, J.H. and Schumacher, S., 2014. *Research in education: Evidence-based inquiry*. Pearson Higher Ed.

McNamara, K., 2008. Enhancing the Livelihoods of the Rural Poor through ICT-A Knowledge Map.

Mergel, I., 2012. *Social media in the public sector: A guide to participation, collaboration and transparency in the networked world*. John Wiley & Sons.

- Merriam, S.B., 1998. *Qualitative Research and Case Study Applications in Education. Revised and Expanded from*. Jossey-Bass Publishers, 350 Sansome St, San Francisco, CA 94104.
- Meyer, M., 2001. Between theory, method, and politics: positioning of the approaches to CDA. *Methods of critical discourse analysis*, pp.14-31.
- Mnjama, N. and Wamukoya, J., 2007. E-government and records management: an assessment tool for e-records readiness in government. *The Electronic Library*, 25(3), pp.274-284.
- Mujumdar, D. and Shantaram, S., 2009. ICT in Education.
- Myers, M.D., 1997. Qualitative research in information systems. *Management Information Systems Quarterly*, 21(2), pp.241-242.
- Myers, M.D. and Avison, D. eds., 2002. *Qualitative research in information systems: a reader*. Sage.
- Myers, M.D. and Walsham, G., 1998. Exemplifying interpretive research in information systems: an overview. *Journal of Information Technology*, 13(4), pp.233-234.
- Nam, T., 2012. Suggesting frameworks of citizen-sourcing via Government 2.0. *Government Information Quarterly*, 29(1), pp.12-20.
- Nel, D.F., Kroeze, J.H. and Lotriet, H.H., 2010. ICT to disempower? A perspective on ICT as postmodern agent. In *International Business Information Management Association, IBIMA*.
- Neuman, W.L. and Wiegand, B., 2000. *Criminal justice research methods: Qualitative and quantitative approaches*. Boston: Allyn and Bacon.
- Nielsen, L. and Heffernan, C., 2006. New tools to connect people and places: The impact of ICTs on learning among resource poor farmers in Bolivia. *Journal of International Development*, 18(6), pp.889-900.
- Njeru, J.R., 2014. *Factors influencing the use of information technology in telecentres in the rural setting of Kiambu county, Kenya* (Doctoral dissertation, University of Nairobi).
- Noruwana, N., 2015. *Factors relating to and impacting eGovernment readiness in South Africa: a case of the Western Cape Government* (Doctoral dissertation, University of Cape Town).

- Noordzij, M., Tripepi, G., Dekker, F.W., Zoccali, C., Tanck, M.W. and Jager, K.J., 2010. Sample size calculations: basic principles and common pitfalls. *Nephrology dialysis transplantation*, p.gfp732.
- Oates, B.J., 2005. *Researching information systems and computing*. Sage.
- Olivier, M.S., 2009. *Information technology research: a practical guide for computer science and informatics*. Van Schaik.
- Olphert, W. and Damodaran, L., 2007. Citizen participation and engagement in the design of e-government services: The missing link in effective ICT design and delivery. *Journal of the Association for Information Systems*, 8(9), p.491.
- Orlikowski, W.J. and Baroudi, J.J., 1991. Studying information technology in organizations: Research approaches and assumptions. *Information systems research*, 2(1), pp.1-28.
- Oxlund, B., 2010. Responding to university reform in South Africa: student activism at the University of Limpopo. *Social Anthropology*, 18(1), pp.30-42.
- Panagiotopoulos, P., Bigdeli, A.Z. and Sams, S., 2014. Citizen–government collaboration on social media: The case of Twitter in the 2011 riots in England. *Government information quarterly*, 31(3), pp.349-357.
- Pfeffermann, D. and Rao, C.R., 2009. *Handbook of Statistics_29A: Sample Surveys: Design, Methods and Applications* (Vol. 29). Elsevier.
- Polit-O'Hara, D. and Beck, C.T., 2006. *Essentials of nursing research: Methods, appraisal, and utilization* (Vol. 1). Lippincott Williams & Wilkins.
- Pries-Heje, J., Baskerville, R. and Venable, J., 2008. Strategies for design science research evaluation. *ECIS 2008 proceedings*, pp.1-12.
- Ramdass, K. and Masithulela, F.J., 2016. Comparative Analysis of Pedagogical Strategies Across Disciplines in Open Distance Learning at UnisaODL at Unisa. *The International Review of Research in Open and Distributed Learning*, 17(2).
- Raju, J., 2013. The LIS School in the ICT Age: A Casualty, or a Catalyst for a Paradigm Shift?–The Case of South Africa. *Libri*, 63(3), pp.250-258.

Razak, N.A., 2009. Empowering the rural communities via the telecentres. *European Journal of Social Sciences*, 9(3), pp.425-432.

Razak, N.A., Amir, Z., Ismail, M. and Shuja, N., 2010, February. The impact of wireless technology among Malaysian society. In *WSEAS International Conference. Mathematics and Computers in Science and Engineering*.

Reichstadt, J., Sengupta, G., Depp, C.A., Palinkas, L.A. and Jeste, D.V., 2010. Older adults' perspectives on successful aging: Qualitative interviews. *The American Journal of Geriatric Psychiatry*, 18(7), pp.567-575.

Remenyi, D. and Williams, B., 1996. The nature of research: qualitative or quantitative, narrative or paradigmatic?. *Information Systems Journal*, 6(2), pp.131-146.

Rhodes, J., 2009. Using actor-network theory to trace an ICT (telecenter) implementation trajectory in an African women's micro-enterprise development organization. *Information Technologies & International Development*, 5(3), pp.pp-1.

Roman, R. and Colle, R., 2001. Digital Divide or Digital Bridge? Exploring Threats and Opportunities to Participation in Tele-center Initiatives. *Techknowlogia: International Journal of Technologies for the Advancement of Knowledge and Learning*, 3(3), pp.56-59.

Roman, R. and Colle, R.D., 2002. *Themes and issues in telecentre sustainability* (Vol. 10). Institute for Development Policy and Management, University of Manchester.

Roodt, J. and Conradie, P., 2003. Creating a learning culture in rural schools via educational satellite TV broadcasts. *Globalisation, Regionalisation and the Information Society. Bruges, Belgium*, pp.9-10.

Sawhney, H. and Jayakar, K.P., 2007. Universal access. *Annual review of information science and technology*, 41(1), pp.159-221.

Saxena, K.B.C., 2005. Towards excellence in e-governance. *International Journal of Public Sector Management*, 18(6), pp.498-513.

Selwyn, N., 2003. Apart from technology: understanding people's non-use of information and communication technologies in everyday life. *Technology in society*, 25(1), pp.99-116.

Sey, A., 2008. Public access to ICTs: A review of the literature. *Center for Information & Society, University of Washington*.

Sey, A. and Fellows, M., 2009. Literature review on the impact of public access to information and communication technologies. *Center for Information & Society, University of Washington, Seattle*.

Sharma, G., Bao, X. and Qian, W., 2012. Public attitude, service delivery and bureaucratic reform in e-government: A conceptual framework. *Information Technology Journal*, 11(11), p.1544.

Singh, A.K. and Sahu, R., 2008. Integrating Internet, telephones, and call centers for delivering better quality e-governance to all citizens. *Government Information Quarterly*, 25(3), pp.477-490.

Stats, S.A., 2012. Income and expenditure of households 2010/2011. *Statistical Release P*, 100.

Su, Z., Wen, J. and Wan, L., 2003. A methodology for the retrieval of land physical parameter and actual evaporation using NOAA/AVHRR data. *Journal of Jilin University (Earth Science Edition)*, 33(1), pp.106-118.

Swanson, B.E. and Rajalahti, R., 2010. *Strengthening Agricultural Extension and Advisory Systems: Procedures for Assessing, Transforming, and Evaluating Extension Systems*. Agriculture and Rural Development, World Bank.

Svensson, A., 2010. Young men, ICTs and sports: Fan cultures and civic cultures.

Taylor, B.J., 2006. *Research in nursing and health care: Evidence for practice*. Cengage Learning Australia.

Tlagadi, P., 2007. E-governance for improved service delivery. Paper delivered at the Free State SMS Conference, Bloemfontein, RSA, 30August2007.

Tollens, E.F., 2006, August. Market information systems in sub-Saharan Africa challenges and opportunities. In *The Intl. Assoc. of Agri. Economists Conference, Australia*.

Torero, M., Chowdhury, S. and Bedi, A.S., 2002. Telecommunications infrastructure and economic growth: a cross-country analysis. *Information and communication technologies for development and poverty reduction*, pp.21-63.

- Torero, M. and Von Braun, J. eds., 2006. *Information and communication technologies for development and poverty reduction: The potential of telecommunications*. Intl Food Policy Res Inst.
- Ullrich, C.K., Dussel, V., Hilden, J.M., Sheaffer, J.W., Lehmann, L. and Wolfe, J., 2010. End-of-life experience of children undergoing stem cell transplantation for malignancy: parent and provider perspectives and patterns of care. *Blood*, 115(19), pp.3879-3885.
- Van Audenhove, L., 2003. Towards an Integrated Information Society Policy in South Africa. *Kapstadt: HSRC Publishers*. Im Internet verfügbar unter < [http://www. hsrcpress. ac. za/download. asp](http://www.hsrcpress.ac.za/download.asp).
- Van der Berg, S. and Louw, M., 2004. Changing patterns of South African income distribution: Towards time series estimates of distribution and poverty. *South African journal of economics*, 72(3), pp.546-572.
- Vyas-Doorgapersad, S., 2013. Expanded Vision of. *Public Administration in Africa: Performance and Challenges*, p.1117.
- Waiswa, R. and Okello-Obura, C., 2014. To what extent have ICTs contributed to e-Governance in Uganda?. *Library Philosophy and Practice*, p.0_1.
- Walsham, G., 1995. Interpretive case studies in IS research: nature and method. *European Journal of information systems*, 4(2), pp.74-81.
- Walsham, G., 1997. Actor-network theory and IS research: current status and future prospects. In *Information systems and qualitative research* (pp. 466-480). Springer US.
- Weaver, K. and Olson, J.K., 2006. Understanding paradigms used for nursing research. *Journal of advanced nursing*, 53(4), pp.459-469.
- Wellenius, B., 2003. Sustainable telecenters: A guide for government policy.
- Whiteside, A., Laurier, W. and Strauss, M., Global Health and Diplomacy—FALL 2014.
- Yang, K.C. and Kang, Y., 2015. Microblogs, Jasmine Revolution, and Civil Unrest: Reassessing the Emergence of. *Promoting Social Change and Democracy Through Information Technology*, p.140.

Yusop, N.I., Yusof, S.A.M., Aji, Z.M., Ibrahim, H.H., Kasiran, M.K., Dahalin, Z.M., Ghani, N.F.A., Razak, R.A., Hassan, S. and Rahmat, A.R., 2010. The influence of community characteristics towards telecentres success. *Computer and Information Science*, 3(2), p.116.

Yusuf, M.O., 2007. Trends and barriers on the integration of information and Communication technology in the Nigerian school system, Accepted for publication in. *Studies in Curriculum*.

APPENDIX A (QUESTIONNAIRE A)

Age	16-25	1	26-35	2
	36-45	3	46 and above	4

Gender	Male	1	Female	2
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Choose Municipality	Mahikeng Local Municipality	1	Rustenburg Local Municipality	2
	Tlokwe Local Municipality	3		

PART TWO A: Objective 1

Please rate how much you agree with each of the statements according to the scale provided:						
1= I Strongly agree 2= I Agree 3= Neutral 4= I Strongly disagree 5= I Disagree						
Which of the following public ICTs do you use in your municipality						
1.	I use WIFI hot spot	1	2	3	4	5

2.	I use Telecentre	1	2	3	4	5
3.	I use Citizen's Post office	1	2	3	4	5
4.	I use Cyber Labs	1	2	3	4	5
5.	I use Public library	1	2	3	4	5
6.	I use PITSI	1	2	3	4	5
7.	I use Cellphones e.g. Smartphones	1	2	3	4	5

PART TWO B: Objective 1

Please rate how much you agree with each of the statements according to the scale provided:

1= Never 2= Rarely 3= Sometimes 4= Often 5= Always

	Public ICTs use by citizens					
1	I use public ICTs to learn, improve computer skills and to develop digital literacy	1	2	3	4	5
2	I use public ICTs to find employment online and read online news and keep better informed	1	2	3	4	5
3	I use public ICTs to participate in politics	1	2	3	4	5
4	I use public ICTs to participate in health	1	2	3	4	5
5	I use public ICTs to participate in agriculture	1	2	3	4	5
6	I use public ICTs to participate in education	1	2	3	4	5

PART THREE: Objective 2

Indicate your view on the following statements regarding public ICTs in your municipality by ticking on the scale. 1= I Strongly agree 2= I Agree 3= Neutral 4= I Strongly disagree 5= I Disagree

1	WIFI hotspots in my municipality provide free access	1	2	3	4	5
2	Public ICTs does not open every day in my municipality	1	2	3	4	5
3	Public ICTs open on public holidays in my municipality	1	2	3	4	5
4	Public ICTs in my municipality are not accessible after working hours	1	2	3	4	5
5	In my municipality I have access to public ICTs without membership	1	2	3	4	5
6	There is adequate ICT infrastructure in public ICTs	1	2	3	4	5
7	There is a lack of updated information	1	2	3	4	5
9	The government provide citizens with training on how to use public ICTs	1	2	3	4	5

PART FOUR: Objective 3

Please rate how much you agree with each of the statements according to the scale provided:

1= I Strongly agree 2= I Agree 3= Neutral 4= I Strongly disagree 5= I Disagree

1.	The use of public ICTs provide a new mechanisms for citizen engagement	1	2	3	4	5
2.	The delivery of information by government has improve by the use of public ICTs	1	2	3	4	5
3.	Public ICTs should be designed to meet user needs, in terms of simplicity and openness, including for persons with disabilities and other social groups	1	2	3	4	5
4.	Public ICTs enables the government to empower citizens	1	2	3	4	5
5.	Public ICTs enables citizens to participate in Health, Education, Agriculture and politics	1	2	3	4	5
6.	Public ICTs are used to engage citizens in discussions around , Health, Education, Agriculture and politics	1	2	3	4	5
7.	Public ICT has ensure that no citizen is left behind	1	2	3	4	5

8	All citizens participate in all aspects of the information society	1	2	3	4	5
9	Public ICTs have closed the gap between citizen inclusion and exclusion	1	2	3	4	5

PART FIVE: Objective 2

Please rate how much you agree with each of the statements according to the scale provided:

1= I Strongly agree 2= I Agree 3= Neutral 4= I Strongly disagree 5= I Disagree

1.	Outdated information lead to closing of public ICTs	1	2	3	4	5
2.	Lack of skilled personnel in public ICT to support members on how to use infrastructures	1	2	3	4	5
3.	No training is offered to members of the community on how to use ICTs	1	2	3	4	5
4.	Public ICTs does not support people with disability	1	2	3	4	5
5.	The lack of training and awareness deters citizens from using public ICTs	1	2	3	4	5
6.	The cost of using these public ICTs too high	1	2	3	4	5
7.	The lack of privacy when accessing information on the internet	1	2	3	4	5
8.	Complexity of the equipment affect the usage of public ICTs negatively	1	2	3	4	5

APPENDIX B (QUESTIONNAIRE B)

Choose Municipality	Mahikeng Local Municipality	1	Xhariep DM in Rustenburg Local Municipality	2
	Tlokwe Local Municipality	3		

PART FIVE: Objective 4

Please rate how much you agree with each of the statements according to the scale provided:						
1= I Strongly agree 2= I Agree 3= Neutral 4= I Strongly disagree 5= I Disagree						
1.	Citizens participate in different government or community activities	1	2	3	4	5
2.	People with disabilities are catered for in public ICTs	1	2	3	4	5
3.	Public ICTs have enabled citizens to participate in agriculture, health, education and politics	1	2	3	4	5

4.	The current public ICT enables citizen to participate in civic engagement	1	2	3	4	5
5.	Public ICTs caters for elderly citizens	1	2	3	4	5
6.	Citizens do not need to be an affiliated member for them to use public ICT	1	2	3	4	5
7.	The government make current information about in agriculture, health, education and politics	1	2	3	4	5
8.	Complexity of the equipment affect public inclusion of public ICTs negatively	1	2	3	4	5

INTERVIEW QUESTIONS

Questions	Purpose
Which municipality do you fall under?	This question will be asked so that it will make it easy to group responses as per municipality
Does this municipality have public ICTs that are available for citizen's use if so which ones.	This question will help the researcher in knowing the existence of public ICTs and the type of there is per municipality
How are the conditions in those Public ICTs?	This question will be asked in order to find out the situation within available public ICTs
Does the citizens use this public ICTs?	To find out what are the perceptions of the government in regard to the use of public ICT by the citizens
Are there any measures in place to make awareness about the use of public ICTs	To find out if there is an initiative from the government side to educate citizens on public ICTs
Does the government supply information to these public ICT?	To find out if data supplied is relevant and up to date

What kind of information is supplied to these public ICTs?	To find the type of information that is usually provided eg, health, agriculture, education and politics
How successful is the use of these public ICTs?	To find the view of the providers of public ICTs on its successful use by the citizens
What are the problems or challenges that affect the use of public ICTs?	To understand the problems faced by the government that might hinder the use of public ICTs to enhance citizens participation
What leads to the closure of these public ICTs?	To try and understand the reason behind the closing down of some of the public ICTs in the province
How are these public ICTs used to empower citizens?	To find the strategy that is being used to ensure that these public ICTs empowers the citizens

1. What are the major obstacles that the government have in ensuring the effective use of public ICTs by citizens?
2. As government how do you use public ICTs to empower and enhance citizen's participation?
3. What are the major disadvantages that affect the use of public ICTs by the citizens?
4. What are advice would you give that can assist in ensuring that public ICTs are used to empower and enhance citizens participation.

Objective 4

1. What do you think has led to the shutting down of some public ICTs?
2. Do you think citizens are using public ICTs that are provided to them?
3. Do you think citizens find public ICT informative to them?

Objective 3

1. Do you think public ICTs have provide all citizen with public inclusion?
2. What do you think the government could do to ensure that public inclusion is attained through public ICTs?

APPENDIX C

Table A, Appendix C: Age

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.177 ^a	4	.186
Likelihood Ratio	6.080	4	.193
Linear-by-Linear Association	2.138	1	.144
N of Valid Cases	1002		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 28.43.

Reject H_0 if the probability value is less than significance level (0.05) vice versa.

Table B, Appendix C: Gender

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.177 ^a	4	.086
Likelihood Ratio	7.803	4	.093
Linear-by-Linear Association	.038	1	.804
N of Valid Cases	1002		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 1.58.

Reject H_0 if the probability value is less than significance level (0.05) vice versa.

Table C, Appendix C: Public ICTs open on holidays

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	84.080 ^a	4	.000
Likelihood Ratio	72.202	4	.000
Linear-by-Linear Association	57.406	1	.000
N of Valid Cases	1002		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 2.50.

Reject H_0 if the probability value is less than significance level (0.05) vice versa.

Table D, Appendix C: Public ICTs not accessible after working hours

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	54.020 ^a	4	.000
Likelihood Ratio	70.002	4	.000
Linear-by-Linear Association	57.306	1	.000
N of Valid Cases	1002		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.00.

Reject H_0 if the probability value is less than significance level (0.05) vice versa

Table E, Appendix C: Public ICT provide up to date information

Table E, Appendix C: Public ICT provide up to date information

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	74.010 ^a	4	.000
Likelihood Ratio	67.006	4	.000
Linear-by-Linear Association	52.205	1	.000
N of Valid Cases	1002		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 14.60.

Reject H_0 if the probability value is less than significance level (0.05) vice versa

Table F, Appendix C: Training is provided to users of public ICTs

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	74.131 ^a	4	.000
Likelihood Ratio	67.112	4	.000
Linear-by-Linear Association	47.306	1	.000
N of Valid Cases	1002		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 27.50.

Reject H_0 if the probability value is less than significance level (0.05) vice versa

Table G, Appendix C: Lack of skilled personnel in public ICTs

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	71.200 ^a	4	.000
Likelihood Ratio	70.066	4	.000
Linear-by-Linear Association	69.124	1	.000
N of Valid Cases	1002		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.00.

Reject H_0 if the probability value is less than significance level (0.05) vice versa

Table H, Appendix C: Public ICTs support citizens with disabilities

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	54.020 ^a	4	.000

Likelihood Ratio	52.002	4	.000
Linear-by-Linear Association	47.306	1	.000
N of Valid Cases	1002		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 27.50.

Reject H_0 if the probability value is less than significance level (0.05) vice versa

Table I, Appendix C: Public ICTs for citizen's engagement

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	54.020 ^a	4	.000
Likelihood Ratio	59.003	4	.000
Linear-by-Linear Association	49.404	1	.000
N of Valid Cases	1002		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 25.40.

Reject H_0 if the probability value is less than significance level (0.05) vice versa

Table J, Appendix C: Public ICTs for public inclusion

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	74.070 ^a	4	.000
Likelihood Ratio	72.006	4	.000
Linear-by-Linear Association	67.500	1	.000
N of Valid Cases	1000		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 15.50.

Reject H_0 if the probability value is less than significance level (0.05) vice versa

