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INVESTIGATING THE FACTORS AFFECTING CITIZEN'S ABILITY TO ACCESS
E-GOVERNMENT SERVICES IN NKONKOBE MUNICIPALITY IN THE EASTERN CAPE PROVINCE

BY

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DECLARATION

I, the undersigned, NOLITHA NTOBONGWANA hereby declare that this research project titled "INVESTIGATING THE FACTORS AFFECTING CITIZEN'S ABILITY TO ACCESS E-GOVERNMENT SERVICES IN NKONKOBE MUNICIPALITY IN THE EASTERN CAPE" is my original work and has not been copied, plagiarised or submitted and will not be presented at any other University for a similar or any other degree award.

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ABSTRACT

E-government which refers to electronic Government is the process of transformation of relationships of government with its constituents ie the citizens, the businesses and between its own organs, through the use of the tools of Information and Communications Technology (ICT). E-government services are the outcome of e-governance that come as automated services delivered through ICTs particularly Internet based applications that provide access to and delivery of information or services to the public, businesses, other agencies and governmental departments.

This study seeks to examine the factors affecting citizens ability to access e-government services in Nkonkobe Municipality in the province of Eastern Cape and come with recommendations of how to address the issue.

E-government services should be developed on platforms with the consideration of devices that people can have access to. The study showed that in as much as one can have cell phone that has access to internet , some website services such as home affairs enquiry applications are not accessible on a phone with a general web browser that has no Java Script capacity but has acces to internet. Therefore developing Short Message Service (SMS) based services or Unstructured Supplementary Serviuce Data (USSD) code that is available on all Globile System for Mobile (GSM) cell phones can increase accessibility of most services at a cheaper cost.

The study concludes that although e-government is the future for our country and in this era of technology, much still has to be done in areas like Nkonkobe Municipality in Eastern Cape, as the citizens have no or lack appropriate tools to access the internet, and sometimes citizens are not aware of e-government services available. The research indicates that most citizens have cell phones despite the differences in handset capabilities, which therefore means that applications developed for e-government services can be ported foe accessibility to ordinary GSM cell phone including those without internet access.

Keywords:

E-government

E-governance

Information Communication Technology (ICT)

InternetAccess

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ABBREVIATIONS AND ACRONYMS

3 G	Third Generation Network
AFIS	Automated Fingerprint Identification System
B2G	Business to Government
C2G	Citizen to Government
E-CULTURE	Electronic Culture
EDGE	Enhance Data Rates for GSM Evolution
E-GOVERNMENT	Electronic Government
ENATIS	Electronic National Traffic Information System
E-PARTICIPATION	Electronic Participation
E-READY	Electronic Ready
E-SERVICES	Electronic Services
G2B	Government to Business
G2C	Government to Citizen
G2C	Government to Citizens
G2G	Government to Government
GSM	Global System for Mobile Communications
GSSC	Gauteng Shared Services Centre
ICASA	Independent Communications Authority of South Africa
ICT	Information Communication Technology
IDP	Integrated Development Plan
IEC	Independent Electoral Commission
IT	Information Technology
ITU	International Telecommunication Union
Kb	Kilobytes
LCS	Living Conditions Survey
NATIS	National Traffic Information System
OECD	Organisation for Economic Co-operation and Development
SARS	South African Revenue Service
SITA	State of Information Technology Agency
SMS	Short Message Service
STATSSA	Statistics South Africa
UNDP	United Nations Development Programme

| UNESCO | United Nations Educational, Scientific and Cultural Organization |
| USSD | Unstructured Supplementary Service Data |

CHAPTER 1: INTRODUCTION AND BACKGROUND

1.1. INTRODUCTION

E-government refers to Electronic Government and it is the process of transformation of the relationships of government with its constituents i.e. the citizens, the businesses and between its own organs, through the use of the tools of Information and Communications Technology (ICT).The aim is to bring about enhanced access, transparency, accountability and efficiency in the delivery of government information and services (Satyanarayana, 2004:01). E-government services are the outcome of e-governance that come as automated services delivered through the ICTs particularly Internet based applications that provide sometimes inexpensive access to and delivery of information or services to the public, businesses, other agencies (non-profit), and governmental departments. Examples of such services include electronic filing of taxes online, Identity documents enquiries online, vehicle licence renewal online etc. all usable by either citizens, businesses or other stakeholders. Obi (2010:46) categorises these as traditional services (permits documents, etc.), archiving services, e-participation services-health services, educational services, e-payment services etc. This system gets rid of the paper based government and removes many backlogs such as slow processing of enquiries, delivery of documents, long waiting queues, long distance travelling by citizens to major towns where government services are accessible. This in turn cuts costs to the general citizen while enhancing service delivery. Bhatnagar (2004:37) highlights the benefits of e-government herewith.

"Access" in this study refers to the ability of citizens to access e-governance initiatives in within their areas of residence. As noted in the definition of e-governance above, the results of e-government leading to more accountability, transparency and effectiveness comply with some of the South African service delivery principles known as Batho Pele introduced in 1997 which were developed to serve as acceptable policy and legislative framework regarding service delivery in the public service. Therefore e-governance enhances people's capabilities to communicate back and forth with the government to access information and services

while also increasing accountability, transparency and efficiency and effectiveness of service delivery within the public sector.

Cloete (2012:128) asserts that electronic governance (e-governance) is the future of public governance globally. Governments that do not make the transition from paper-based systems of public administration to electronic platforms of public governance may swiftly undermine their chances of developing their societies as 21st century information societies. Literature suggests that e-governance is therefore for the benefit of the government, its people and their societies. This study will conduct a survey within an area of Nkonkobe Municipality to devise the factors affecting access to e-government services. The chapter will outline the background of the study, problem statement, research objectives, research questions, significance and delimitation of study and the limitation of the study.

1.2. BACKGROUND OF STUDY

Nkonkobe municipality is located in Amathole district in Eastern Cape which has been noted as the second poorest province in South Africa by Living Conditions Survey (LCS) (2008/2009:11). This can support through implication that usually areas with high poverty rate also lack access to most government services as their areas are economically backward and lack extensive development of various interlinking networks and infrastructure to government services.

Heginbotham (2006:02) articulates that in South Africa, e-government is one of the primary means of communicating development. This form of communication takes into account the needs of society, the developmental goals of government and empowerment of citizenry. Misuraca (2007:94) likewise accentuates that appropriate use of and integration of ICTs at Local level of governance in urban and rural municipalities can enhance and support social and economic development. In many societies such as South Africa there exist considerable disparities, primarily of a socio-economic nature, with respect to the distribution of resources. In this light e-government may be seen to hold a strong position in aiding development of societies in developing countries.

Prins (,2001:201) however expresses that there is an increasing gap in development between those who have access to contemporary ICTs such as desktop personal

computers and associated resources such as the internet, and the vast majority of the population whose access to such services is limited. Lekoko and Semali (2007:110) in contrast consider that the government of South Africa has expressed intention and commitment in rolling out ICTs throughout the country to enhance universal access and universal service in order to bridge the digital divide and achieve digital inclusion for the whole country.

Most authors refer the inaccessibility of e-governance initiatives by the government as results of digital divide. The digital divide is always described in terms of the difference in the number of telephones, internet users or computers per head between rich and poor countries. Basically, ICT development in rural areas will address the digital divide issue. The digital divide is usually considered in social and economic terms that concern the barriers to access for the least favoured groups in society (OECD, 2001:15).Norris (2001:10) emphasizes that Internet has become increasingly central to life, work, and play-providing job opportunities, strengthening community networks and facilitating educational advancement. It therefore becomes important if certain groups and areas are systematically excluded, such as poorer neighbourhoods, working class, households, or peripheral rural communities as it will raise more issues of inequality access. Admittedly the need of enhancing access to e-services or electronic information is portrayed herewith.

The study emerges with a backup from some of the governments' Batho Pele principles namely increasing consultation, setting services standards, Increasing access, openness and transparency, redress, providing information, value for money etc. These principles correlate with the perceived benefits of e-governance such as transparency, reducing administrative corruption, improving civil service performance, improving service delivery, empowerment and improving government finances. E-government as a result retains its importance in different ways towards achieving objectives of the government.

As the setting of the study is based in a rural area and it is important to theme and link up the topic in research with rural development through ICTs and enhancing the livelihoods of the poor socially and economically. While not drafting away from the fact that South Africa has been a victim of exclusion of certain groups of race mostly the black people, Indians and coloureds, Lekoko and Semali 2007:110 uphold that the current government now understands the urgency of addressing poverty and

improving service delivery to majority of citizens who were marginalized during the white majority rule for more than three decades. To address these imbalances the government is implementing government projects guided by the principle of public service all under the brand 'Batho Pele' (Translated to mean "people first"). This means "empowerment" an exclusive inclusion of different people from all over the country in service delivery. People first principle also means an enhancement of citizen participation in the government. Singh and Ali (2001:141) likewise articulate that this philosophy of a "people-based" development "from below" assumes that participation is not only an end in itself but also a fundamental precondition for and a tool of any successful development strategy. Singh and Ali (2001:141) believe that the failure of past development strategies is fundamentally linked to the absence of its missing ingredient "participation". As a consequence, an importance of e-governance as an empowering can be noted in this view.

To sum up, it could be concluded that for development to take off in a society a people oriented government is required. The Implementation of ICTs vis-à-vis e-governance by the government will pave way for development and inclusion of various groups of people. Therefore any factor that hinders these potential abilities of e-government services should be pin pointed and addressed to, hence the axis of this study.

1.3. PROBLEM STATEMENT

The research problem is that the adoption and implementation of e-government initiatives has been slow and inaccessible to the majority of the people in the society of Nkonkobe municipality. People have not been able to benefit from the available e-government services socially or economically. Most people are not aware of e-government services offered by various government departments, how to access them or the benefits associated with e-governance.

Lekoko and Semali (2011:118) instruct that government priorities for e-government should espouse accessibility, affordability, and appropriate citizen content. They further inform that it is imperative for the South African government to ensure that citizens are aware about the potential of e-government and should be trained to

make use of e-government services. Basing on the above priorities of the government suggestions by Lekoko and Semali it is the objectives of this research to investigate if the citizens in Nkonkobe are aware of the services currently available and if they are able to access them. The research is anticipated to come up with a summation of the factors affecting the citizen's ability to access the e-government services and way forward to address the issue. Objectives have been put forward below to state what the research would like to achieve. Research questions will be used to help address the research problem. These are stated briefly below.

1.4. RESEARCH OBJECTIVES

- Examine if citizens are able to access e-government services in Nkokobe Municipality.
- Examine if people in Nkonkobe Municipality are aware of e-governance services offered by the government.
- To make recommendations on ways through which local municipalities can help the e-government movement to be viable and sustainably contribute to development of their community.

1.5. RESEARCH QUESTIONS

- What factors affect citizens to access e-government services in Nkonkobe Municipality?
- What are levels of citizen awareness of e-government in Nkonkobe Municipality?
- What can be done to finf ways through which the community can use e-governance?

1.6. SIGNIFICANCE OF STUDY

Increasing Access to information and delivery of public services equitably are some of the endeavours of the South African government. This study is very important and significant in that its investigation of e-governance accessibility in Nkonkobe municipality will give a general view of how the government's efforts to increase access to government services have been appreciated. Through the results of this

research the respective government departments and their agencies will be able to note some of the problem areas that need to be addressed when it comes to e-government services implementation and adoption especially in remote areas in South Africa. The study will also highlight the status of digital divide within remote areas in South Africa.

The study raise awareness of the existence of some of the unknown e-government initiatives to the population under study and increase usability thereby saving people's time and costs to access information and reach out to some services. The researcher has noted that not much research has been conducted towards e-governance access within South Africa, and it seems that the implementation of e-governance initiatives have not been user-centric of late. This research will therefore help pinpoint some of the issues prevalent in the implementation challenges of e-governance initiatives and show why there have been challenges to access by the citizens in outlying areas.

1.7. DELIMITATION OF STUDY

This study is delimited to citizens residing within the area of Nkonkobe Municipality in Eastern Cape.

1.8. LIMITATIONS OF THE STUDY

The researcher cannot cover all target samples within Nkonkobe Municipality. The research will therefore be restricted to a small area. However using sampling techniques, it will be possible to make generalisations about the surrounding areas since the geographical setting is quite similar.

The research comprises of latest technological terminologies which may not be known by most citizens. This may pose communication failure is the jargons simplified are not understood which may in turn lead to biased results.

1.9. OVERVIEW AND CHAPTER ORGANIZATION

The study will constitute of the following chapters.

Chapter 1: Introduction and Background of the Study

This chapter will provide a brief introduction into the research highlighting important key elements and the basis of the study. The chapter will include the background of the research study, problem statement, research questions, research objectives and significance of the study. The chapter will also highlight delimitation of study and the limitations of the study.

Chapter 2: Literature Review

This chapter will look at the work of other authors based on the key issues under study to help in guiding the researches direction and validity.

Chapter 3: Research Design and Methodology

This chapter will outline the research type and methodology including instruments to be used for data collection.

Chapter 4: Analysis, Interpretations and Discussions of Results

This chapter will show the statistical and graphical presentation of the data obtained including discussions in relation to the presented data.

Chapter 5: Conclusions and Recommendations

This will be the final concluding chapter. It will present recommendations from the researcher basing on Chapter 4's findings.

Conclusion

This chapter gave an overview of the research project, including the background of the study, research objectives and research questions aligned to the problem statement. The significance of the study, delimitations and limitations of study were also discussed to portray the axis at which the research stands.

CHAPTER 2: LITERATURE REVIEW

2.1. INTRODUCTION

This chapter will highlight related literature or studies that have been conducted by other researchers. Key theoretical concepts, models and discussions will be put forth aswell. This chapter will give the direction of how the research should be conducted and the areas to pay attention to. Hart (1998) uncovers that Literature review is the selection of available documents…on the topic…written from a particular standpoint to fulfil certain aims or express certain views on the nature of the topic and how it is to be investigated, and the effective evaluation of these documents in relation to the research being proposed (Cited in Booth *et al*, 2012:02). All relative literature will therefore be referenced to validate the research study.

The scope of the study can best be aligned to the research objectives mentioned herewith in Chapter 1. The literature will therefore be on the basis of e-governance and e-government access, factors affecting e-government access, frameworks and the state of e-governance in South Africa. These topic areas will be discussed in this chapter.

2.2. E-GOVERNMENT AND E-GOVERNANCE DEFINITIONS

2.2.1. E-Government

Anttiroiko and Malkia (2007:639) define e-government as the use of ICT in communicative processes in government activities. O'Donnell, Humphreys (2003:06) on the other hand defines e-government as the use by public bodies of information and services to internal and external customers and organisations, elected representatives and other stakeholders in such a way as to complement, replace or improve traditional delivery systems. With these definitions we can derive that e-government involves the use of Information communication technologies by public sector departments to deliver services to the various stakeholders within the public sector.

2.2.2. E-Governance

E-Governance on the other hand refers to a form of e-business in governance comprising of processes and structures involved in deliverance of electronic services

to the public, viz. Citizens. It also involves collaborating with business partners of the government by conducting electronic transactions with them. It also entails enabling the general public to interact with the government, through electronic means, for getting the desired services. The interaction may be between government (G) and citizens (C) both ways (i.e. G2C and C2G) or between government or businesses, b both ways G2B and B2G and internal government operation (G2G) (Prabhu, 2012:01).Sharma (2004:19) postulates that e-governance is no more less than governance in an electronic environment. It is both governance of that environment and governance within that environment, using "electronic tools." UNESCO (2005) script that E-governance refers to the public sector's use of information and communication technologies with the aim of improving information service delivery, encouraging citizen participation in the decision making process, and making government more accountable, transparent and effective (Cited in Budd & Harris, 2009:04). From the definitions we can derive that e-governance is an activity of "governance" in an electronic environment by the government with the aim to increase interaction between the public and the government to make government more accountable while also increasing efficiency and increasing citizen participation.

2.2.3.Difference between E-government and E-governance

The distinction between the two terms is quite complex as some authors seem to use them interchangeably. According to Garson (2006:19) E-government refers to one aspect of digital government: the provision of governmental services by electronic means, usually over the internet. E-governance, in contrast, refers to a vision of changing the nature of the state. Under e-governance, networks rather than agencies become primary. Moreover, networks blur the lines separating governmental, non-profit, and private-sector actors. Norris (2007:181) from another angle describes that e-governance is a broader concept, which includes the use of information and communication technology (ICT) by government and civil society to promote greater participation of citizens in the e-government and civil society to promote greater participation of citizens in the governance of political institutions. In the above definitions, it can be derived that e-government mainly deals with the "provision" of services to the public while e-governance refers to the use of the e-governance services provided by the respective government.

Commenting on the definitions of e-government and e-governance, (Obi, 2010:28) sums up that the two terms may look like they have the same meaning or can be used interchangeably, the term E-governance refers to the usage of ICT tools that will allow the state to communicate with its citizens, and the state agencies between them. The term E-governance, Obi comments that it refers to ICT used in order to boost the active participation of the citizens in the political procedures of their country, giving a channel to "hear their voice" in a dynamic process of continuous feedback.

As the research is mainly targeted at the municipality of Nkonkobe, it is important to highlight the nature of e-government services at this level. At a municipal level,

Deshazo et al (2011) (Cited by Koh C E et al, 2008:541) identified 51 different e-government features and examined the extent to which small city governments utilize the Internet. They organized these features into 12 categories: online payments, registration, permits, customer service, communication, license, images, audio/video, documents, applications, procurement, and miscellaneous. Such type of services will be listed in the research instrument to enquire if the respondents have accessed them or if they are aware of the services.

2.3.   NEED FOR E-GOVERNMENT

E-Governance is the application of ICT to the functioning of the government. Coupled with necessary political support as well requisite process reforms it can go a long way in facilitating good governance. Major benefits of e-governance are discussed below as reported by (UNESCO, 2005:07)

- **Improved & Enhanced delivery of Government Services**

In modern societies where technology is taking over traditional methods of carrying out tasks either in the private sector or public sector people are looking for enhanced quicker systems that provide services at a lesser cost while efficient. UNESCO (2005:07) mentions that electronic delivery of information and services by the government not only results in efficiency, better quality but above all facilitates the equitable access. Once the services are available through Internet, Kiosks, Integrated Service Centres, Mobile devices, it becomes very convenient for people in

urban as well as rural part of the country to avail these services, as governments in many of the countries, as well as private sectors are in the process of making a lot of investments in extending the communication infrastructure to the remotest parts of the control to reach the unreached. Application of ICT for delivery of services also facilitates the government becoming more responsive towards citizens. Satyanarayana (2004:16) states that speed, efficiency, transparency and convenience arising out of electronic service delivery (ESD) enhance the image of the government. E-government therefore has its key advantages in improving and enhancing service delivery within the public sector for every activity enabled for electronic access.

- **Empowerment of citizens through greater access to government information and ability to Interact and participate**

Effective use of technology in government, sharing of information with stakeholders, results in the empowerment of citizens through easy & enhanced access to government information and ability to easily interact & participate in the process of governance. Enhanced interaction among citizens & government as well as increased participation of the citizens in government functioning, decision making, policy making etc. promotes civic engagement and strengthen democracy(Unesco,2005:07).As with Batho Pele principles of the South African government that were developed to serve as acceptable policy and legislative framework regarding service delivery in the public sector, it is the will of the government to increase access of public services to South Africans who are at a disadvantage of access. In terms of interaction and participation the Batho Pele principles also call for consultation of users of the services. Consultation is said to be a powerful tool that enriches and shapes government policies such as the integrated Development Plans (IDPs) and its implementation in local Government sphere. E-governance has capabilities to enhance participation of citizens in decision making via (e-participation) electronic participation programmes while access to information can be enhanced through the use of websites.

- **Enhanced Transparency & Increased Accountability of the Government**

Transparency means all government activities by either public officials or departments are not concealed but reviewed to the stakeholders or the people to which services are being delivered. As information access is enhanced by through e-

government services the citizens are able to enquire on matters they wish to. This means a reduction in corruption as the officials and departments will be accountable to whatever action they carry out to the citizens. In e-government services, transparency and accountability is achieved because the ways of transacting with citizens are handled by electronic system rather than humans who are susceptible to bribery and corruption. The systems are usually equipped with instant accounting systems which make human tempering of municipality or any other public funds lesser.

- **Increasing the internal efficiency and revenue generation by the government**

UNESCO (2005:07) also mentions that effective use of ICTs can minimize transaction costs and streamline government operations thus making government processes more efficient and effective. Satyanarayana (2004:16) mentions that e-government can result in significant cost reduction basing on the belief that the automation of processes reduces manpower costs, besides costs of accounting, compilation, reporting and review. This in turn also goes along with the Batho Pele principle of creating value for money for the citizens. Transaction costs, manpower costs and other costs incurred while serving the needs of people have an impact towards the final payment for the services by the people, hence the lesser the costs, the cheaper the services to the people.

- **Improving the relationship between the government and the citizens**

The adoption of e-government and its benefits including higher productivity, efficiency, enhanced transparency, accountability, responsiveness lead to an overall improvement in the image of the government in the minds of the citizens. The trust level imposed by citizens and businesses in the government can significantly go up due to the increased ease & efficiency of interaction while dealing with the government. Raised trust levels lead to improved relationship between government & Citizen as well as Government & business, one of the major objectives of good governance (UNESCO: 2005:08).As trust is embraced between the government and citizens, this will have a social benefit as civil unrests become less, cooperation increases between different segments of the population and stakeholders all adding to the common goal of developing a nation.

2.4. BENEFITS OF E-GOVERNANCE

Bhatnagar (2004:37) states that with the right mix of complementary good governance initiatives tailored to specific institutional contexts, e-government applications have demonstrated meaningful impact on e-governance and public sector reform goals in many ways as the following table will show.

Table 2.1: Benefits of E- Governance

Good Governance Goals	How e-government can help
Increasing Transparency	Dissemination of government rules and procedures; citizen's charters; government performance data to wider audience
	Disclosure of public assets, government budget; procurement information
	Making decisions of civil servants available to public
Reducing Administrative corruption	Putting procedures online so that transactions can be easily monitored
	Reducing gatekeeper role of civil servants through automated procedures that limit discretionary powers
	Eliminating the need for intermediaries
Improving Service Delivery	Less time in completing transactions
	Reduction of costs associated with travel for citizens to interact with the government
	Improving governments' ability to deliver service larger segment of population
Improving Civil Service Performance	Increased ability of managers to monitor task completion rates of civil servants by automating tedious work
	Improved efficiency of civil servants by automating tedious work
	Increased speed and efficiency of inter and intra agency workflow and data exchange
	Eliminating redundancy of staff

Empowerment	Providing communities with limited or no access to government with new channel to receive government services and information
	Reducing the brokerage power of intermediaries
Improving Government Finances	Reducing cost of transactions for government processes
	Increasing revenue by improving audit functions to better track defaulters and plug leakages by reducing corruption
	Providing better control of expenditure

Source: Adapted from Bhatnagar, S.,2004, E-Governance: From Vision to Implementation – A Practical Guide With Case Studies. Sage. New Delhi.

2.5. E-GOVERNANCE ACCESS: Digital Divide and Information Access

Garson (2006:98) put forward categories of e-governance accessibility in relation to digital divide as follows,

- **Dichotomous access**- Some define the digital divide as the gap among income, racial, ethnic, regional, or other groups in terms of differential access to the internet, where access is considered a dichotomous variable (You have it or you don't). This definition is the one to select if one wishes to minimize the digital divide as a policy issue, though even in this definition one will find substantial disparities (Garson, 2006:98).

- **Continuous access**- A broader definition identical to the preceding one, except access is defined as a continuous variable that may vary from none to a great deal, depending on such component items as convenience of access (home, school, library), speed of access (28kb modem to T1 Line), time of access (discretionary time for access provided at work and home), cost of access, and /other direct access factors. The digital divide for Americans and Africans, for instance appears much wider for continuous access than for dichotomous access.

- **Skilled Access**- This type of access defines the digital divide as the gap among groups in terms not only of physical access but also in terms of competencies for use of information technology (IT) (Garson, 2006:98). Incompetent use or lack of skills to use computers for example may lead to one not attempting to use services associated with it, rather preferring the

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traditional method that do not require a computer to access the service. This leads to abandoning of any ICT tools / or e-government services.

2.6. ACCESS RAINBOW

The concept of the access rainbow is a useful model for visualising the different components of access. This access rainbow consists of layers representing both necessary and sufficient conditions for access to ICT, particularly computing technology. Clement & Shade (1998) presented this model in an attempt to produce a conceptual model of access to ICT that would strengthen a public interest perspective. The model is a seven-layered conceptual framework that can form the basis of both efforts to define universal access to ICT (but also to e-government) and to achieve universal access. The model is summarised in the table below;

Table 2.2: Access Rainbow

Layer	Description
1.Carriage	The facilities that store , service or carry information
2.Devices	The actual physical devices that people operate
3.Software tools	The programmes that operate the devices and make connections to services
4.Content Services	The actual information and communications services people find useful
5.Services/access provision	The organisations that provide network services and access to users
6.Literacy/access provision	The skills people need to take full advantage of ICT, together with the learning facilitation and resources to acquire these
7.Governance	How decisions are made concerning the development and operation of infrastructure

Source: Adapted from Clement, A & Shade, L.R, (2000). 'The Access Rainbow: Conceptualizing Universal Access to the Information / Communications Infrastructure in Michael Gurstein (ed.) Community Informatics: Enabling Communities with Information and Communications Technologies. Hershey, PA: Idea Group Publishing. (Cited in CPSI, 2003:11)

This model illustrates the multifaceted nature of access. From the above table we could say that levels 1-3 are the necessary conditions for access and the basic technological infrastructure, and levels 4-7 are the sufficient conditions for access, those that will ensure that people are able to make use of the technology in the manner that they choose to. Ability to access may be determined by the activities of levels 4-7 while 1-3 will determine the nature of access possible.

2.7. E- READINESS

E-readiness is defined as the degree to which a society is prepared to participate in the digital economy with the underlying concept that the digital economy can help build a better society (Krull 2003:4.) UNESCO (2005:16) defines an e-ready community as one that has high speed access in a competitive market; with constant access and application of ICTs in homes, schools, businesses, health care facilities and homes; user privacy and online security; and government policies which are "favourable to promoting connectedness and use of the network". This means that an e-ready society should be equipped with the right tools and provided with the appropriate infrastructure to enable wide access to electronic information or e-government services. If Nkonkobe is e-ready, then the society may not have threats to inability to access e-government services.

2.8. FACTORS AFFECTING ACCESS TO ELECTRONIC INFORMATION

The challenge of providing ubiquitous access to all citizens has several elements. First, it involves overcoming geographical and financial barriers. Much of the excitement associated with e-government is akin to that associated with e-commerce –online access from home means not having to trek to a government office or find the time to place a telephone call during normal business hours (often only to be put on hold)(Computer Science and Telecommunications Board,2002:46).Author further

states that home access is constrained by such factors as the affordability of computer equipment and whether internet or other telecommunications services are available and affordable in a given area. (Computer Science and Telecommunications Board, 2002:46).

Misuraca (2007: 228) sites that new municipalities and those that exist in marginalised areas are likely to have very few systems in place to assist the municipality. A large scale survey and audit was conducted by a private research agency in 2004 and has been repeated in 2005 (but being done in close association with government). This survey revealed major ICTs deficits in many marginalised local municipalities including the lack of basic ICTs facilities like a standalone computer. In addition, many of these local authorities did not see ICTs as crucial when they were facing more basic needs such as housing, water, sanitation, roads, etc. (Misuraca, 2007:228).   This may be typical scenario currently within the municipality of Nkonkobe area. Most households have no access to basic amenities and issues of water supply and electricity have not been addressed to effectively therefore the advanced issue of increasing usage of ICTs may be overlooked at the moment.

Many people in developing countries are not able to access the services provided by the government electronically due to various factors. (Kebede, 2007:826) covered thoroughly on the factors affecting access to electronic information. Kebede organized the factors into four categories namely the (i) characteristics of the end-users, (ii) the characteristics of the electronic information carriers, (iii) the characteristics of the electronic content, and (iv) the characteristics of the information environment in which access takes place. These are summarised below.

Characteristics of the End-Users

Characteristics of end users according to Kebede (2007:826) refers to the qualities and capabilities that end-users bring to information access process, including one's computing skills; experience in using electronic information resources and information; domain knowledge; language abilities; digital literacy (including attitude towards information, information seeking, and information use); beliefs about the capability, ease of use, and usefulness of information, information systems, and the

Internet; perception about one's skills and knowledge; and financial ability to acquire electronic resources and training. Specific instances of the characteristics of the end-user hindering access to electronic information include the following: lack of experience in using information systems, networks, the Internet and electronic information; non-awareness of the resources available and ones rights and duties in utilizing the electronic resources; lack of confidence in one's ability;   in which digital documents are available; and lack of interest and motivation in using electronic information systems and information

Characteristics of the Electronic Information Carriers

Kebede states characteristics of electronic information carriers as barriers to electronic information access. This refers to the features of the electronic information technologies and the electronic information sources, including the capabilities of the computing and network hardware, software, interface, and the Internet connection; ease of use of these resources; and physical accessibility (as access assumes availability) of the computing and network resources and electronic information sources. Specific instances of the characteristics of the electronic information carriers hindering access to electronic information include the following: physical non-availability of appropriate computing/network hardware and electronic information sources; insufficient capacity of computing/network hardware and software; physical non-availability of network/Internet connection; low capacity of network/Internet connection; physical inaccessibility of electronic information sources; and difficult to use interfaces (Kebede 2007:826).The most notable physical barriers in remote areas include wireless transmitter signals being blocked by physical barriers. For example Nkonkobe is located in an area of Eastern Cape that is mountainous. Wireless equipment for internet access and voice should be strategically positioned to reach the greater population while avoiding physical barriers. Currently most networks like MTN, Vodacom and Cell C have less 3G internet coverage in the remote areas while networks like virgin mobile, 8ta have no network available in the location at all. On the other hand the networks that have internet usually have lower internet speeds which make access to internet difficult or inaccessible at most times. Therefore best equipment that reaches greater audience is required in remote areas.

Characteristics of the Content

This refers to features of the content such as relevance (on the topic); type (text, graphics, audio, video); format (PDF, Word, PostScript, HTML); language (International languages such as English, local languages); form (full text, abstract, abstract and keywords, summaries); quality of content (accuracy, reliability, breadth, depth, trustworthiness); level of treatment of subject; organization (searchable, indexed); and file size that in one form or another affect access to the content. Specific instances of the characteristics of the content hindering access to electronic information include the following: physical non-availability of relevant content (topical) to the basic and immediate needs of end-users; physical inaccessibility of relevant content to the basic and immediate needs of end-users; poor presentation (delivery) of content; and poor quality of content (in terms of accuracy, reliability, breadth, depth, trustworthiness) (Kebede 2007:826).Saxena identifies that governments lack defining a flexible technology architecture that is secure, provides easy access to users, and is scalable for high-volume operations as well as being cost-effective for the government. Many of the vendor-driven solutions for e-governance are rigid and/or poor in one or more of these dimensions and therefore not appropriate in the long run (Saxena 2005:507). It so happens most of the times that users may have access to the web however the sites offering desired content will have inappropriate presentation or user unfriendly interfaces and functions which may turn down internet users to abandon the website or service. Such activity on the internet is known as bounce rate. Google defines bounce rate as the percentage of visits that go only one page before exiting a site. The factors that contribute to bounce rate they state for example, visitors might leave a site from the entrance page if there are site design or usability issues (https://support.google.com/analytics/answer/1009409?hl=en accessed 19Oct2013).

Characteristics of the Overall Information Environment

This refers to information-related features of the physical environment in which access to electronic information takes place, including **information policy** and regulations, general infrastructure of the country/organization, information culture of the country/organization, technical and other system support Saxena (2005.507) also points out that governments lack developing performance management systems

for efficient and effective service delivery, which continuously measures and monitors service performance), overall economic level of the country, and cost of electronic information resources.

Specific instances of the characteristics of the information environment hindering access to electronic information include the following: absence of supportive information policies and regulations; absence of personnel/technical support; high cost of electronic information technologies, information sources, and content; poor general infrastructure of the country; under-developed information culture of the country/organization; and prohibiting cultural and social norms to access all relevant content and carry out all useful information activities. Localising the situation, this might be a case in societies in remote areas such as Nkonkobe. The information environment is different from that of Cape Town and Johannesburg. Cape Town has put up e-government system with relevant content and support while big towns in Eastern Cape like Port Elizabeth East London have not embraced similar moves to help increase ICT access. For example Cape Town's vision for ICT access is to be a smart city, populated by informed people, connected to the world and each other by the technology of information age(City of Cape Town,2000) (Cited in van de Berg 2006:56)

On the other hand Rabaiah (2010:28) explains some of the factors that are impeding ultimate success of e-governance implementation. Rabaiah cites the prevalence of agency culture as a barrier to e-governance. Agencies are said to be mainly concerned with the functional performance of their IT systems. Basic principles like 'meeting users' needs were not yet assimilated within the culture of these agencies. This means that most of the e-government systems are crated without consultation with the stakeholders who are mostly citizens and organizations that use these services. Other barriers include lack of federal architecture of e-government, lack of trust, scarcity of adequate funding for investment in e-government and shareholders apathy. The factors mentioned above will also be incorporated within research instruments to identify if they are also the same issues affecting citizen's ability to access e-governance services within the area of Nkonkobe Municipality.

2.9. TECHNOLOGY ACCEPTANCE MODEL

The Technology Acceptance Model (TAM) was developed by Davis (1980), Davis et al. (1989) and Bagozzi et al. (1992). TAM intents "to provide an explanation of the determinants of computer acceptance that is general, capable of explaining user behaviour across a broad range of end-user computing technologies and user populations, while at the same time being both parsimonious and theoretically justified (Davis et al, 1989:985). Technology Acceptance Model (Davis, 1989, Davis and Venkatesh, 1996) was developed specifically to predict who is likely to accept new technology in a workplace environment (Willis, 2008:12). The model proposes that when a user is presented with a new technology, certain factors will determine if he will use it again and will accept it. These factors are:

- **Perceived usefulness (PU)** - "the degree to which a person believes that using a particular system would enhance his or her job performance".
- **Perceived ease-of-use (PEOU) -** "the degree to which a person believes that using a particular system would be free from effort"

Figure 2.1: Technology Acceptance Model
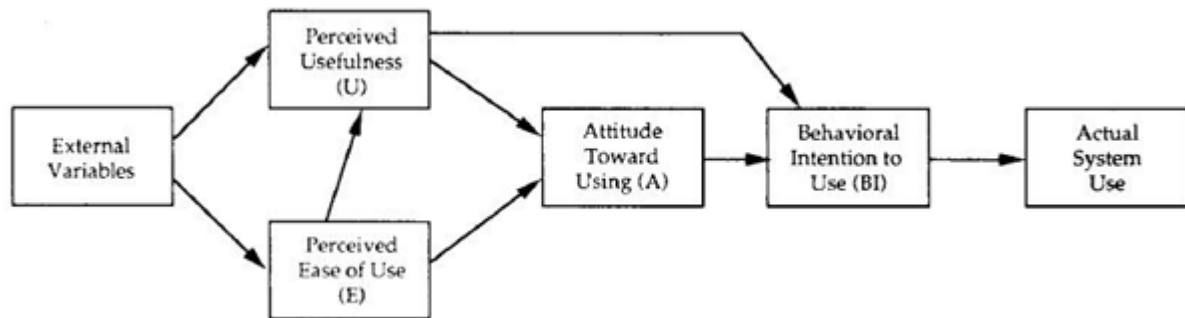
Source: Davis, F. D., Bagozzi, R. P., and Warshaw, P. R. "User Acceptance of Computer Technology: A Comparison of Two Theoretical Models," Management Science, 35, 1989, 982-1003.

2.10. E-GOVERNMENT THEORIES AND FRAMEWORKS

Rabaiah and Vandijck (2009:242) talk about the inception of a strategic framework in their research on strategic framework of e-governance. They postulate that majority of the e-government strategies of sample countries is lacking a strategic framework.

Some countries had included some relevant diagrams but they do not qualify as strategic e-government frameworks based on our description later on. Only Singapore has included a strategic framework of e-government. This framework is however said to be far from being an adequate abstraction of the country's e-government strategy. Its components are the vision, action points and key enablers of e-government.

The above mentioned authors reflect that although most of the studies relating to e-governance have been conducted only very few studies have been aimed at developing a framework that abstracts the framework of e-government strategy. Furthermore none have discussed the importance of embedding a strategic framework in an e-government strategy. However through research Rabaih and Vandijck decided to craft a strategy framework of e-government which they put forth as below. This will act as a guideline for the research investigation.

2.10.1. The Conceptual Framework: Building Blocks for E-Governance

STRATEGIC FRAMEWORK OF E-GOVERNMENT

This is a generic and best practice based framework developed by Abdelbaset Rabaih and Eddy Vandijck (2009:253). The framework is divided into two, the front office pane and the back office pane.

The framework comprises of modules which are components of the generic e-government strategy. The modules are vision, strategic objectives, users, delivery models, guiding principles, Channels, priority areas, major initiatives, infrastructure, organisation and guidelines.

Figure 2.2: Strategic framework of e-government
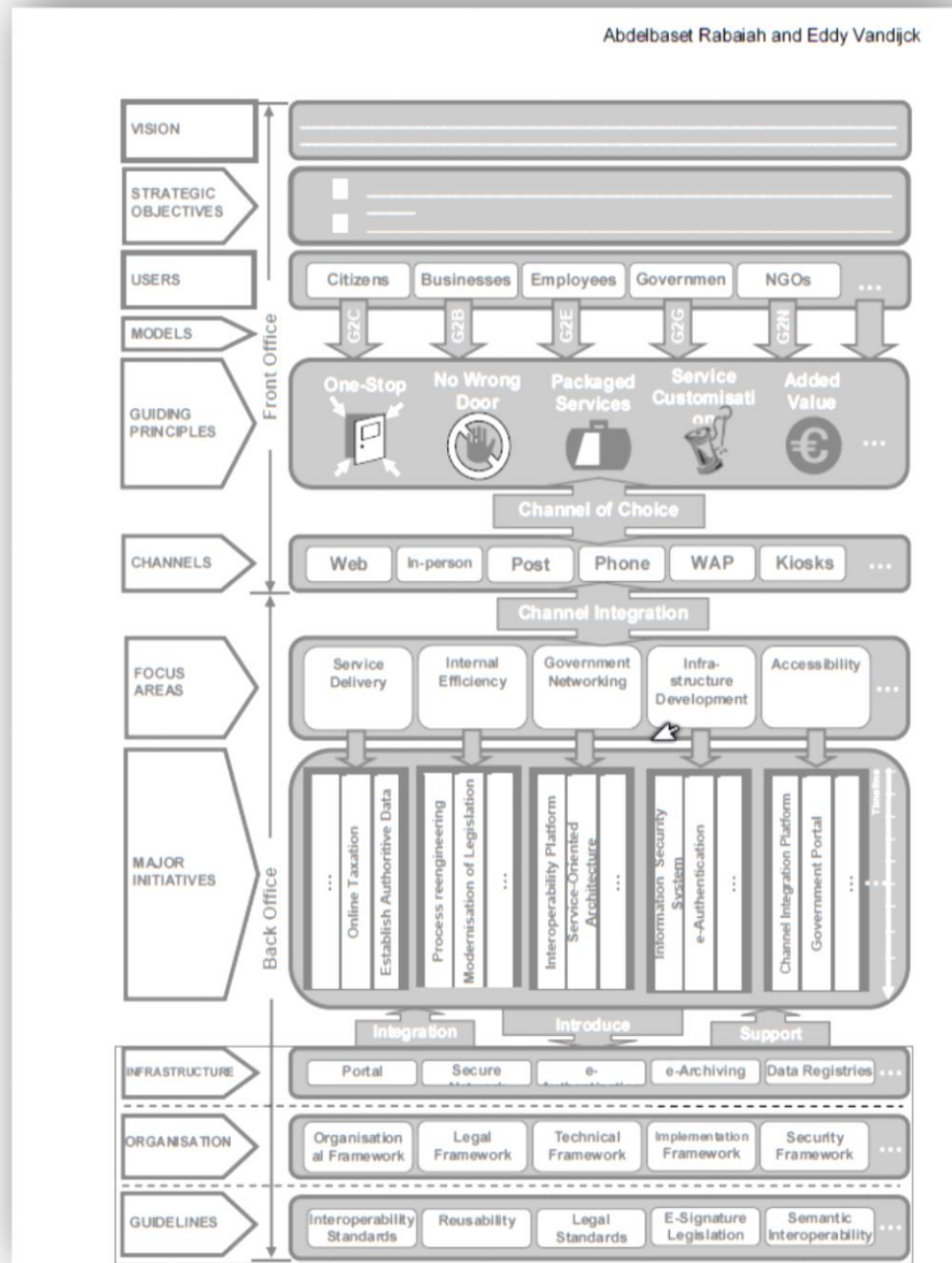
Source: Rabaiah A. 2010. Best-Practice Framework for Developing and Implementing E-Government, 2009-253

The above framework shows an engine system of how an e-government development project should be organised both internally and externally. Internally refers to what the authors put as back office where e-governance and externally where e-government service are deployed. Technical needs and processes that the authors suggested for e-government projects are illustrated. This model therefore shows critical areas that have to be considered by government departments before embarking on an e-government project.

2.11. E-GOVERNANCE ACCESS: FRAMEWORK FOR E-GOVERNMENT ARCHITECTURE

The following diagram highlights the main tools which the public, business and the government may access the e-governance services and the channels that are mostly used. This diagram has been adapted from Ebrahim and Irani (2005:593). The main focus of this research according to the diagram will be on the access layer as the objective is to find the extent to which the citizens in Nkonkobe Municipality are accessing e-government services and the main channel of the accessibility of the services being via the e-government layer. Ebrahim and Irani (2005:592) emphasize that the access channels are critical components of e-government.

The channels in which e-governance initiatives may be accessed according to the diagram include data communication devices such as Mobile Phones, Digital TVs, Call Centres, Kiosks, Pcs, Tele Conferencing and Web. The main recipients of e-government services have been cited as the general citizens, businesses, other government departments, Employees and other community members.

Figure 2.3: Framework for E-Government Architecture

Access Layer

Recipient of government services — Citizens | Businesses | Other government departments | Employees | Other Community Members — Government Users

Channels — Mobile Phones | Digital TV | Call Centers | Kiosks | PCs | Tele Conferencing | Web — Data Communication Devices

E-Government Layer

Single Sign-on Portal

Portal — Website-1 | Website-2 | Website-3 | Website-4 | Website-n — Integration of Government Websites, Suppliers, Other agency service providers, etc.

E-business Layer

Applications — Document Management System | CRM | ERP | Web Service Application | EAI | EDI | Groupware — Network-Enabled Data Processing Applications

Table 1

Data Systems — Database | Basic Government Data | Data Warehouse — Government Data Sources across agencies

Infrastructure Layer

Network Infrastructure — Servers, LANs, Intranet, Internet, Extranet — Government Technologies foundation

Table 2

Source: Ebrahim Z, Irani , E-governent Adoption: Achitecture and Barriers. Business Process Management Journal Vol. 11 No. 5, 2005 pp. 589-611

From the above diagram frameworks, presentation shows that e-government monitoring evaluation and frameworks can successfully be devised to ensure success implementation of e-government services. For example the model developed by Ibrahim and Iran we can distinctively know where to place out indicators for monitoring and evaluation of e-government services. The inputs and

activities or processes are within the infrastructure layer and E-business layer respectively. Outputs and outcome indicators may be derived in the stages E-government layer and Access layer respectively. Use of such models will help devising effective e-government monitoring and evaluation systems that will in turn aid the government in financial and human resource allocation decisions, help in identifying causes of inability to access the e-government services and in overall achieve good governance. Monitoring and evaluation will also aid in discovering successes and failures of some of the e-government programmes implemented at an earlier stage to avoid wasting government resources.

2.12. STATE OF E-GOVERNANCE IN SOUTH AFRICA

E-government related issues are mainly managed and governed by Department of Public Service with the help of its agencies SITA and CSPI. These bodies work together to come up with appropriate policies, programme development and research. These functions are respectively distributed in some cases. The structure is described briefly below.

2.12.1. Management

The State Information Technology Agency (SITA) was established in 1999 to consolidate and coordinate the State's information technology resources in order to achieve cost savings through scale, increase delivery capabilities and enhance interoperability. SITA is committed to leveraging Information Technology (IT) as a strategic resource for government, managing the IT procurement and delivery process to ensure that the Government gets value for money, and using IT to support the delivery of e-Government services to all citizens. In short, SITA is the IT business for the largest employer and consumer of IT products and services in South Africa – the Government (www.sita .co.za).

2.12.2. National Portal

The South African government has a plan to create an e-government gateway with the domain name (www.gov.za) that includes an information portal with the domain (www.info.gov.za) and a services portal (www.services.gov.za). The government strategy is led by the Centre for Public Service Innovation (CSPI) in partnership with

the Department of Public Service and Administration and the State Information Technology Agency. The portal is also called Batho Pele Gateway (Putting People First) and is a core component of the government's service delivery improvement program. The portal is in ten different languages due to the diverse cultures in South Africa. The site has links to various departments, documents, news and information about the country (cited in Obi, 2010:212).

2.12.3. CIO In government

The role of CIO in South Africa was endorsed by the Government IT Officer's (GITO) council in 2002. GITO was created to serve as an IT coordinator and consolidating in Government Agencies. The council functions as a platform among government and citizens to ensure that the government is aware of the needs of citizens. CIO was appointed to certain effective implementation of IT strategies are planned within the province. GITO council monitors CIO to assure that improvements are implemented, establish IT policies and implementation in provinces. Its membership consists of the chief information officers from national departments and offices of the premiers (Cited in Obi, 2010:212).

2.12.4. Policy Framework in South Africa

The Department for Public Service and Administration (DPSA) (through the Public Service Act) has the authority to determine policy and strategy on e-government and the use of ICTs within government. This was exercised in a strong way in 2001 when the department released an e-government framework 228. In terms of the framework, each government department is required, as part of their strategic planning process, to develop an information management plan and strategy. In addition the policy framework suggested the creation of a Gateway portal where all government services could be found in such a way that the services are according to the needs of the citizens and the other way round. The department also issued minimum interoperability standards.

The Government IT Officers' (GITO) Council was created to serve as an IT co-ordination and consolidation vehicle in government, and as radar that will assist in informing the government, on a continuous basis, when and how to intervene in the interest of enhanced service delivery to citizens. (DPSA; 2001) GITOC reports to the

MPSA, and the Government Chief Information Officer (GCIO) in the Department of Public Service and Administration acts as the Secretariat of GITOC. A decade after the establishment of GITOC, the forum is said to have not fulfilled the expectations generated by its establishment. The relationship between the GCIO and the Council has been under continuous strain, partly because the Council elected one of the departmental GITOs as chairperson, while GITOs are seen as subordinate to the GCIO in terms of the GITOC structure. This structural–political defect in the operation of the Council has had a paralysing effect on the activities of the Council (Cloete, 2012:132). This means that the structures failed to follow the propositions of political dichotomy theory which suggests the separation of politics from administrative functions. The white papers on Transforming Public Service Delivery (WPTPSD), Promotion of Access to Information Act, Electronic Communication and Transaction Act, Electronic Government Policy Framework, Minimum Information Security Standards (MISS), Minimum Interoperability Standards (MIOB) and Policy on Free and Open Software (FOSS) are noteworthy. Collectively, the frameworks promote transparency, accountability, good governance, information security, and freedom in the acquisition and use of IT (Matavire et al, 2010:155).

2.13. POTENTIAL MODELS FOR E-GOVERNMENT ACCESS IN SOUTH AFRICA

It is envisaged that a range of government policy objectives can be addressed through moving service delivery to the e-environment. In particular the following objectives can be served:

• **Extending and improving services to communities in under-serviced areas**

These can be services that include information access and transactional processing of various e-government activities to remote areas especially in the rural areas. These may be deployed through services centres or common places like post offices.

• Improving efficiency of service provision

Services that were paper based and included physical filing and storage were laborious and time consuming. The introduction of ICT has enhanced the flow of service delivery through enhanced faster means of processing information and services.

• Enhancing citizen choice, citizen convenience and citizen service

In this case citizens have a choice of access when it comes to services. They may for example choose access that includes responsible personnel to interact with or use and interactive interface to obtain information or service. Choice will be based on convenience.

• Specific service enhancements in key delivery areas such as low cost housing, social grants, education, health and other services

Low cost housing and social grant management may be enhanced through e-government services, while sub services such as e-health may be a basis of integrating citizen's data. E-education on the other hand may enhance access to both local and international education tools thereby enhancing education.

Model One "Smart Service" (Gateway Service Points)

The "Smart Service" model emphasizes the provision of basic and value-added services to citizens. The objectives of extension of services, quality of service, convenience, efficiency and specific service enhancements can be met using this model. While it is fundamentally a transactional model, with a degree of interactivity, citizens can also potentially get government limited information from the point at which the transaction was conducted. In the early stages the information component could be based on pre-prepared information that can be printed off the terminal device. (CPSI, 2003:48)

Model Two "Smart Plug-In"

This model envisages using the extensive telecommunications and ICT networks of agencies such as Uthingo, the Post Office and Post Bank, which have a wide reach throughout South Africa at local levels within short distances from homes and workplaces to deliver basic e-services to citizens. Government could plug in a Gateway Service Point device (Automated Service Machine) into the Uthingo network to deliver small transactions services in the "first phase of e-government" (2003 - 2004).CPSI explains that while the model has good geographical reach, it has limited capability to meet the objectives of convenience, improved service, efficiency and specific service enhancements(CPSI, 2003:48).

Model Three "M-Services" (mobile)

Mobile phone subscribers are estimated to be around 14million in South Africa, and CPSI suggests that it is crucial to the building of e-government strategies to explore the opportunities for providing services through this channel of mobile devices. Banks and mobile phone companies are already collaborating to design products and services that utilize the convergence of networks and technologies to provide products such as the "non-cash palm top electronic purse" announced recently (CPSI, 2003:48).FNB Bank integrated with an PayPal an international online banking system whereby users have accounts that resemble bank accounts that can be used for online transactions worldwide. This can enhance payments if integrated into government tax systems or other service payments. (CPSI) 2003:48 supports that this model can address the objectives of extension of services to underserviced areas, convenience and efficiency for a limited range of services in the early phases of migration to e-government with attention to specific service enhancements at a later phase.

Model Four "Government Online" (Internet)

Internet access is seen as a key feature of building e-governance and democracy as citizens can participate in on-line discussion groups on a wide range of topics of interest. Internet may also open up a gateway for self-employment of the skilled unemployed craftsman as given as an example by CPSI. In a radius of about 60 - 80 km around Thohoyandou in northern Limpopo province, live a number of local artists and crafts-persons who create high quality crafts that are saleable on the international market. These are typically large pieces such as carvings made out of an entire tree trunk that can sell for a few thousand rand each. However, they do not have regular access to the Internet and have difficulty sustaining a relationship with South African and international markets due to distance. A community development initiative to bring the Internet to crafts people in the villages of Limpopo, KwaZulu Natal and the Eastern Cape could make a significant impact on community development and local economic development initiatives undertaken by provincial and local government (CPSI, 2003:48).

Model Five "Centre Services" (Gateway Service Centre)

This model will be the most visible face of e-government service delivery. This will entail locating the most comprehensive range of services in one place. The Gateway Service Centre will provide a one-stop interaction with a government intermediary that will be highly professional, electronic and fast. Gateway Service Centres could also include self-service terminals for simpler transactions. Over time more government services would migrate to these centres (CPSI, 2003:03).

Model Six "Talk-to-government" (Plain Old Telephone Service)

This is an information service model, which can be based on two applications - IVR and call centres - and is particularly appropriate for under-serviced areas. However, this will also be a relevant model for urban or peri-urban citizens who do not want to travel. Potential exists for transactions over this model if there is a payment system in place, with effective authentication measures in place (CPSI, 2003:03).

Model Seven "Computerised Counter Services"

This model is the key in the early phases of e-government roll-out. The aim is to immediately improve current service levels by reducing waiting times, increasing accuracy and reducing repeat visits by citizens. While the service is still located in the existing government office, the service itself will be computerized. This means that the teller will have a computer linked to the actual database that they will eventually access. This is an intermediate measure to improve service delivery while e-government rolls-out. It also provides an entry point for engaging civil servants in a different mode of working and will thus require training and orientation (CPSI, 2003:03).Computerization of government services are essential in that they can also be used to evaluate the usability of the system within the government department and the workers before the actual user based system is developed and rolled out for access to the citizens in the case of e-government service enhancement.

2.14. E-BAROMETER

The South African Department of Communications recently introduced a measuring instrument, styled the e-barometer (DoC, 2011), which aims to measure:

a) Electronic development progress in South Africa in the three dimensions of access, uptake and usage.

b) Electronic development in nine segments (individuals, households, communities, business, government, health, education, digital local content and the ICT sector).

c) Progress against government's policy objectives;

d) Comparative progress of South Africa against the BRICS peer countries of Brazil, Russia, India and China; and

e) Comparative progress against the broad international community.

The 2011 e-barometer report measured the changes in the South African e-government status between years 2000 to 2010. It reported that in comparison with its peers in the BRICS, South Africa's ranking in 15 international indices has typically

been in the second or third quartile, but its ranking over the last few years "… is stagnant or slipping", while its BRICS peers have generally improved their respective rankings (DoC, 2011, p. 17).

The report states that South Africa is currently advancing slower than it should be and instead of progressing towards the top quartile of countries it is slipping back towards the third quartile … tends to do better on indices that contain a number of non-ICT infrastructure indicators covering areas such as the business, legal or social environment … and does less well on the more infrastructure focused indices (DoC, 2011, p. 17). (Cited in Cloete)

The report identified the following bottlenecks that are pertinent to e-government (DoC, 2011, pp. 28-43):

• Individual and household sector have limited access to and high cost of broadband Internet, high cost of mobile devices and services; community sector: low levels of public access to Internet and appropriate content.

This implies that citizens are not yet able to purchase related equipment to access e-government services. Most of the latest technologies penetrating the market are still out of the range of affordability for the majority of the people especially in remote areas associated with low income levels.

• ICT sector: lack of specialised ICT skills.

This calls for addressing the issue of ICT skills. Enhancement of ICT skills for both the government officials and for the citizens will change the levels of access, uptake and intake of these services.

• E-government sector: need for revised policy and implementation strategy, stakeholder role clarification, appropriate targets, outcomes and budgets.

This implies the absence of sound policy relative to e-governance. The issue of role clarification has to be addressed to ensure that delays of implementation and upgrades are overridden.

• E-education sector: lack of clear strategy and goals.

This also calls for careful planning by government department and outlining of goals that a desired by certain services launched by the government.

• E-health sector: lacking monitoring and evaluation capacity aligned to ICT strategy.

Monitoring and evaluation is important when it comes to addressing problems through measuring the achieved outcomes in relation to set goals. Hence this mean that for any e-government service launched by a government department, a monitoring and evaluation strategy must device as soon as the project is implemented.

• E-business and SMME sector: measurement indicators lacking; and

• Digital local content sector: appropriate strategy and indicators lacking. (Cited in Cloete, 2012:137)

The issue of indicators lacking all goes back to monitoring and evaluation. A thorough monitoring and evaluation must be created. . Gebremedhin et al (2013:33) highlight that good performance indicators should be CREAM, meaning they should be clear, relevant, economical, adequate and monitorable.

The results of the e-barometer report clearly reflect that there are still loopholes within the environment of e-governance in South Africa.

2.15.   SUCCESSES OF E-GOVERNANCE IN SOUTH AFRICA

E-governance in South Africa has been showing a rise lately as portrayed by various Improvements of e-services.   Authors like Mpinganjira *et* a(2013:3118), Pillay (2008:28) appraise the SARS E-Filing services as it has had an outstanding changing of the way the tax system was carried out by the South African Revenue department (SARS).Amongst others Smart Cape Project, E-NATIS have also been appraised by most authors as successful.

Provincial Portals

The provincial governments in South Africa have their own portals. The notable functioning portals are those of the Gauteng Provincial Government and the Western Cape Provincial Government. The Cape Gateway portal probably led the way (Cape Gateway, 2004; PGWC; 2005), although in a 2006 review, De Tolly, Maumbe and Alexander argued that more content was needed, there was a need for centralised content management, a stronger technology base, more specialist skills, the development of a more dedicated e-culture, better access and a systematic monitoring and evaluation programme (Cloete, 2012:133).

Independent Electoral Commission (ITC) – e-procurement system

The IEC introduced an innovative system aimed at preventing corruption at its offices. The innovative electronic procurement system is set to eliminate paperwork and human intervention when registered companies tender for services. This reduces costs for both institution and the suppliers in time and travel costs. In terms of the new system, all IEC registered and approved suppliers -including emerging businesses would be informed via e-mail, fax or SMS of any auction taking place to enable them to openly bid to provide services. 'All submitted bids or quotes can be viewed by all approved suppliers at any stage during the bidding process. Suppliers can compete openly for business.' The system, the IEC explained, would provide 'fair, open, transparent, cost effective and competitive' business opportunities to register suppliers of goods and service providers seeking to do business with the electoral body.

The Independent Electoral Commission (IEC) successfully developed an e-procurement system that allows for open and transparent bidding of government tenders aimed at preventing corruption. Moreover, the IEC leverages tools of multi-access to promote free and fair elections. In 2004, for example, IEC, in partnership with cell phone service providers, enabled voters to short message service (SMS) their identity number, and in return receive a message back indicating their eligibility to vote and the voting station's details. Moreover, a satellite-enabled network made it possible for the commission to register voters; relay, collect and verify ballots; and relay results across the country. Besides, the tabulation database system was linked

via a wide area network to all district collation centres. Custom-designed handheld scanners captured information from bar-coded ID books and greatly streamlined the process of voter registration. (Mutula, 2010:46)

South African Revenue Service

South African Revenue Services (SARS) e-filing system which provides a way to conduct transactions related to tax returns on the internet between government and business (G2B) (Mutula ,2010:46). SARS E-filing is one of South Africa's E-government initiatives. In brief, SARS E-filing is a free online service that allows individual taxpayers, businesses and tax practitioners to register and submit tax returns, make payments and perform a number of other interactions with SARS in a secure online environment (SARS, 2011). This system displays the many benefits inherent in e-Government systems. The time taken to process the information is much quicker than the traditional method, which normally takes months. The risk of losing the tax return and supporting documents in the postal system is removed. It must be remembered that the business process of the tax return was changed in order to accommodate the online system. Where previously one would have sent the supporting documents to SARS to keep, the system/legislation makes the rule that the user keep the supporting documents for 5 years. This was a crucial decision, as this reduces the unnecessary storage necessary to keep this information. The onus is on the taxpayer for this responsibility. Also, the possibility of losing the tax return is practically zero once submitted electronically (barring unlikely online data storage disasters) (Pillay, 2008:28).

The e-filing system launched in 2003 as a replacement process for the manual tax returns submissions. According to the 2004 SARS annual report, a total of 51,396 tax returns were submitted using E-filing in its first year of running. The figure jumped to 122,219 in the second year, representing an annual growth of 138 percent. Statistics for the 2009/2010 financial year shows that the number of returns submitted using E-filing reached 11,050,530 a growth of 82.60percent from the previous year (SARS, 2010a). Statistics further shows that for the 2009/2010

financial year 95 percent of all income tax returns were submitted using E-filing (SARS, 2010b).

According to SARS 2010a annual report, the average turnaround time in working days for processing of income tax stood at 1.93 days in the 2009/2010financial year compared to 18.94 days in the 2008/2009 financial year. This implies that the project has been a great success (Cited in Mpinganjira, 2013:3198).Maumbe and Okello site that the project has been a success and internal and external factors contribute to its success. Externally they say it enjoys strong political support from the government. Internally the e-filing initiative has been effectively implemented as a result there has been over R100 billion revenue since the inception of its e-government initiatives in 2000 and 2001 respectively. Furthermore in 2007 it simplified the tax reform forms, thus making the whole process easier. It has also helped to keep up-to-date records on tax payers, which are easily accessible. It has also helped SARS to understand the risk profiles of customers and segments. SARS currently receives between 65000 and 75000 electronic payments from tax payers and traders every month. The electronic service is backed up by a number of useful services such as same day processing for all transactions. This addresses the problem previously created by backlogs in the systems. The electronic service is also used for extensions on Value Added Tax (VAT) from the 25th of the month to the last day of the month. Success of the project has therefore been a result of the efficiency it increased for the local business and reduction of movement costs and time delays of registration of government taxes. Therefore citizens welcomed the project and are benefiting form it hence its success.

Benefits to tax payers

- Taxpayers now have a system that records all interactions with SARS. This provides convenience factor as users don't have to develop their own filing system for the information, and there is little chance of communications being lost.
- They claim greater accuracy in submissions and returns which the author disagrees with. There could be fewer errors because users don't cause handwritten mistakes as the information is captured on online forms.

- There is greater flexibility to interact with SARS, as one can email them, send a message via the portal or contact them via a call centre.

- There is an additional 3-5 day window to submit certain payments which is probably a result on doing the transactions using online banking etc. rather than using the old systems of depositing money at a bank and faxing deposit slips which could go to the wrong person at SARS.

- Full support via the web or dedicated call centre

- Reconciliation and confirmation of forms and payments

- There is also a reminder service in the form of email or SMS (Cited in Pillay, 2012: 31).

Electronic National Administration Traffic Information System (E-NATIS)

Enatis is an e-government initiative that is used for the application for driving licenses and the registration and licensing of motor vehicles, notification of change of ownership/sale of motor vehicles; and application for learner's licenses. The transactions and services can be provided by most transport offices across the nine provinces in the country (National Traffic Information System, 2008). During the first six months of 2008, more than 75 million transactions were performed on eNaTIS. With the exception of routine maintenance outside of business hours, downtime was virtually non-existent in the first half of the year, and phenomenal system processing time was experienced. The eNaTIS processed 96 per cent of all transactions in less than two seconds, 99.8 per cent in less than 10 seconds, and 99.95 per cent in less than 60 seconds. Before e-NATIS was launched on 12 April 2007, its predecessor (Natis) managed an average of 300,000 transactions a day. Now, the average rate of daily transactions is 600,000 (Segar, 2008) (Cited in Mutula, 2010:47). This is also another example of enhancement of service delivery to the people through employment of e-government.

Smart Cape Access Project

The Smart Cape Access project and the Digital Business Centres project were supplemented by the Khulisa Youth Development Programme focusing on equipping young people from previously disadvantaged communities with ICT technical skills to operate in the new economy. This programme is one of the largest learnership programmes in the country. Community empowerment was addressed through

community computer literacy programmes and the establishment of computer workstations linked through electronic networks to the municipality and the provincial library and school systems (Cited in Cloete, 2012:135). In a city where more than 60% of residents have never used a computer, the Smart Cape pilot project has installed 30 computers in six libraries. The computers have attracted 5600 new users and an average of 7000 people each month. The project is the first to provide free computer and internet access to patrons in disadvantaged neighbourhoods who may not otherwise have such access. In the view of the above, the project has achieved success in its implementation.

2.16. CURRENT E-GOVERNMENT RELATED PROJECTS IN SOUTH AFRICA

Currently e-government related projects underway include the introduction of the Smart ID card, reduction of internet charges etc. These projects are not yet at full swing, however it is anticipated that with the introduction of these two projects will address the issue of access.

New ID card System

South Africa is currently rolling out new ID cards migrating from the book based id card to a bar coded (Smart ID card) .Replacing their current green bar-coded paper ID books, South Africans will be able to receive a smart ID card replacement in initially 27 locations throughout the country, ramping up to more sites in order to issue 38 million smart ID cards over several years. The smart ID cards add many more security features than the previous paper documents, and will feature a dual-interface chip, as well as fingerprint biometrics and biographic data - making it difficult for any forgery. South African citizens will also receive their new cards in five to 10 days, compared to the 47 days it took for the paper documents to be produced and delivered. The microchip in the smart ID card will also enable the card to be used to access other government services such as electronic health records. 2013 [online]Available
at:http://www.itweb.co.za/index.php?option=com_content&view=article&id=66583. [Accessed 11 December 2013].

Evaluation of the successes of this project cannot be done yet as the project is still in the early stage. Its anticipated outcomes are however will have a positive contribution to enhancing e-governance in south Africa while benefiting majority of the population as the system will bring endless efficient services from government departments especially the departments that deal much with identity verification processes. On the other hand the new system has reduced waiting period for IDs meaning more efficiency to the people while the departments have increased their effectiveness towards this service.

Reduced mobile communication tariffs

At the time of writing up this research, news has it that the Portfolio Committee on Communications wants to ensure that South Africans, especially the poor, are able to make calls, send messages and access the internet at the lowest possible tariff. The committee has spent the mid-year parliamentary oversight period holding public hearings to engage the community. During the first round, the committee targeted the Department of Communications (as the policy maker), the independent Communications Authority of South Africa (ICASA, as the regulator), and the dominant mobile and fixed-line operators in the telecommunications sector, among the other role-players. Mr Mawethu Rune of the Eastern Cape's ANC Youth League Task Team on the same issue of reduction of mobile communication tariffs suggested health services and emergency numbers should be free on mobiles (http://allafrica.com/stories/201310110356.html). This move will at least increase accessibility of e-governance services available as high data and call charges are some of the factors cited by many authors as the reason why the people in remote areas like Nkonkobe Municipality are unable to access internet based government services or e-government services.

2.17. FAILURES OF E-GOVERNMENT IN SOUTH AFRICA

The Gauteng provincial portal has elicited explicit reports in the media of a failure of the system (Rasool, 2011), although it started off well with an attempt to create a one-stop-shop access channel to services provided by the Gauteng Provincial Government (Abrahams & Newton-Reid, 2008). The Gauteng Shared Services Centre (GSSC), responsible for providing IT services and introducing provincial

broadband infrastructure (G-Link) to support educational and healthcare applications in schools and provincial hospitals, created high expectations, but it collapsed and the most viable of its core functions have been incorporated into the Gauteng Provincial Finance Department (Mahlong & Jones, 2010). (Cited in Cloete, 2012:134)

Pillay (2012:33) cites some of the failures of home affairs "who am I online" service and Golaganang.

Home Affairs "Who am I online"

This project was awarded by the Department of Home Affairs to Gijima AST in 2008. The project involved a unified portal for a citizen's life and would have integration with the Automated Fingerprint Identification System (AFIS), and also allow for future integration with new smart-card technologies. The system would remove the need for paper in the delivery of passports and identification book. The delivery date for the project was in 2010. In 2010, the department cancelled the contract due to non-delivery. There were also claims of irregularities by SITA. Jonas Bogashi also left SITA just before the tender was awarded to become CEO of Gijima, which is a conflict of interest, since he would have been involved in adjudicating the tender. There was also another tender involving identity books that was cancelled due the name of a bidder being leaked. At the time of writing, Gijima and Home Affairs were in a legal battle over the legality of the contract (Pillay, 2012:34). Corruption tendencies may be seen in this light as a hindrance to many projects that are meant to benefit various societies that could have been implemented a while ago and made significant changes to social and economic development.

Golaganang

Golaganang (meaning 'come together') was a joint initiative between the South African government and the private sector to provide public service employees with an affordable computer bundle. This would include a multi-media PC, operating system and application software, a modem and Internet connectivity, a printer, free installation, a three-year extended warranty, interactive tutorial software plus three hours basic computer skills training for the employee and one family member(http://www.egov4dev.org/success/case/golaganang.shtml). It was expected that through this project, inequitable access to technology would in part be addressed,

improve digital literacy among public servants, improve digital literacy among public servants, improve digital literacy among public servants, improve utilization of ICT in their work and bring benefits of employment. The project was premised on shared risks and benefits but it is said to have failed to take off when HP (private sector partners in the project) asked government to give guarantees to the value of (US$73m) to allow the project to go ahead(Levin 2008)(Cited in Lekoko, Semali, 118:2011). Trajkovik et al (2011:62) highlight the reason of failure of the Golaganang project as a result of Lack of inputs from key local stakeholders, leading to designs that are over-technical, over ambitious or mismatched to local environment(culture, values) and needs. This is typical with most projects embarked on by the government that do not involve a close analysis of the recipients of the services' environmental characteristics. Trajkovik et al (2011:62) also further pinpoint that Lack of piloting and lack of fit to organizational structure are also other factors that contributed to the failure of the project. Therefore this implies that for e-government projects to sail local stakeholders must be consulted first, Designs that match the target populations capacity and ability should be considered and also culture values should be considered as well.

2.18. CONCLUSION

Literature consulted in this chapter has proved this study valid as many issues relative to the topic were touched on by various authors. The chapter has shown the factors that are said to affect e-government services', the proposed frameworks, and state of e-government in South Africa.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

This chapter will highlight the aspects of the method that will be used to conduct the research including research design, research type, target population, sampling techniques and the data collection process and analysis.

3.1. Research Design

3.1.1.Quantitative Survey Study

This research is quantitative in nature as it follows a survey design. A survey according to Balnvaves and Caputi (2001:76) is a method of collecting data from people about who they are (education, finances, etc.), how they think (motivations, beliefs, etc.) and what they do (behaviour). Balnaves and Caputi (2001:75) state that the time to use surveys is when you cannot observe directly what you want to study. In this case the researcher is not able to tell whether people are aware of e-governance services currently available online or if they are able to access them.

The difference between quantitative and qualitative research is that quantitative research is based on the measurement of quantity or amount. It is applicable to phenomena that can be expressed in terms of quantity. Qualitative research on the other hand, is concerned with qualitative phenomenon, i.e., phenomena relating to or involving quality of kind (Kumar, 2008:08). This research aims to investigate the factors affecting citizen's ability to access to e-governance services therefore the procedure will include quantifying data about the population sample and analysing to generalise for the whole target population. This makes the research study a quantitative type.

Target Population

Target population is the set of elements about which information is wanted and parameter estimates are required Sarndal, Swensson & Wretman (2003:13). Sekeran & Bougie (2010:267) hold that the target population must be defined in terms of elements, geographical boundaries, and time.

The survey will be carried out within Nkonkobe Municpality area. Nkonkobe municipality's population is around 127,115 according to Statistics South Africa (2011). To have a more precise representative sample the researcher will access the population by means of questionnaires that will be distributed randomly around the area of Nkonkobe. The target population will be at least 50 respondents selected randomly.

Sampling Techniques

Since it is difficult for the researcher to access all the 27 townships within Nkonkobe, Municipality samples will be obtained from 3 places to come up with a stratified sample.The places are namely Alice, Fort Beaufort, Hogsback. The population to be sampled will consist of students, employed people, self-employed people and unemployed people to increase validity and reliability of the samples.

Simple random sampling technique will then be employed to distribute the questionnaires. Simple random sampling technique is whereby each element in the population has an equal chance and independent chance of selection. (Kumar, 2010:204), while stratified random sampling is when the population is divided into stratum that is homogenous with respect to the characteristic on the basis of which it is being stratified (Kumar,2010:203). The main advantage of a stratified sample is that it guarantees that each of the different subgroups will be well represented with a relatively large group of individuals in the sample (Gravetter, Orzano, 2010:148).

Data Collection Method

A Questionnaire survey will be done and questionnaires will be used in obtaining the data. A questionnaire is basically a structured technique for collecting data consisting of a series of questions. (Bhattacharyya, 2006:390). The questionnaires will include a series of close-ended questions and a few open ended questionnaire. The advantage of this type of questionnaire is that it will allow the respondents to be quicker in responses and not be annoyed by questions they might not really know about for example if asked to fill in open ended forms. In this questionnaire the main aim is to obtain information about whether the respondents are aware of e-government services currently available, if they have the appropriate tools or

equipment to access the e-government services. The questions will be basically crafted to achieve the research questions and objectives.

A pre-test of the questionnaire will be conducted first to enquire if typical responded will be able to understand the questions on the questionnaire. This will help reduce bias and increase response rate.

An observation of the current e-government services will also be carried out by the researcher to observe an actual working e-government system. This will include content analysis of government websites and the services they are currently offering to the people. An assessment will be done on what processes can be carried out on the websites and what output can be obtained from the government online services to the people. This will help device the appropriate questions to ask on the questionnaire when consulting on the awareness of the services available.

Data Analysis

For data analysis descriptive statistics using percentages mostly will be done with the aid of SPSS Statistics Software. Descriptive statistics are mainly used to summarize a data set and to numerically describe sample units, phenomena, and other variables of interest (McNabb 2008:153). Data presentation will be done using statistical tables, bar graphs, pie charts etc.

This research will be also conducted with the help of in depth literature review to find out about how the other researchers have conducted similar research around the same topic, what their research tools are, and their shortfalls etc. This will help the research to be able to produce reliable and valid results. Government documents, presidential state of the nation addresses, global and nation reports on e-government, and reports on service delivery concerns in South Africa will be closely studied to obtain information relevant to the study.

3.1.2. Questionnaire Design

The questionnaire has been tailored to achieve the objectives set out by the researcher. Structure guide of the questionnaire has been adopted from sample

questionnaire from Economic Commission for Africa has been adopted from the document titled Framework for a Set of E-government Core Indicators (ITU, 25:2011). This questionnaire will help determine if the citizens have the basic access to the widespread medium of communication from the government which is the internet. This framework however seems to have been devised for developed nations as the researcher noted some of the questions refer to advanced e-governance services not available in developing nations. The questions will be adjusted to match with the services available. The questionnaire has been added with another response answer option (Not Aware). This answer will determine whether the citizens are also aware of the services being asked as to answer objective 2.

3.1.2.1. Sections in questionnare

Demographics Section

This section will collect particulars about the participant's age, sex, occupation, level of education etc.

Access Tools

This section aims to find out if the citizens within Nkonkobe municipality actually have the appropriate tools to access the e-governance services for example computers, laptops, cell phones etc.

Access Channel

This section aims to find out what channels they mostly have access to or they use. These are mediums of communication to obtain the e-governance services for example via internet, SMS, voice communication or telephones.

Internet based Access/ Usage test and Services

This section will aim at finding out the ultimate experience of users who may have accessed some of the e-governance services via the internet since it is the main channel of electronic government initiatives. Series of questions will be asked to

check if the citizens are aware of some of the services, if they have used them or if they are aware of them.

3.2. Reliability

Reliability is a criterion that refers to the consistency of data stemming from the use of a particular research method. A measure is reliable to the extent that repeated application of it under the same conditions (by different researchers, for example) gives the same result (Taylor et al, 2007:03). To make the research reliable, the researcher has adopted some of the research instrument components used by a Sample questionnaire from Economic Commission for Africa from the document titled Framework for a Set of E-government Core Indicators (ITU, 25:2011).The document proposed a list of seven e-government core indicators. Relevant to this study the indicator that was used as a framework for assessing access of online e-government services is known as "EG7-Selected Internet Based services available to Citizens by Level of Sophistication of service". The model questionnaire has questions asking the participants if they were able to access the stated internet government services. The global questionnaire however had questions which were not relevant in the case of South Africa as some of the services stated are not yet available in South Africa. The researcher had to adjust the questions to make them relevant relating to the currently available services that the government of South Africa has implemented. The research instrument therefore has a better degree of reliability.

3.3. Validity

Validity refers to the success of a method in probing and/ or assessing what it sets out to probe or assess. If a method is valid then differences in the results between individuals or groups or organisations can be taken as representing true differences in the characteristics under the study (Taylor et al, 2006:02).

3.4. Ethical Considerations

Apart from instrumentation and procedural concerns, collecting data from people raises ethical concerns. These include taking care to avoid harming people, having

due regard for their privacy, respecting them as individuals and not subjecting them to unnecessary research (Goddard Melville, 2004: 49).

To avoid harming people measures have been put forward by the researcher to guard against both physical harm and psychological harm. Since people have the right to privacy data collected from them will not include obtaining names or addresses of the participants. The research instrument will strictly remain anonymous. Therefore subjects will not be identifiable to anyone reading the final report. All participants will be approached with respect and those not willing to participate will not be forced.

3.5.   Conclusion

This chapter has defined the research methodology, highlighted the target population including the sample size, sampling techniques, data collection instrument to be used and the nature of data analysis. The research methodology proposed herewith is anticipated to achieve the objectives of the research.

CHAPTER 4: ANALYSIS AND INTERPRETATION OF RESULTS

4.1.   Introduction

The data collected from the questionnaire was coded into SPSS Statistics Software package which helped in data analysis. Data analysis done comprises of a combination of descriptive statistics and use of frequencies to report the results. The data is presented in frequency tables, cross tabulations, bar graphs and pie charts. The research findings and discussions will be structured in relation with the research objectives.

4.2.   Analysis

In this section biographical data will be analysis, followed by analysis of research questions 1 and 2.

Table 4.1: Demographics of Respondents Statistics

		Sex	Age	Level of Education	Occupation
N	Valid	50	50	49	50
	Missing	0	0	1	0

Table 4.2: Demographics (Sex)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	24	48.0	48.0	48.0
	Female	26	52.0	52.0	100.0
	Total	50	100.0	100.0	

Figure 4.1: Pie Chat Demographics (Sex)

Sex
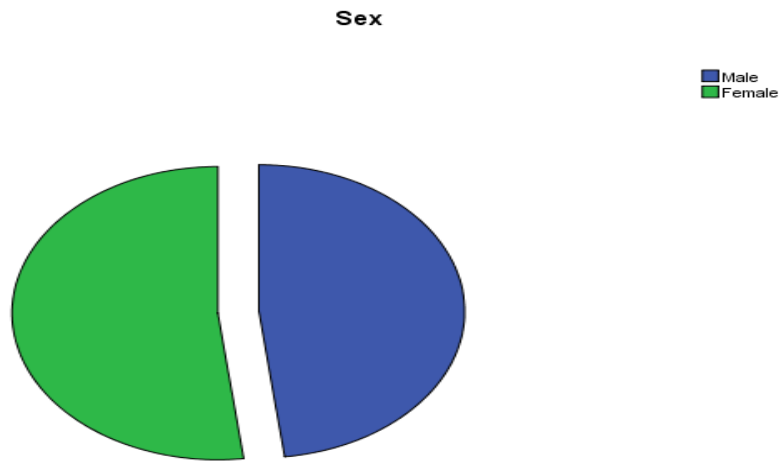
Figure 4.2: Pie Chat Demographics (Age)
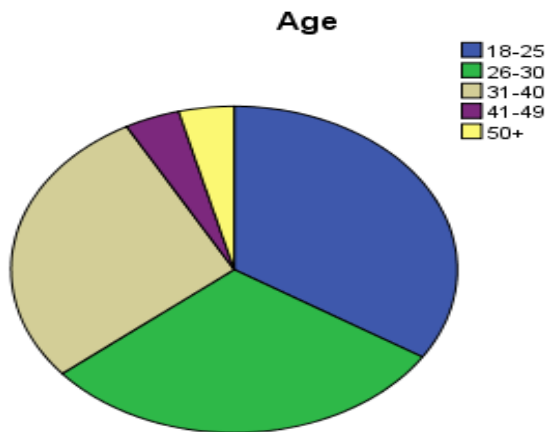
Table 4.3: Demographics (Level of Education)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary Education	5	10.0	10.2	10.2
	Secondary Education	22	44.0	44.9	55.1
	Tertiary Education	22	44.0	44.9	100.0
	Total	49	98.0	100.0	
Missing	System	1	2.0		
Total		50	100.0		

Table 4.4: Demographics (Occupation)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Employed	15	30.0	30.0	30.0
	Unemployed	11	22.0	22.0	52.0
	Self employed	7	14.0	14.0	66.0
	Student	11	22.0	22.0	88.0
	Seasonal worker	6	12.0	12.0	100.0
	Total	50	100.0	100.0	

Figure 4.3: Pie Chat Demographics (Occupation)

Occupation

Legend:
- Employed
- Unemployed
- Self employed
- Student
- Seasonal worker
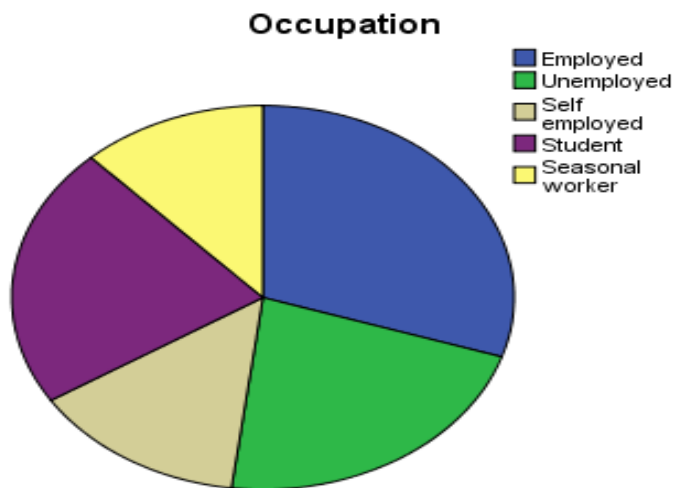
Table 4.5: Level of Education * Ability to use Computers Cross tabulation

		Ability to use Computers		
		Yes	No	Total
Level of Education	Primary Education	3	2	5
	Secondary Education	6	16	22
	Tertiary Education	19	3	22
Total		28	21	49

Figure 4.4: Bar Chat (Level of Education * Ability to use Computers Cross tabulation)
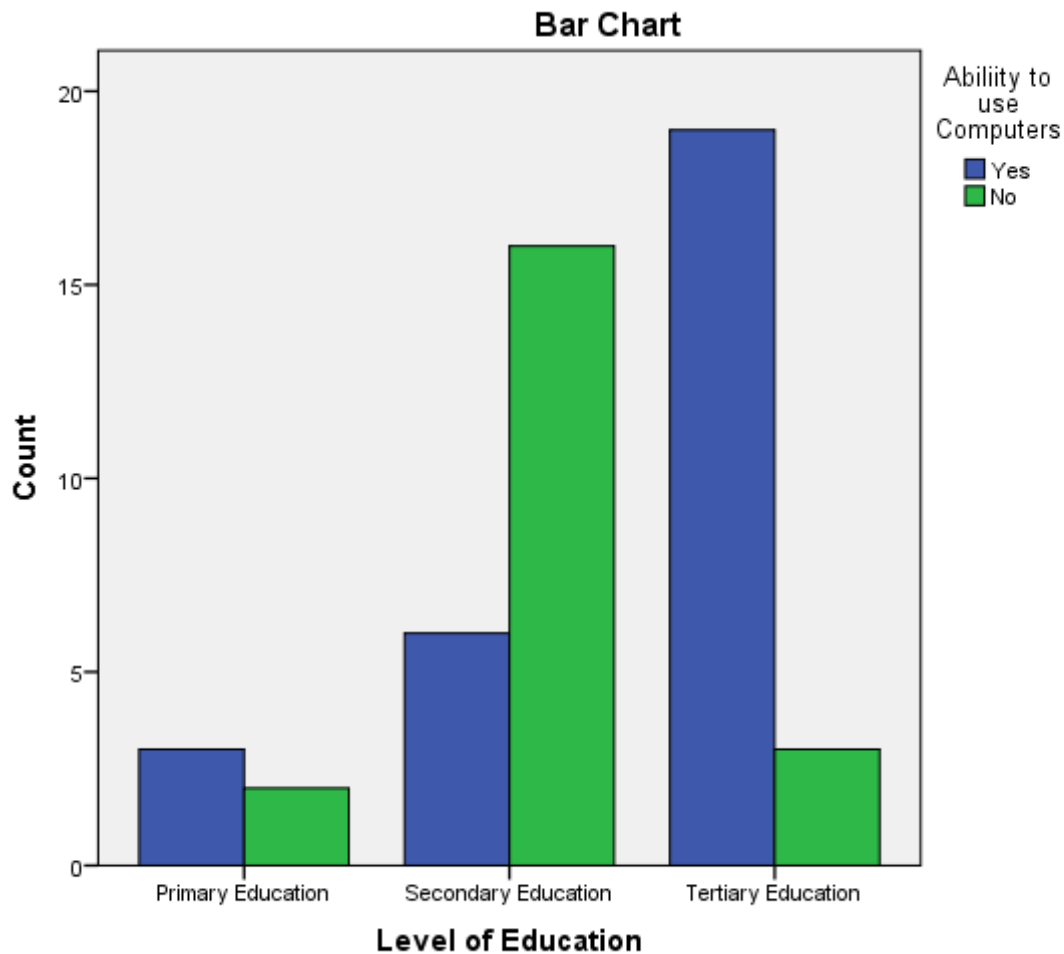
Ability to use computers scored a lower percentage amongst the groups that attended up to primary level while increases are noted in the secondary and tertiary level. Reasons are that at tertiary level computers are relied upon for studies hence people get more skills in the process than those without access to computers. The same situation is also reflected below however with the inclusion of the occupation employed group that also enjoys ability to use computers.

4.3. Occupation and Ability to use computers

Table 4.6: Occupation * Ability to use Computers Cross tabulation

| | | Ability to use Computers | | Total |
		Yes	No	
Occupation	Employed	34.5%	23.8%	30.0%
	Unemployed	6.9%	42.9%	22.0%
	Self employed	20.7%	4.8%	14.0%
	Student	34.5%	4.8%	22.0%
	Seasonal worker	3.4%	23.8%	12.0%
Total		100.0%	100.0%	100.0%

Figure 4.5: Bar Chat (Occupation * Ability to use Computers Cross tabulation)
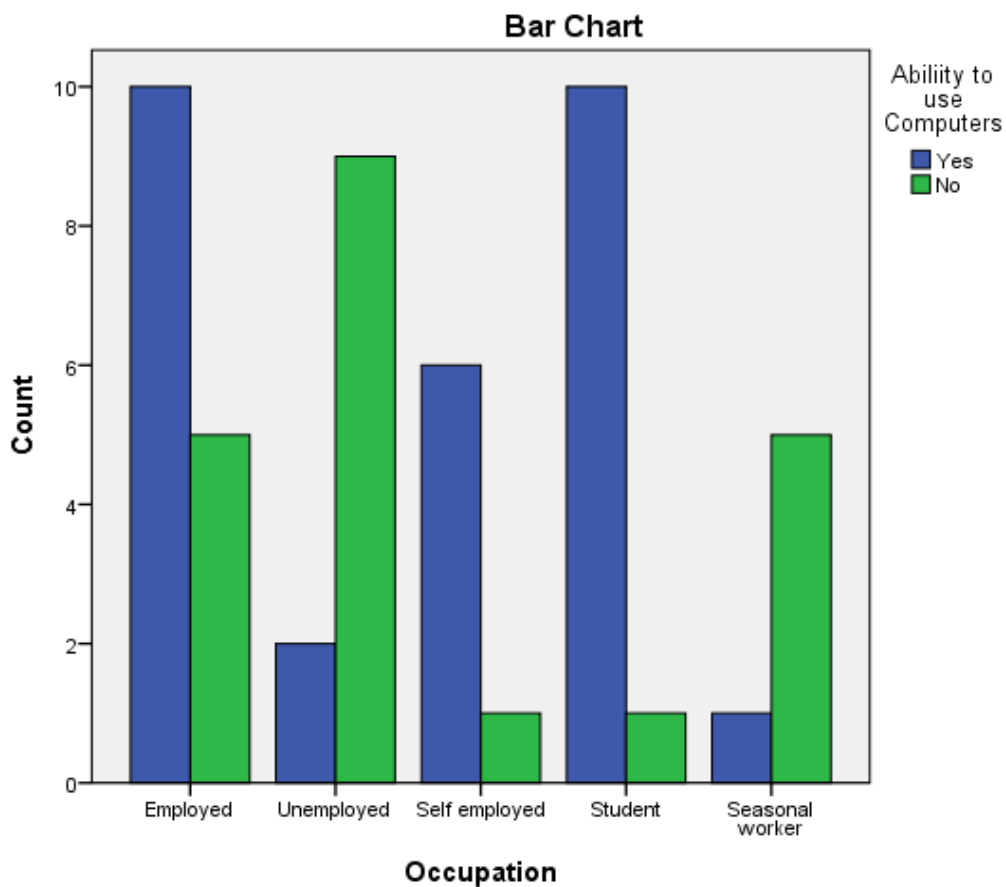
The statistical tables and graphs shows that the population that falls under the occupation categories employed and Students are the groups that are most able to use computers all recording the same value of 34.5% while unemployed and Seasonal workers recorded least able people to use computers recording 6.9% and 3.4% respectively. Self-employed category is the 3rd occupation group with the largest number of people able to use computers.

Table 4.7: Demographics Home Town

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Alice	25	50.0	50.0	50.0
	Fort Beaufort	11	22.0	22.0	72.0
	Hogsback	11	22.0	22.0	94.0
	Other	3	6.0	6.0	100.0
	Total	50	100.0	100.0	

Figure 4.6: Pie Chat Demographics (Home Town)

Home Town

■ Alice
■ Fort Beaufort
■ Hogsback
■ Other
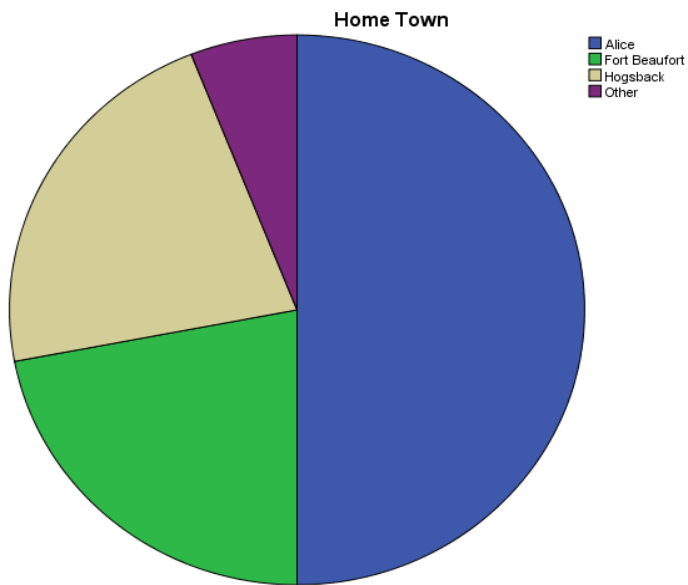
Table 4.8: Demographics (Language)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	49	98.0	98.0	98.0
	No	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

Figure 4.7: Pie Chat Demographics (Language)
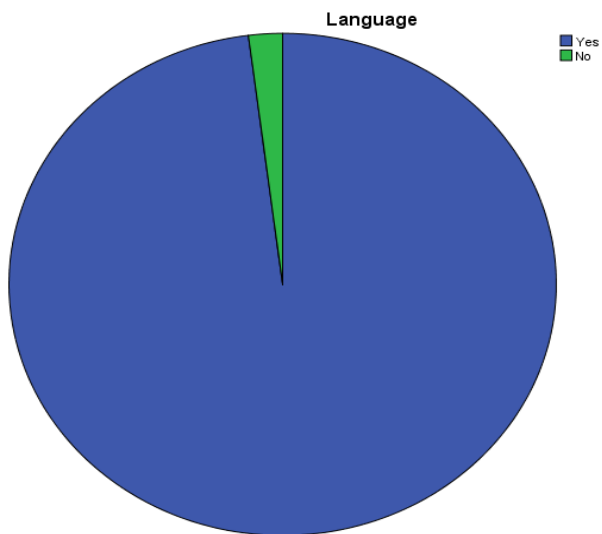
In terms of the ability to use English as the medium of communication between the citizens and e-government ICT interfaces or e-services, 98% of the population in the sample is able to read and write in English. Therefore language may not be seen as a factor affecting access to e-government services that are all offered in English within the area of Nkonkobe Municipality. There is however citizens who were not able to participate because they did not understand English. This is mostly the elderly population

4.4. RESEARCH QUESTION 1. What factors affect citizens to access e-government services in Nkonkobe Municipality?

4.4.1. Access Tools/ Device Ownership Results

Table 4.9: Access Tools/ Device Ownership Frequencies

		Responses		Percent of Cases
		N	Percent	
ACCESS DEVICE OWNERSHIP RESULTS[a]	TOOS/Telephone	9	7.2%	18.0%
	Cell phone	49	39.2%	98.0%
	Laptop/ PC	20	16.0%	40.0%
	Tablet PC/ Ipad	9	7.2%	18.0%
	Electricity	38	30.4%	76.0%
Total		125	100.0%	250.0%

Telephone

18% of the population has a telephone or landline while 82% do not have. This is a strong barrier to access internet as telephone lines can be used as a medium for internet through the ASDL technology which is cheaper and faster.

Cell phone ownership

At least 98% of the population own Cell phones while only 2% indicate that they do not have. This means that if the government would like to reach a greater audience going via the cell phone platform is the right way at the moment. Services may be developed to run on mobile platforms such as SMS or USSD based application services as most of the cell phones may not be able to access internet, but at least all can handle SMS services.

Computers / Laptops owners

Laptop ownership within Nkonkobe has mostly been boosted amongst students in university institutions while the general population still do not own laptops. Laptops or computers offer wide ability to access internet with lesser restrictions as compared to phones which may need to have special features to process information on websites such as java scripts. In as much as 40.8% of the population may have laptops, without internet, access to e-government is still a restriction for them. Ability to access internet is triggered by the high costs of internet services from the mobile operators while another factor is that there is unavailability of reliable internet access such as Broad Band.

Other complementary devices to pcs and laptops are tablet pc, which are more portable and mobile while equipped with more functions almost equivalent to a machine. However due to the high cost of the devices, only 18% of the population sample own these devices while 82% do not have.

Electricity Access

Electricity enables all of the devices that access internet or used to access any of the e-government services to power up. Without electricity within the communities, these devices will be unnecessary to own. The sample shows that 76% have access to electricity and only 24% have no access to electricity. So electricity as a barrier to accessibility of electronic information contributes less in this case.

4.4.2. Medium of Communication/ Network Channel

Table 4.10: Medium of Communication Channel

		Responses		Percent of Cases
		N	Percent	
MEDIUM OF COMMUNICATION/ NETWORK CHANNELa	3G	25	12.2%	50.0%
	Tv	43	21.0%	86.0%
	Radio	38	18.5%	76.0%
	SMS	43	21.0%	86.0%
	Wi-Fi	10	4.9%	20.0%
	Phone Call	46	22.4%	92.0%
Total		205	100.0%	410.0%

NETWORK CHANNELS

It is important to note that inasmuch as people or citizens may own the devices that are able to access internet, without the appropriate internet carrier they are basically doomed. For optimum internet speed, a standard of connectivity used worldwide and accessed by most devices today is 3G followed by Edge which is slower. Access to 3g however is restricted because the devices that have inbuilt 3g are quite expensive. This may be the reason why the population scored 50% able to access 3G despite the ownership of 98% for phones. This implies that a greater number of the cell phones have either access to edge internet or have no capabilities of going on the internet at all.

Radios

Radios are not really of much use when it comes to ability to access e-government, but however when it comes to raising awareness of e-government services, they may play a greater role. This goes the same for televisions; advertising of e-government services may be done also through TV channels to raise awareness. 76% have Radios while 87% have TVs.

SMS

86% of the population all have SMS services enabled on their phones. SMS are important for delivering reports from e-government services, for example home affairs department has an active SMS system whereby you can receive notifications about the documents you have submitted to home affairs or receive information about the documents that have been processed and are ready for collection.

Wi-Fi

Wi-Fi is the major connectivity of internet in Metropolitan Cities like Cape-Town, Pretoria and Johannesburg. Wi-Fi coverage has been increased of late in these cities and many people can access internet seamlessly despite their locations. This means no need for extra hardware as compared to that required by telephone lines or modems for connectivity in remote areas. In the area of Nkonkobe Municipality however there is absolutely no public Wi-Fi connectivity in the area similar to those found in Metros. Consequently access remains a burden.

4.4.3. Citizen Computer Literacy

Percentage of those who have used computers

Table 4.11: People who have used Computers

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	30	60.0	60.0	60.0
No	20	40.0	40.0	100.0
Total	50	100.0	100.0	

According to the findings, 60% of the sample has used computers while 40% have not used computers.

4.4.4. Ability to use computers

Table 4.12:Abiliity to use Computers

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	29	58.0	58.0	58.0
No	21	42.0	42.0	100.0
Total	50	100.0	100.0	

58% of the sample responded yes to the ability to use computers, while 42% responded not able to use computers. 60% of the population in the sample have used computers before while 40% said they had not used a computer before. However using a computer and ability to use a computer are different so the instrument also asked if the respondents were able to use the computers. 58% of the sample population responded as able while 42% are unable to use computers. This implies that at least above half of the population is able to use computers. But this has to be looked at closely as to see which category of people is actually able to use

computers as the sample may present bias if left as it is. Some segments of the population may be inappropriately presented as there is usually an interrelation between the variables education and ability to use computers, and occupation and ability to use computer. Therefore cross tabulation of the variables and their interrelatedness will be shown below to show the true presentation of the different segments of the population and their ability to use computers.

4.4.5. Capability to use computers and Computing Skills

4.5. Internet Services Usage Results

Percentage of citizens who are aware of government websites

Table 4.13: Awareness of Any Government Website

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	20	40.0	40.8	40.8
	Not Aware	29	58.0	59.2	100.0
	Total	49	98.0	100.0	
Missing	System	1	2.0		
Total		50	100.0		

58% of the sample population is not aware of any government website or domain. This implies that usage of e-governance is quite low since only 40% are aware of the websites. Therefore there could be a problem of lack of awareness or lack of interest in searching for the internet based services.

PERCENTAGE OF PEOPLE WHO FOUND THE GOVERNMENT WEBSITES USEFUL

Table 4.14:Usefulness of Government Websites

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	12	24.0	36.4	36.4
	No	10	20.0	30.3	66.7
	Not Aware	11	22.0	33.3	100.0
	Total	33	66.0	100.0	
Missing	System	17	34.0		
Total		50	100.0		

Amongst the people that used the government websites only 36.4% found the websites to be useful while 30.3% responded that the websites were not useful. A possible explanation for this could be because they did not find the information they wanted or inappropriate content.

HOW THEY KNEW ABOUT THE WEBSITES

Table 4.15:How they knew about the government websites

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Work	5	10.0	16.7	16.7
	Advertising/ News	9	18.0	30.0	46.7
	Family & Friends	9	18.0	30.0	76.7
	Internet Search	7	14.0	23.3	100.0
	Total	30	60.0	100.0	
Missing	System	20	40.0		
Total		50	100.0		

How they knew about the services

30% knew from friends and family, and also 30% from advertising. 16.7% and 23.3% knew about the services from work and internet search respectively. This means that there is less advertising of the availability of these e-government services either through radio, TV or internet advertising.

RECEIVING PAYMENTS FROM THE GOVERNMENT

Table 4.16: Receiving Payments from Government

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	13	26.0	26.0	26.0
	No	37	74.0	74.0	100.0
	Total	50	100.0	100.0	

Table 4.17: Ability to Access Payments from Home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	7	14.0	23.3	23.3
	No, I have to travel	23	46.0	76.7	100.0
	Total	30	60.0	100.0	
Missing	System	20	40.0		
Total		50	100.0		

Payments Received from government.

26% receive payments from the government while 74% are not entitled to any payments.

Ability to access payment from Home

23% of the sample population are able to access payments received from the government from home while 76.7% have to travel to access the payments. This indicates unavailability of teller machines within areas of residence for most of these people.

4.6. RESEARCH QUESTION 2: What are levels of citizen awareness of e-government services in Nkonkobe Municipality?

4.6.1. INTERNET BASED ACCESS TO E-GOVERNMENT SERVICES

Table 4.18: Access to e-government response Frequencies

E-Government Services Access	Responses		Percent of Cases
	N	Percent	
Weather Online	21	25.6%	77.8%
Passport Application Status Enquiry	6	7.3%	22.2%
ID application status verification	8	9.8%	29.6%
Living Status verification online	3	3.7%	11.1%
Duplicate ID Enquiry online	2	2.4%	7.4%
Permit Application Enquiry online	2	2.4%	7.4%
Pay municipal accounts online	2	2.4%	7.4%
Apply for a job online	13	15.9%	48.1%
Pay Taxes online	3	3.7%	11.1%
Tax filing Online	1	1.2%	3.7%
Verify Marital status Online	3	3.7%	11.1%
Renew Vehicle Licence online	1	1.2%	3.7%
Traffic fines payment online	1	1.2%	3.7%
Buy electricity online	16	19.5%	59.3%
Total	82	100.0%	303.7%

Access to E-Government Services

Services that users are mostly aware of on internet are buying electricity online, applying for jobs and weather information. On enquiry services ID application enquiry tended to be on top, maybe owed to the introduction of the new identity smart cards.

Table 4.19: Access to e-government services Multiple Response Assessment

		Responses		
		N	Percent	Percent of Cases
Responses	Yes	82	11.8%	164.0%
	No, But I'm aware	198	28.4%	396.0%
	Not aware	416	59.8%	832.0%
Total		696	100.0%	1392.0%

Respondents were asked if they had used, or were aware or not aware of any of the services that were listed in the questionnaire. The results show that 11.8% had used the services while 28.8% were aware of the services available but had not used them. On the other hand a majority of the responses fell under the Not Aware group at 59.8%. This shows that quite a lot of people are not aware of some of these e-government services currently available. Reasons may be that the services are currently irrelevant to them, or they have not encountered a situation where they need to use the services or they completely do not know about the services. On the other hand the service that had the highest mode of "Yes" referring to ability to access e-government services was the responses linked to weather services.

4.6.2. Technology Acceptance Model Analysis

Table 4.20: Willingness to receive government services

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	39	78.0	100.0	100.0
Missing System	11	22.0		
Total	50	100.0		

78% of the population sample who had responded not aware to some of the services that are either not available or they have not accessed yet are willing to access the services if made available. This implies that the people are e-ready.

Table 4.21: Do you think the mentioned services are useful

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	50	100.0	100.0	100.0

All of the respondents in this case believe the mentioned services are useful hence technology acceptance may not be deemed a problem in this society.

Table 4.22: Do you think the services are easy to use

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	44	88.0	100.0	100.0
Missing System	6	12.0		
Total	50	100.0		

88% of the sample believes the services may be user friendly. This implies that this society perceives the services as usable and useful.

4.7.   CONCLUSION

The discoveries of the characteristics of the analysed data obtained from the sample have a lot to tell about the possible factors affecting citizens' ability to access to e-government services in Nkonkobe Municipality. Lack of awareness, lack of the appropriate devices, computer literacy, inappropriate content, lack of appropriate infrastructure etc. can be directly devised from the analysed data as it shows quantified details of the important elements that may help the citizens to access the services. Conclusions and recommendations will therefore be made in the next chapter based on the findings.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This chapter aims to outline the drawings from findings and conclusions and presentation of recommendations. The chapter will give a summary of the secondary findings and a summary of the primary findings. The secondary objectives are generally discoveries from literature review while the primary findings are in relation to the objectives are those set out by the researcher.

5.2. Summary of Secondary Findings

The research discovered that the barriers to access electronic information may be either related to characteristics of the end users, characteristics of the electronic information carriers, characteristics of the electronic content or the characteristics of the information environment in which access takes place (Kebede, 2007:826). The research also discovered that individual perceptions about technology may also affect access as portrayed by the Technology Access model. As far as South Africa is concerned, the report of the e-barometer used to measure electronic development progress issues discovered issues such as individual households having limited access to high cost of broadband, internet and high cost devices and services, low level of public access to internet and appropriate content, lack of ICT skills, inadequate revised policy and implementation strategy, lack of proper monitoring and evaluation frameworks amongst other factors (Doc, 2011, pp.28-43). The research also discovered that there have been successes and failures of e-government projects all related to various scenarios. The successes of e-government projects such as SARS Filing owe to good planning and implementation strategies and communication or participation of concerned stakeholders. South Africa is currently working on increasing access to the majority of people as noted by small efforts to be implemented such as reduction of internet tarrifs, improvement of services etc.

5.3. Summary of Primary Findings

The primary findings are best answered by the first research objective that questions the factors affecting citizen's ability to access e-government services. This is also the key research area. The research has discovered that there are still difficulties when it

comes to ability to access e-government services for citizens based in the rural areas. Some of the reasons discovered are lack of awareness of the services available, lack of the tools to access the services such as devices with appropriate internet technologies such as 3G internet and Internet browsing capabilities. There is also lack of infrastructure that enables access to these services in the rural areas. For example internet services in locations such as Hogsbak and other mountainous areas. Some users are not able to use the services because of lack of skills to use the devices associated with the services such as computing skills. Devices that access internet are still quite expensive this might be a reason while population groups who are unemployed or seasonal workers showed less percentage of computer/ laptop ownership.

On the other hand some of the services are currently not giving so much value to the citizens as they are still in early stages of development as compared to services available in the metropolitan areas. The researcher discovered that services like paying for municipal accounts and vehicle licence renewal are not actually available for Nkonkobe municipality or Eastern Cape at large. In Cape Town such services are fully functional and available on the municipality website. Therefore Eastern Cape is still not integrated and underdeveloped when it comes to E-Government Services development.

In relation to the research questions, it can be summed up that citizens have no or lack appropriate tools to access the internet, citizens are less aware of the e-government services available.

5.4. RECOMMENDATIONS

5.4.1.Increasing Accessibility

Service Access points

Results show that there is low access tools ownership. To address this issue for the area of Nkonkobe municipality, community centres could be powered with ICT infrastructure such as computers, printers and internet. These can be utilised by citizens to access internet within their home areas at a lesser cost. Computer equipment may be put in public service areas such as post offices or even police

stations. CPSI suggests what they classified as MODEL 2 whereby use of extensive telecommunications and ICT networks of agencies such as Uthingo, the Post Office and Post Bank, which have a wide reach throughout South Africa at local levels within short distances from homes and workplaces to deliver basic e-services to citizens. Government could plug in a Gateway Service Point device (Automated Service Machine) into the Uthingo network to deliver small transactions services in the "first phase of e-government" (CPSI, 2003:48)Similar of access has been referred to as Model Five in CPSI Access study document **(CPSI)**. The typical places for access are referred to as Centre Services" (Gateway Service Centre) (CPSI, 2003:48) An example of successful similar services have been implemented in Cape Town, known as The Smart Cape Access Project.

Instructions and Language

Some of the systems developed nowadays have no instruction handbooks that can aid people on how to effectively use the information systems such as Atms. In every point where the facilities are implemented this should follow simple to follow lists of services available that can be accessed in all south African languages so as to not discriminate or create a language barrier as south Africa is a multi-lingual society. Simple instructions should be placed alongside. While conducting research, the researcher discovered that some of the elderly population do not understand language. Some have to ask for help to use ATMs. Therefore there is need to focus on language as a barrier to information access.

Applications Flexibility

Development side, services should be developed on platforms with the consideration of devices people can have access to. The researcher discovered that inasmuch as one can have a phone that has access to internet, some website services such as the home affairs enquiry applications are not accessible on a phone with a general web browser that has no JavaScript capabilities but has access to internet. This results in most people not being able to access web content as their devices were excluded in development. Therefore there should be at least more than one way to access these services. For example besides only basing internet web based enquiry applications they can also develop SMS based services or USSD code that is

available on all GSM phones. This increases accessibility of most services at an even cheaper cost.

Mobile Phones

Most of the people have cell phones despite the differences in handset capabilities. Everyone is capable of accessing some of the e-government services through their ordinary handsets cheaply if relevant technologies are considered. CPSI (2003:48) states that there are more than 48 million subscribers in South Africa. Most of the applications developed for e-government services can be ported for accessibility to ordinary GSM cell phone including those without internet access. For example services that require enquiry of application statuses or other documents may be successfully ported on the platform. Such technology is known as Unstructured Supplementary Service Data (USSD) similar to those used by mobile networks to purchase data bundles, call backs, mobile money services etc. USSD technologies were created specifically for standard GSM devices, Unstructured Supplementary Service Data (USSD). USSD is simple free, logical, inexpensive, and accessible (OECD, 2011:83). This type of connectivity does not require internet connection or access hence it is cheaper and always accessible at any given time with type of cell phone. Most services accessed through this technology are actually not paid for. Therefore accessibility may be enhanced to a greater extent using USSD technology.

5.4.2. Increasing Awareness of the Services Available

The departments that develop or improve the e-government services must advertise about these services through either TV networks or other channels of advertising. This ensures that cost effectiveness is achieved rather than implementing services for citizens who will never know about the services. Advertising is achievable in this community as majority of the people have radios or Television sets. Alternative access services must also be advertised on site at the departments where services are accessed physically. This will enable people to be alert and enquire more about the services available and also how to use them.

5.5. CONCLUSION

This research has discovered that inasmuch as citizens within Nkonkobe municipality, Eastern Cape have less access to e-government services, there has not been much services developed compared to those in metropolitan cities like Cape Town (Western Cape Gateway). The research found out that accessibility to e-government is quit a burden in Nkonkobe Municipality because the society is not e-ready and also as a result of digital divide. Attention has to be fostered towards development of information service centres and deployment of appropriate infrastructure to increase access to electronic information. Development of e-service applications should be user-centric. Users must be consulted about which services are top priority them. Acknowledgement of latest developed services must also be done frequently. Increased access to e-government services will foster good governance and create a good relationship between citizens and the government as there will be more transparency and accountability including efficiency of service delivery.

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