

**AN ASSESSMENT OF THE ROLE OF INFORMATION AND COMMUNICATION
TECHNOLOGY (ICT) IN ENHANCING EMPLOYEE PERFORMANCE: A CASE-
STUDY OF NKONKOBE LOCAL MUNICIPALITY**

BY

AKEEM ADEWALE OYELANA

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ABSTRACT

The operations and utilisation of Information and Communication Technology (ICT) are not well understood and have rarely been addressed both nationally and internationally. The aim of this study is therefore to establish a base level of understanding of the operational core values of ICT in Nkonkobe Local Municipality in the Eastern Cape Province of South Africa. The study used a qualitative research design that involved a desktop review methodology. Data was collected through the review of available published or existing documents. Data analysis included using document analysis which consist of the existing information reviewed from the literature or document containing information about various municipalities issues, journals and books as well as reviewed of various data analysis done in relation to the assessment of the role of ICT in enhancing employees performance with the aim of analyzing the organization structure of the municipality. Findings from previous literature revealed that there are constraints faced in the operations and utilisation of ICT. The study confirmed some of the operational hurdles to include lack of IT skills, and lack of clear understanding of ICT as well as training. The findings also identified the search for solutions to the challenges faced by the employees in Nkonkobe Local Municipality by providing an insight for further research regarding the institutional weaknesses and policy issues in this part of the world. The implications of the findings are that unless the limitations named above are resolved, ICT in Nkonkobe Local Municipality will continue to experience poor service delivery, poor economic growth and development. Recommendations to overcome these challenges are suggested.

DECLARATION

I, the undersigned, Akeem Adewale Oyelana hereby declare that the above-mentioned dissertation is my own work and that it has not previously been submitted for assessment to another University or for another qualification.

Signature:

Date:

STATEMENT OF ORIGINALITY: The research for the compilation of this dissertation entitled “Assessing the Role of Information and Communication Technology (ICT) in Enhancing Employees Performance: A Case-Study of Nkonkobe Local Municipality, Eastern Cape Province, South Africa” has been carried out solely by me, except for references to acknowledge sources as listed in the references section. The sources of information comprise both primary and secondary data. This dissertation is my own work and has not been submitted to another university.

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DEDICATION

I dedicate this work to:

My Parents: Mr. Hammed B. Oyelana. and Mrs. Omoniyi M. Oyelana. Mesdames Mrs. Solarin Lydia A. Sola, Bayo, Yinka Moji ,Eniola, John, Olatokunbo Liso Oyelana and Fikiswa, Nurudeen, Mukaila, Tosin, Tanwa, Doris, Temmy, Peace, Lateefat and Khadijat Oyelana and Saheed Oyelana as well as Adeniyi Maroof Akintoye .

Late Pa. Solarin Adeola S:

You occupy a special place in my heart until we meet again in the Heavenly Kingdom.

May your souls rest in peace.

LIST OF ACRONYMES

ICT	Information and Communication Technology
ICTs	Information and Communication Technologies
FAO	Food and Agricultural Organization
LGA	Local Government Administration
UNDP	United Nations Development Programme
NLM	Nkonkobe Local Municipality
OECD	Organisation for Economic Co-operation and Development
GCIS	Government Communications Information Service
SALGA	South African Local Government Association
ANC	African National Congress
GeSI	Global e-Sustainable Initiatives
UNI	United Nations Initiative
UNMDGs	United Nations Millennium Development Goals
SMART	Self-Monitoring Analysis and Reporting Technology
GHG	Green House Gasses
ADM	Amathole District Municipality
IDP	Integrated Development Plan

IT	Information Technology
VPN	Virtual Private Network
WSTW	Water Schemes and Treatment Works
ADSL	Asymmetric Digital Subscriber Line
ITMSP	Information Technology Master Strategic Plan
DRP	Disaster Recovery Plan
EBCMP	Enterprise Business Continuity Management Plan
FMS	Financial Management System
DIMS	District Information Management System
PMR	Project Management & Reporting
PM	Performance Management
MP	Mapping of Projects
SCM	Supply Chain Management
HR	Human Resources
WIMS	Water Information Management System
EDMS	Electronic Document Management System
GIS	Geographic Information System

HIMS	Health Information Management System
DS	Directory Service
MAD	Microsoft Active Directory
EM	Electronic Mail
ME	Microsoft Exchange
FS	File Storage
SAN	Storage Area Network
PS	Print Servers
MSP	Master System Plan
ITIL	Information Technology Infrastructure Library
AFS	Annual Financial Statement
LA	Land Audit
WII	Water Infrastructure Integration
WIMS	Water Information Management Systems
DWA	Department of Water Affairs
ERF	Enerplus Resource Fund
LUMS	Land Use Management System

GISSS	Geographic Information System Shared Services
MPPC	Multi-Purpose Civic Centre
MIS	Management Information System
CACs	Community Access Centres
IS	Information System
CIO	Chief Information Officer
CEO	Chief Executive Officer
LAN	Local Area Network
LG	Local Government
IKM	Information and Knowledge Management
BPM	Business Process Management
BRP	Business Process Reengineering
PRC	Presidential Review Committee
DPSA	Department of Public Service and Administration
SITA	Information Technology Agency
OGCIO	Office of the Government Chief Information Office
GITOC	Government Information Technology Officer Council

CITO	Chief Information Technology Officer (CITO)
NT	National Treasury
BAS	Basic Accounting System
PERSAL	Personnel and Salary System
IFMS	Integrated Financial Management System
LOGIS	Logistical Information System
PFMA	Public Finance Management Act
SCMF	Supply Chain Management Framework
HRM	Human Resource Management
FM	Financial Management
ISCM	Integrated Supply Chain Management
BI	Business Intelligence
ADSS	Audit and Decision Support System
CoC	Department of Communications
PNC	Presidential National Commission
ISAD	Information Society and Development
IGFR	Intergovernmental Relations Forum
SA	South Africa

ICASA	Independent Communications Authority of South Africa
NGP	New Growth Path
GWEA	Government Wide Enterprise Architecture
MIOS	Minimum Information Interoperability Standards
MISS	Minimum Information Security Standards
ITIL	IT Infrastructure Library
NGN	Next Generation Network
GCCN	Government Common Core Network
FOSS	Free Open Source Software
OSS	Open Source Software
MTN	Maritime Telecommunications Network
3G/HSDPA	3 rd Generation/High Speed Downlink Packet Access
UFH	University of Fort Hare
CBD	Central Business District
FET	Further Education and Training
DEDEA	Department of Economic Development and Environmental Affairs
ATS	Amatole Telecoms Services
ECSECC	Eastern Cape Socio-Economic Consultative Council

ECDC	Eastern Cape Development Corporation
ECITI	Eastern Cape Information Technology Initiative
DHE	Department of Higher Education
DCG	Department of Cooperative Governance
NPO	Non-Profit Organisation
BEFSA	Borer Education Foundation for Southern Africa
HSDPA	High-Speed Downlink Package Access
ADSL	Asymmetric Digital Subscriber Line
WTD	World Telecommunication Day
ITU	International Telecommunication Union
IMU	Information Management Unit
CS	Communication Strategies
CDW	Community Development Workers
DoLGTA	Department of Local Government and Traditional Affairs
GCIS	Government Communications and Information Systems
NEDA	Nkonkobe Economic Development Agency
PMS	Performance Management System

MSA Municipal Systems Act

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CHAPTER ONE: INTRODUCTION AND OVERVIEW

1.1 INTRODUCTION

This chapter presents a brief background of the study, defines the various forms of Information and Communication Technology (ICT) and, spells out research problem, the research objectives and the significance of the study. The importance of Information and Communication Technology (ICT) as well as the challenges and impact of ICT are discussed. The literature review, research methodology, ethical considerations, scope and limitations of the study, clarification of concepts and terms as well as the preliminary framework for the research are also be discussed. Finally, the nature of the thesis is exposed.

1.2 BACKGROUND MOTIVATION FOR THE RESEARCH

ICT as an important tool have a crucial role to play in the innovative system of native authority (Pratchett, 1999:736). Innovative ICT can provide the technological facility on which complicated organization can be sustained. They may also provide the capability to influence exterior generated information so that local agencies are enhanced in order to be able to understand the economic and social background and make balancing policy to react to them (Pratchett, 1999:736).

According to Khalifa et al. (2004), cited in Gichoya (2005:178), Information and Communication Technology (ICT) assessment brings in both quantitative and qualitative methods and usefulness of the ICT to the organisation. The management and employees' job performance cannot be concluded as perfect or imperfect job when ICT policies that enhance the local government efficiency is lacking in the organization. The

scientific or equipped introduction of ICT infrastructure is of paramount importance to enhance the effective operation and administration of local government competency.

Study has indicated that surveys of the municipalities' failure especially in the area of utilizing ICT maintain that the managers often have ideas but they do not have clear understanding on the maximum effective and efficient utilization of ICT in delivering qualitative services to the communities and as a result, this has hindered their operations and improvement (Chang & victor (2002), cited in Dlamini, (2009:1).

In addition, the analyses of the hurdles affecting employees' performance in utilising ICT within the municipalities in South Africa cannot be over emphasis. However, lack of awareness of the importance of Information and Communication Technologies (ICTs) by considering the physical access was as well perceived as another important obstacle confronting employees in enhancing their performance (Rooksby *et al.*, 2002). Perhaps, the fact that internet first came into existence in 1963 has therefore, bring about several innovation and creativities into different organisations among which is the municipalities in South Africa and as such, it has transformed the accessibility of information (Richardson 1996). ICTs are known to have the capacity and enablement to cut crossways communities and geographical areas, assisting individuals as well as the employees to find new ways of improving, assisting and supporting the flow of information and knowledge (Negroponte 1995). Buncombe and Heeks (1999) pointed out that ICT is an "electronic means of capturing, processing, storing and disseminating information". They further stressed that anyone or anybody with fundamental computer equipment and a phone line as well as mobile phones can be an information creators or manufacturers and knowledge distributor (Food and Agricultural Organization (FAO)

1996a). The internet can therefore empower and enhanced the employees and as well assists them to develop qualitative skills and potentials in order to deliver an effective and efficient service delivery. In fact, it must be emphasised at this point that existence of new information and communication technologies (ICTs), predominantly the internet, has vividly augmented our potentials to access, gather, process, input, store, share and disseminate information (United Nations Development Programme (UNDP) 2001).

Hence, this research focuses on the assessment of the role of ICT in enhancing employees' performance in Nkonkobe Local Municipality. It also identifies challenges facing the employees on the utilisation of ICT, the role of local government on the effective and efficient utilisation of ICT. The structural injustice formed by the focus of ICT utilisation on service rendering and the position of ICT policy network in maintaining them (Pratchett, 1999:736). Proposed solutions of these identified challenges are made with reference to the literature and empirical research as well as to propose policies to address the sluggish introduction of ICT to promote and improve service delivery by the government in the province.

1.3 STATEMENT OF THE PROBLEM

Despite ICT bringing opportunities to the organizations to be more effective, Local Government Administration (LGA) in South Africa is still failing to perform well in servicing its citizens. This is seen from many service delivery protest and demonstrations. It is important for municipality employees to build their own capacity and competency in the field of ICT so that they can be able to improve their performances and efficiency. Assessing the role of ICT in enhancing or improving employees' performance and promoting service delivery within the Municipality will be

investigated. The ICT needs of employees and their abilities to utilise this technology will be assessed. Given the scenario of assessment of the role of ICT in enhancing employees' performance within the local government and promoting service delivery by the government organizations, there is a need to examine the problems and reasons behind the impact of ICT usefulness in Nkonkobe Local Municipality (NLM); to what extent could the ICT improve the employees' performance? What are the challenges affecting the employees performance in introducing ICT? Do the employees have the necessary qualifications, skills and knowledge in utilising the ICT? What possible guidelines could be provided to facilitate the introduction of ICT competency to enhance the employees' performance by government?

1.4 OBJECTIVES OF THE STUDY

The objectives of the research were classified as primary and secondary objectives:

1.4.1 Primary Objective

- To investigate the importance of ICT as a tool of improving job performance of the municipality employees

1.4.2 Secondary Objectives

- To analyse the challenges that are affecting the employees poor performance
- To assess the skills needs in the ICT field within the municipality Administration
- To make recommendations to the municipality on how to improve the employees performance.

1.5 RESEARCH QUESTIONS

The study is carried out to provide responses to the following questions:

- To what extent could the ICT be important in improving the employees' job performance within the Nkonkobe Local Municipality (NLM)?
- What are the challenges affecting the employees job performance in utilising ICT?
- Does the Nkonkobe Municipality employees' level of education, age and gender have an impact in the use of ICT?

1.6 SIGNIFICANCE OF THE STUDY

The main importance of this study is premised on the notion that ICT has a relevant contribution in the development of the South African economy most especially in the Local Government Administration (LGA). This study thus attempts to provide an effective and efficient solution to identified challenges and impact as well as strategies to be employed in order to reduce the failure rate of ICT utilisation in the LGA in South Africa. This implies, in turn, that it is necessary to improve the levels of man power or human skills and economic growth in the country. In addition, the study could also be seen as an important document of information for policy makers in the government sector. This research intends to contribute to the empirical literature on the impact of ICT supports in promoting the service delivery in LGA of South Africa.

1.7 LITERATURE REVIEW

In this study, various sources of data were used to collect information. There are basically two types of data; primary data and secondary data.

1.7.1 Primary Data

Collection of data for the purpose of a particular study is known as primary data (Bless & Higson-Smith, 2000:94). Primary data is the data that is collected with the major purpose of answering the research questions and is the unmediated information written on account of a direct witness (Roberts-Lombard, 2002:57).

The researcher in this study requested for valuable documents as a source of collecting primary data to support the study from the municipality as a way of gathering information for a review.

1.7.2 Secondary data

The researcher used several publications, research literature, articles, books, conference reports, journals and dissertations as secondary sources of data in this study. Internet sources were also used as a secondary source. Bless & Higson-Smith, (2000:97) believe that data collected from other investigators in connection with the problem should be used by every researcher in relation to other problems or as part of the more frequent method of gathering social data as in the case of population census, such data is known as secondary data.

1.8 RESEARCH METHODOLOGY

Clark, Riley, Wilkie & Wood, (2000:7) define the word 'research' as a study and investigation especially to uncover new facts. They define the word as referring to the fact that research may be directed towards the confirmation of existing facts. This study is aimed at assessing the role of ICT in enhancing employees performance in the LGA for the purpose of improving and promoting service delivering in the Nkonkobe Municipality (Alice and Fort Beaufort District) in the Eastern Cape Province of South Africa, and it is intended to provide recommendations to enhance solutions to some of these mentioned problems effectively and efficiently. For the purpose of this study, this section focuses on the following:

1.8.1 Research Design

The researcher utilised qualitative research design. The qualitative research design that is used in this study is a desktop research. A desktop research simply referred to the reviewing of different documents such as several publications, research literature, articles, books, conference reports, journals, dissertations and internet sources as secondary sources of data is used in this study.

1.9 PUBLICATIONS

It should be noted that the researcher has co-authored the following Journal publication based on various topics similar to that of this study:

- Oyelana AA, Thakhathi DR 2015. Assessing the Role of Information and Communication Technology (ICT) in Enhancing Employees' Performance in a selected Local Government Administration (LGA) in South Africa. *Journal of Communication*, 6(1): 229-235.

- Oyelana AA, Thakhathi DR 2015. Perception of Ultimate Utilisation of Information and Communication Technology (ICT) as an Impetus in Enhancing Employees Performance in a few selected Local Government Administration (LGA) in the Eastern Cape Province of South Africa. *Journal of Communication*, 6(1): 199-206.
- Oyelana AA, Thakhathi DR 2015. The Impact of Effective Utilisation of Information and Communication Technology (ICT) in Enhancing and Improving Employees Performance in the Local Government Organisations in South Africa, *Journal of Communication* (In press).
- Oyelana AA, Thakhathi DR 2015. An Analysis of the Hurdles Underpinning Employees Performance in Utilising Information and Communication Technology (ICT) in a Few Selected Municipalities in the Eastern Cape Province of South Africa. *Journal of Communication*, (In press).

1.10 ETHICAL CONSIDERATIONS

The importance of ethics in professional research is highlighted according to (Strydom, 1998:24-35). In carrying out this study, the researcher is guided by the following ethical research principles:

- Written permission was requested from the Head of Nkonkobe Municipality for approval to obtain information from their employees.
- The employees of the target Nkonkobe Municipality will be informed of the of the pending research project.
- Participants were aware of the 'potential impact of the investigation' through a cover letter.

- The covering letter to obtain information regarding the research, the research objectives of the measuring instrument, the participants' involvement in the research must be voluntary, confidentiality, secrecy, the "intention to disclose the findings upon completion of the study and the contact details of the researcher" according to Cornelius, (2010) were disclosed to the respondents.

1.11 SCOPE AND LIMITATIONS OF THE STUDY

In this study, ICT refers to the introduction of electronic medium, human resources, and purchasing system to fulfil organization functions of the target government sectors. The government sectors that have partially or fully introduce ICT have advantages with references to quick service delivery and effective job performance enhancement, time saving as well as job accuracy.

This study is limited to the qualitative research where desktop research approach is used and cannot be generalized to include the whole of South Africa.

1.12 CLARIFICATION OF CONCEPTS AND TERMS

According to Jipson & Paul (2011:5), Public Administration is an element of a more basic theory of administration. In reality, Public Administration addresses the execution of government policy and an academic discipline that studies this execution and that train public servants for this job. The following are some of the different definitions offered for Public Administration: the study of government decision making, the analysis of the policies, the various efforts that have created them and the efforts necessary to generate alternative policies as well as the management of public programmes. Public Administration is essentially concerns with the organisation of government policies and

programmes as well as the behaviour of administrators formally responsible for their conduct.

1.13 PRELIMINARY FRAMEWORK FOR THE RESEARCH

Chapter one: This chapter focuses on the introduction and background to the study, the statement of the research problem, research objectives. The chapters also justify the study.

Chapter two: This chapter presents different Clarification of Concepts, Terms and theory and will also present an overview of ICT in South Africa, the definition of ICT terms, broad elements in the definition of ICT in South Africa, its nature and characteristics, its roles as well as contributions and importance of ICT in South Africa.

Chapter three: This chapter presents the overview of the current barriers to ICT development and growth in South Africa by making use of relevant literature.

Chapter four: In this chapter, the researcher describes the research methodology and then focus on research design.

Chapter five: In this chapter, the researcher presents the research data, the outline of the findings and the interpretation of data.

Chapter six: This chapter specifies the conclusion and recommendations of the study.

CHAPTER TWO: ICT IN PERSPECTIVE

2.1 INTRODUCTION

In the previous chapter, the introduction and a brief background to the study, the statement of the research problem, the research objectives and the significance of the study was stated. The literature review, research methodology, ethical considerations, scope and limitations of the study, clarification of concepts and terms as well as the preliminary framework for the research was also discussed.

This chapter presents different clarification of concepts, terms and theory and also present an overview of ICT in South Africa, the definition of ICT terms, broad elements in the definition of ICT in South Africa, its nature and characteristics, its roles as well as contributions and importance of ICT in South Africa by making use of relevant literature.

2.2 AN OVERVIEW OF ICT, ICT ASSESSMENT, ITS NATURE AND CHARACTERISTICS

The role of ICT in promoting and enhancing organisation as well as to deliver qualitative service delivery within and outside an organisation cannot be over-emphasise as the field of ICT application is wide, hence, more than 90% of developing countries unambiguously consider Information and Communication Technologies (ICTs) in their nationwide development plans and more than 40% concord than an essentially well-known role in their deficiency decrease strategies (Organisation for Economic Co-operation and Development (OECD), 2003). In many organisations, both nationally and internationally, the internet has always being seen as a tool for supporting employees, enhancing their performance and ensuring an adequate service delivery in other to

promote social development and as well as improving skills. ICTs are those technologies that interweave information technology strategy such as personal computers with communication technologies like telephones and their telecommunication networks.

An individual computer and laptop with e-mail and internet facilities exhibits the best example of ICT. ICTs can be defined as “a range of electronic technologies which when converged in new configurations are flexible, adaptable, enabling and capable of transforming organizations and redefining social relations” (Michiels and Van Crowder (2001:8). They stressed further “that devices such as digital cameras, digital video, cameras and players, personal digital assistants, slide projectors and mobile telephones are also compatible with more traditional media such as radio (digital, satellite) and television (cable, digital, satellite). Thus, most non-ICT devices linked together share and exchange information that allows usage in such a way that they could be categorized as ICTs”.

ICTs are often connected only with the most complicated and expensive computer-based technologies. On the other hand, several individuals such as government and private employees underrate their ability to contribute to meeting development goals (United Nations Development Programme (UNDP), 2003:4). In fact, for the purpose of humanity, nevertheless ICTs embrace “the full range of electronic technologies and techniques utilised to manage data, information and knowledge”. According to UNDP, (2001:2) “ICTs are essentially information management tools, a varied set of goods, applications and services that are utilised to produce, store, process, distribute and exchange information”. In addition to this, ICTs also involve the use of “radio, television

and telephone, and the "new" ICTs of computers, satellite and wireless technology and the internet" (UNDP, 2001: 2). This therefore indicates that divergent tools if effectively and efficiently merged to form "network world" would definitely served the purpose of working together, "a huge communications and connections of integrated telephone services, standardized computing hardware and television which reaches into every corner of the globe" (UNDP, 2001:2) would also be seen as part of ICT infrastructure that could enhance or facilitate information dissemination across the globe. Furthermore, "ICTs are an expanding assembly of technologies used to collect, store and share information between people using multiple devices and multiple media". It is glaring that ICTs are essentially used for alleviating a wide range of obstacles to enhance, promote and improve employees job performance within the government and private organisation "for the purpose of ensuring sustainable economic growth and social development in the developing countries; this is particularly true of the internet". "As a global platform for accessing and disseminating information, the internet presents distinctive opportunities to overcome a variety of informational shortfalls that affect people, business and communities in developing nations" (Castells, 1999; Rodriguez and Wilson, 2000). They are vital tools for attaining renovation to viaduct "the digital divide" (Swaminathan, 1993:10). In addition, it is often seen and believed that ICT instrument, gadget and apparatus once they are efficiently utilised extensively for enhancing employees job performance with technological information, employees' performance would be improved and effective service delivery would be maintained both within and outside an organisation. It is on this note that ICT itself pointed out the

structure of the specific information that that will be required by the employees in an organisation.

Assessing ICT policy can be to a certain extent difficult and can at times be influenced (Heeks 2002, Currie 1995, Bannister and Remenyi 2004, Delone and Mclean 2002, Bannister and Remenyi 2000, cited in Gichoya, 2005:178) and there is no specific ICT assessment technique that is applicable to every circumstance (Khalifa et al. 2004). Heeks (2002), cited in Gichoya, (2005:178) describes assessment as an influenced that can depend on situations as well as period. Assessment results to the determination of accomplishment or setback of ICT policies. According to Sitta (2007:2), "the term Information and Technology Communication (ICT) refers to forms of technology that are used for communication and to transmit, store, create, share or exchange information. This broad definition of ICT includes technologies such as: radio, television, video, telephone (both fixed line and mobile), computer and network hardware and software; as well as the equipment and services associated with these technologies, such as electronic mail, text messaging and radio broadcasts".

According to Alberts (2011:1), "government communication is a strategic and planned process aimed at ensuring effective dialogue between government and communities. He stressed further that as communication is one of the strategic functions of government, strategising for communication needs to be a frequent and ongoing exercise in local government (i.e. municipalities)".

The Government Communications Information Service (GCIS, 2008) and the South African Local Government Association SALGA (SALGA, 2008), cited in Alberts (2011:1)

identifies three types of government, which are: national, provincial and local government. They further stressed that local government is otherwise known as the municipalities in South Africa. Local government or municipality is a type of government which is closest to grassroots. However, this laid a specific and massive duty on municipality as the third tier government to perform an extensive variety of communication duties, which include marketing, direct, intensive and unmediated communication advertising as well as branding. All the municipalities therefore, have a responsibility to cater for the community as an opportunity to have access to information about initiatives, services, policies and programmes.

Government is an enormous and complicated entity, whose functions and strategies can be completely improved by the use of ICT to maintain enhancement in efficiency, management success and the value of services delivered to people (Gichoya, 2005:175). Although in government parastatals, the significance of ICT cannot be underestimated, numerous concerns emerge on its achievements as well as the policies to be adopted in execution by organizations of different nations. Municipalities as one of the government organisation in South Africa in recent years are often faced with a lot of impediments in order to operate like private organisation. Chang and Victor (2002), cited in Dlamini, (2009:1), stated that the municipalities are confronted with different barriers which hindered their operation, improvement, efficiency by legislative authorization, they face a lot of internal problems such as lack of IT skills and training, similarly, to maintain efficiency and enhancement from the most of employees job performance externally, the communities as well as private organisations also pressurise the government to support employees for delivering qualitative services to the people.

Dissemination of information through ICT is in fact, the most important medium for facilitating “more successful government through better access to services and the autonomous process” (Asgarkhani, 2005:157). Seeing that public interest in the Internet and ICT end results persist to develop, “there is an increasing anticipation that they will be used in local and national governments for not only more resourceful authority but also enlightening public right to use information and services” (Asgarkhani, 2005:157). The introduction of ICT can have a significant result in structuring and determining decision-making process in government and in providing foundational legacies which guide or direct the day-to-day working of public organisations (Pratchett 1999:731). Government’s authorization on national, provincial, and local government demands that its communication on issues of service delivery should enhance access to information that enables the personnel to be well equipped with ICT efficiency in enhancing employees’ job performance within the LGA in South Africa.

In South Africa large organizations shy away from this observable fact just as it is in developed as well as developing countries. The South African government is making an attempt to enhance the economic relevance of the municipality in service delivery within and outside the municipalities. The government noted that for the municipality to make a meaningful impact, they must change their orientation and operational methods of ICT. The introduction of “the age of network intelligence”, individuals as well as government support have therefore enhanced ICT efficiency in promoting service delivery (Tapscott, 1995:p.xv). According to Ndou (2004:2), “the traditional bureaucratic paradigm, characterised by internal productive efficiency, functional rationality, departmentalization, hierarchical control and rule-based management is being replaced

by competitive, knowledge based requirements, such as: flexibility, network organisation, vertical/horizontal integration, innovative entrepreneurship, organisational learning, speed up in service delivery, and a customer driven strategy, which emphasise coordinated network building, external collaboration and customer services” all of these are therefore supported by ICT. The effective development of ICT can reduce gaps between rich and poor, urban and rural communities, if there is sufficient access to these technologies which when exploited can empower the disadvantaged in the communities.

Various studies have examined reasons behind the introduction of ICT as a medium of disseminating information within and outside an organisation notably, LGA.

The categorisation of factors of ICT introduction is different among researchers. Some researchers group these factors into technological, organizational and external factors while others categorise them into ‘benefits and drawbacks’ of ICT introduction. Some researchers also suggested conceptual model of ICT introduction. A large percentage of these studies on ICT introduction were based on the Robert’s (1947:259) Administrative Behaviour Theory and Decision Making Process.

From some of the related literature review, issues discussed mostly are those issues related to the effective utilisation of ICT from the government sectors by looking at the external factors and the role performed by the use of ICT in delivery services to the public. However, another research was also carried out investigating the uses of ICT effectiveness in the LGA by considering some major government departments namely, Department of Home Affairs and Department of Social Development as well as

department of Education in which both internal and external assessment was carried out. Similarly, related research topic to this scenario was that various studies have been conducted on the utilisation of ICT in the LGA but only focused on the service delivery to the public (communities) which is external service delivery and not internally directed to the employees who are expected to individually seized the opportunity to utilised the benefit of ICT in enhancing their daily activities as well as ensuring good service delivery in their area of jurisdiction in the Province of South Africa.

“In the Global Information Society, there is direct positive correlation between access to ICTs and socio-economic development; it is rather a necessary precondition” (Audenhove, 1999:16). He further stated that as early as 1994, the administration of the African National Congress (ANC) has been making several efforts to improve the country’s economy through promoting the socio-economic ventures of government sectors. The present study complements the government’s input by indicating ways government sectors can successfully introduce ICT to enhance the growth of the economy.

The introduction of ICT in improving their employees’ performance and encouraging effective service delivery is however not much of a question but rather, how it can first be introduced in order to enhance employees’ performance in the LGA. It involves innovation, ICT have fast become globally utilised and the introduction is eliminating boundaries across nations and companies thereby acting as a strong competitive tool. The study will shed light on the advantage of this innovation amongst government sectors.

ICT efficiency in enhancing employees' performance in the LGA has become the focus of internal assessment in this study. The ultimate aims and objectives of this research is to find out why the majority of staff in the Nkonkobe Local Municipality has not being able to effectively utilised the opportunity of ICT initiative in ensuring good service delivery in their locality.

The study seeks to establish whether ICT competency have any role to play in terms of the noticeable challenges. The study will be conducted to assess the ICT competency in relation to:

- Level at which the Municipality's employees utilise ICT
- Management insight towards the introduction of ICT in the Municipality

2.3 AN ADMINISTRATIVE BEHAVIOUR THEORY AND DECISION MAKING PROCESS

In the procedure of making an effective and efficient decision in an organization and for the organization to achieve its goal and objectives in Public Administration, Robert (1947:259) propounded an Administrative behaviour theory and decision making process. An administrative theory in public administration can as well be referred to as the behaviour of organisational man. These theories basically focus on two influences namely: internal and external influences. The internal influence comprises of habit, temperaments and attitudes which could enable man to make good decisions. In addition, this internal factor also involves loyalty which requires efficiency and training. Furthermore, external factors comprises of information services which include programmed and non-programmed events in an organisation, authority and advisory.

He introduced electronic computers and makes a difference between programmed and non-programmed decisions. The electronic computer is creative and innovative in nature and is available to people or personnel in order to embark on innovative decision creating techniques which will definitely create positive impact within their organisations. He believes that with the introduction of computer into an organization, the decision making process can be adequately, effectively, and efficiently transformed.

Finally, it could be concluded that the introduction of electronic computer in enhancing effectiveness in the employees' performance in an organization according to Robert's Administrative theory and decision making processes, there is direct correlation between this theory and the research topic. The application of the theory is necessary in this research study because for any organization like Local Government (LGA) to improve their service delivery and to take effective and efficient decision-making in their organisation, there is a need for the existence and introduction of ICT for their administrative work.

2.4 FORMS OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICTS)

Dzidonu, (2010) reveals that "Information and communications technologies (ICTs) cuts across a variety of technologies including: computer, microelectronics and related technologies including microchip and microprocessor-based technologies; multimedia and other information processing technologies and systems; telecommunications technologies and infrastructure (fixed line, wireless, satellite based and mobile infrastructure); and communication network technologies and infrastructure (including local and wide area communications and computer networks for voice, data and video).

Other technologies that forms part of ICTs include: broadcasting networks and technologies including radio and TV networks; production-based technologies including those used in computer-integrated manufacturing and production systems and operations, robotics technologies, biotechnology-related equipment and systems; and the Internet as a globally-based delivery platform - incorporating elements of computers, telecommunications, communications technologies and networks and other multimedia development and delivery technologies to form an integrated multimedia transmission and communication delivery infrastructure and platform with a global reach”.

2.5 ICT AS A SUSTAINABLE TOOLS FOR SOCIO-ECONOMIC GROWTH AND DEVELOPMENT

There is no uncertainty that the uses of information or data to support all kinds of activities in the economy, employees performance at various workplaces and residence is more and more becoming a major sector in most countries (Dzidonu, (2010). He further stressed that it is obviously often seen that ICTs are drastically changing our lifestyle. Hence, Information, knowledge as well as technology are increasingly becoming the key drivers for socio-economic, growth and development globally. In addition, “a nation’s capability and ability to accelerate its socio economic development process and gain competitive advantage depends very much on the extent to which it can develop, use and sell through information, knowledge and technology in one form of other” (Dzidonu, (2010:7).

In addition, Mahlatse, (2011: 2-22) also points out that ICT facilitates socio-economic development and this was illustrated in figure 2.1 below which demonstrates the examples of the benefits of ICT in facilitating socio-economic development.

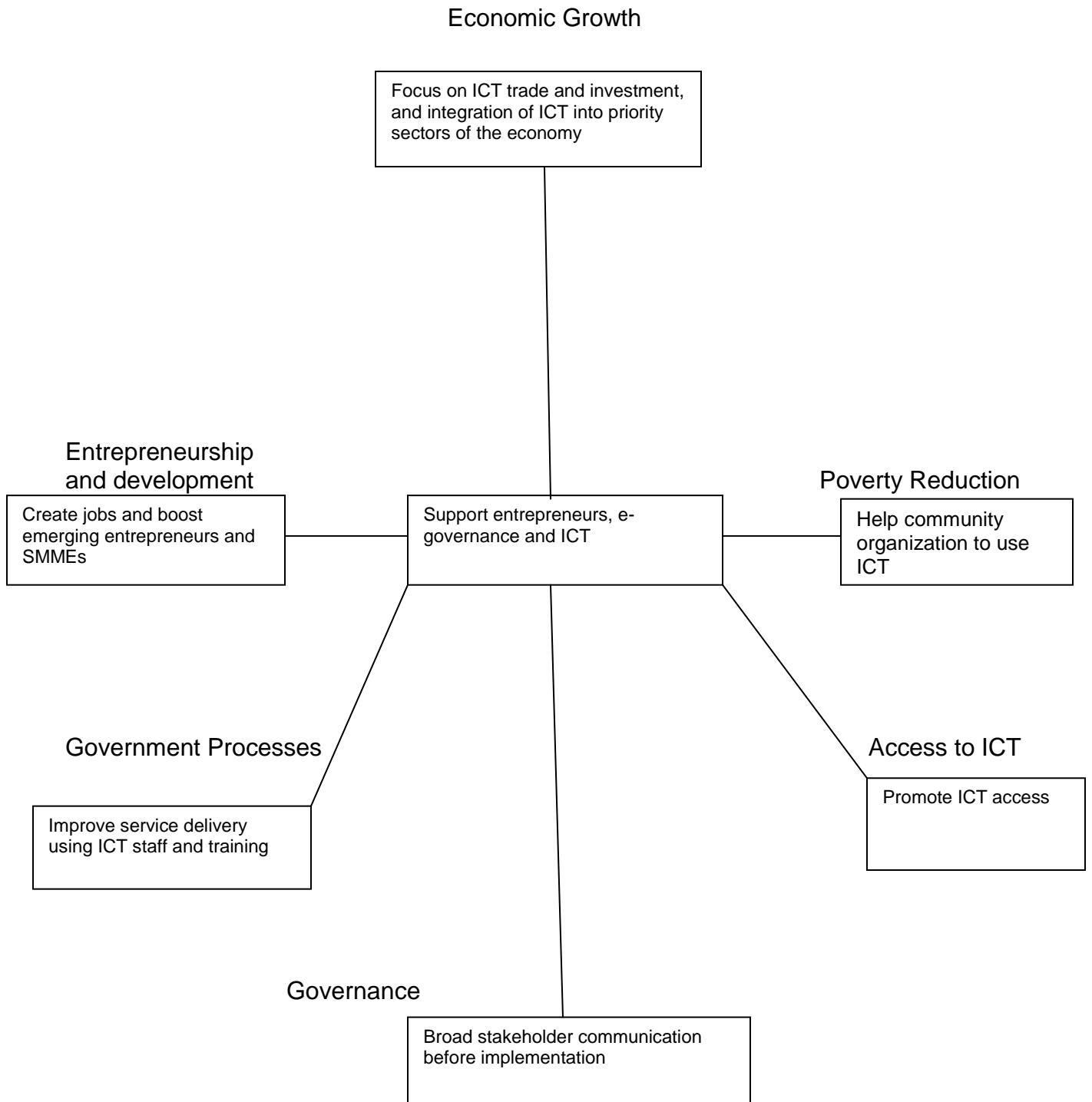


Figure 2.1: The benefits of ICT in facilitating socio-economic development.

Source: Radian in Effective E-government, (2008: 121 cited in Mahlatse (2011: 22)).

2.6 ROLE OF ICT AS A KEY DEVELOPER OF KEY SECTORS OF THE ECONOMY

ICT plays a crucial role in improving and enhancing employees' job performance and hence, serves as a yardstick to ensure an effective and efficient service delivery as well as to promote the employees skills competency within and outside an organisation.

Previously, it has been seen that ICT play a major role in the socio-economic development of a nation in which many private and government organisations are responsible for providing a good enabling environment that would facilitate easy communication for business transactions within and outside an organisation thereby improving productivity as well as bringing people together for the purpose of improving and enhancing employees job performance. According to Neves and Krajewsky, (2012) cited in John and Berners-Lee (2012), "when we began our careers many years ago, it was the industry's role to enhance our communications and productivity, bringing people together and enabling business to be more efficient."

As regards the innovative and development that ICT brought into both private and public sectors in the economy, there has been rapid improvement in the service delivery and increasingly enhancing manpower competency in each sector of the economy. Dzidonu, (2010:8) observed that "there is now an agreement that in what is increasingly becoming a highly competitive Information-driven world economy, development without ICTs is not possible. He further stressed that these technologies are serving as key enabler of development of key sectors of the economy. As illustrated Figure 1 below, the deployment and exploitation of ICTs can impact on the development of sectors like:

the public sector, agricultural sector, services and industrial sectors and as well as other social sectors like: education and health”.

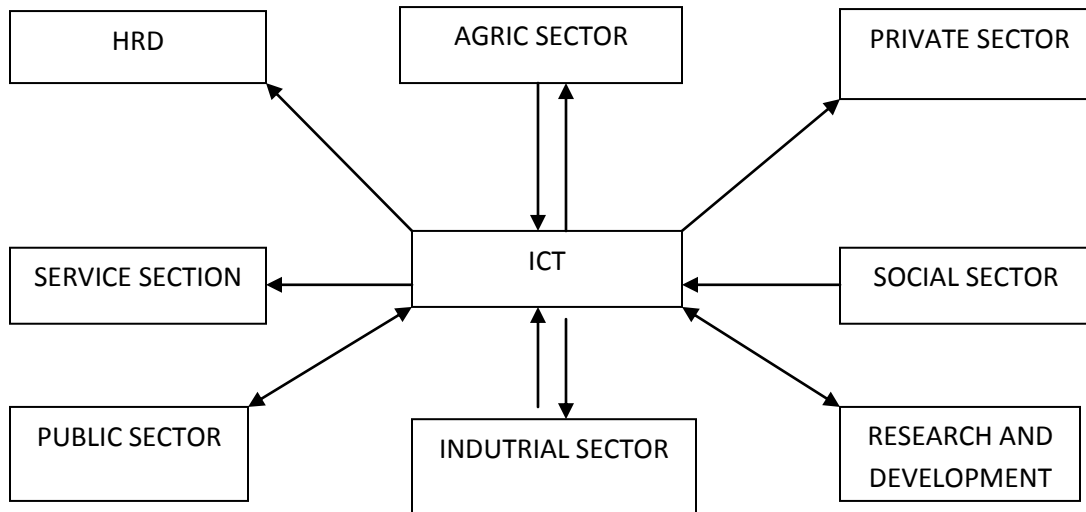


Figure 2.2 Roles of ICTs in the Development of the Sectors of the Economy

Source: Dzionu, (2010:8).

From figure 2.2 above, it is proof that the uses of ICT in enhancing employees’ performance, improving and promoting service delivery across different government and private organisational sectors in the economy improvement procedure within the emergent and urbanised nations.

. Various studies have also shown that ICT can bring about the necessary resources into the organisation for the purpose of achieving multinational developmental goals. Dzionu, (2010:8-10) indicates that “the principal lesson being that although use of the technology is not a goal in itself, it can be used as an enabler of developmental goals and that for ICTs to have impact on development its introduction should be fully

integrated into the process of organizational and societal change and driven by real needs for economic, social and institutional development. Some of the areas where the operation and utilization of ICTs can have a significant impact on the developmental process of nations include”:

2.6.1 Management with Service Delivery in the Government Organisation

Dzidonu, (2010:8-10) points out that the process of utilising ICTs for the purpose of assisting public organization with qualitative service delivery encompass the prospective on behalf of: “improving administrative efficiency and service delivery; enhancing employees performance and improving government responsiveness to citizens; reducing administrative, operational and transaction costs of governments administrative activities, service delivery functions and operations through the reduction of operating inefficiencies, redundant spending and unnecessary excessive paperwork; assisting in the transformation of government into a citizen-centered government and improving productivity within the government machinery and institutions. The cumulative impact of all these on the overall developmental process of a given nation can be significant”.

2.6.2 Manufacturing Behaviour and processes

It is important for all the manufacturing companies to include computer programming in their manufacturing process as this would improve the employees’ job performance within their organisation. In addition, Dzidonu (2010:8-10), further stresses that “there is no industrial process which cannot be programmed using computers. ICTs can be used to support the: scheduling of various production processes; design of products,

simulating products under various conditions; actual production process using computer-aided and programmable machines and robot systems; the warehousing, distribution and delivery of the products etc. ICTs have been successfully deployed and exploited to improve productivity in all types of industrial and production set-ups and has contributed immensely to enabling a number of industrial countries to gain competitive advantage in ranges of product areas on the global market”.

2.6.3 Agriculture Processes to Enhance Output

A variety of categories of agricultural processes such as: “the production, processing, packaging and marketing of agriculture products as well as agriculture-research and extension activities of all kinds can be supported by the deployment and exploitation of ICTs” (Dzidonu 2010:8-10). In fact, it must be noted that at this point that “technologies are being deployed to modernize agricultural operations, systems and processes and as well improve agriculture productivity and yield in a number of countries”.

2.6.4 The Private Organisation Improvement through the ICT Utilisation

The various literature studies particularly on the field of ICT have shown that for any country to grow economically and socially, the role of private organisations should not be under-rated. As a results, this is the more reason why Dzidonu (2010:8-10) also argued that “the private sector being the engine of growth in most countries can be facilitated by the operation and utilization of ICTs in a number of areas. The services sector especially, the banking and financial services subsectors are to a large extent ICT-driven in most developed and developing countries. Also the rapid growth in the ICT sector and industry in a number of countries is having a major impact on the

development of the private sector in these countries”. Dzidonu further points out that “other areas where the deployment and exploitation of ICTs have been making substantial developmental impact include areas like:

2.6.5 Rural Development

ICTs can play a major role in the extension of services to the rural populations. Services like health, education, social services and various types of government services can be made available to rural peoples through the deployment and exploitation of various types of ICTs. According to Dzidonu, (2001), ICTs are being used in India to enhance rural development programs and improve the delivery of public services through computerization schemes suggesting that the potential impact of ICTs on development can be enormous, particularly in terms of improved health, hygiene, nutrition and education

2.6.6 Support Trade and Commerce

ICTs have been used to achieve global competitiveness in the area of trade in a number of countries. E-commerce a major growth area forecast to be a multibillion dollar industry is an ICT-driven industry. Information and communication technologies have also made major developmental impact in area like:

2.6.7 Education and Training

ICTs are making it possible to improve access to limited educational resources to a larger population. It is now possible through the use of ICTs to provide high quality education at an affordable cost to a wider population.

2.6.8 Good Governance

The use of ICTs to facilitate electronic government and governance has been contributing to the process of good governance and the strengthening of democratic institutions thus facilitating universal participation in the democratic and governance process. Governments world-wide have recognized the key role that ICTs can play in facilitating development and bringing government closer to the people. A number of countries in both the developed and developing world have been putting in place and implementing e-government and governance strategies and programmes targeted at exploiting the potentials of ICTs to facilitate government administration and service delivery as well as the governing process through good governance”.

2.7 GLOBAL AND SCIENTIFIC IMPACT OF ICT

According to Neves and Krajewsky, (2012) cited in John and Berners-Lee (2012:3), why is ICT important? With the help of ICT, the developed and developing countries would be able to create good atmospheric conditions of improving employees work performance and scientifically managed their resources effectively and efficiently, yet decrease the impact of the majority forthcoming danger to our existence such as climate change. Increasing hotness is recognised as a national security issues, harmful force and threat to national economies. They further said that “the windows of opportunities to address the predicted devastation associated with our warning planet continues to close and what should be accepted is that ICT is the key to achieving a carbon economy”. There is a need to provide various opportunities that ICT can offer to promote effective service delivery and enhance employees’ performance as well as using ICT to reducing unforeseen negative dimension of impacts and disasters that will

increase and destroy the quality of lives within our environment (Neves and Krajewsky, 2012; John and Berners-Lee, 2012:3).

2.8 SCIENTIFIC AND INDUSTRIAL INTERNATIONAL PERSPECTIVES OF ICT

“When Global e-Sustainable Initiatives (GeSI) were founded in 2001 as a United Nations Initiative (UNI), it was to contribute towards a better world and referred to the United Nations Millennium Development Goals (UNMDGs) as a starting point. Bringing together key players in the ICT sector with international organizations, GeSI embarked on a mission to demonstrate the positive potential of ICT to address societal challenges. By 2008, GeSI became an independent legal entity, a strategic partnership dedicated to provide thought leadership and practical tools that demonstrate the sector’s potential for ICT-enabled low-carbon societies. Also in 2008, GeSI published the Self-Monitoring Analysis and Reporting Technology (SMART) 2020 report. ICT companies and policy makers alike were inspired by the ground-breaking role of ICT to respond to the challenge of climate change. To build on the momentum, they launched an assessment methodology report on how to quantify ICT’s enabling capacities. At the same time, policy makers sought clarification of findings. In 2012, Self-Monitoring Analysis and Reporting Technology (SMART) 2020 report shows that they provide enhanced data, analysis and breadth on end-use sectors as well as change levers. This report demonstrates how ICT is a must have solution on an even wider scale than previously known. This report is not only a resource, but an essential toolkit. For policy makers, the report is a lens for how ICT can be a key determinant of low-carbon economies, which in turn empowers regional political, market, human and social capital. We have shown the efficiencies ICT can provide at selected regional levels as well as within end-

use sectors. The benefits are known but have yet to be fully realized. Global economic conditions require policy frameworks that leverage ICT to achieve sustained growth and long-term societal benefits. An enabling policy environment is the foundation upon which we can achieve an ICT-enabled low carbon environment. The ICT industry has demonstrated its commitment through operational and other changes and provided multiple innovative solutions to abate Green House Gasses (GHG) emissions. Without support from governments to ensure adoption of these solutions and support behavioural change, it may not be possible to realize ICT's ability to decrease the projected growth of GHG emissions. We encourage all key stakeholders, especially policy-makers, to use the report's findings, which quantify ICT's potential, and work towards the greater deployment of ICT solutions" (Neves and Krajewsky, 2012 cited in John and Berners-Lee, 2012:3).

2.9 ADM IDP REVIEW ON THE CONTRIBUTIONS OF ICT PERSPECTIVE

According to Amathole District Municipality (ADM) Integrated Development Plan (IDP) (2014-2015 :45-46), the reviews of ADM shows that "ADM established an Information Management Unit with the main objective to manage the planning, development, evaluation, coordination, implementation and maintenance of enterprise wide Information Technology (IT) system initiatives that support organisation in meeting its strategic objectives and goals in service delivery. The unit must ensure the alignment is achieved between the IT initiatives (which is IT strategy) and business strategy (that is the IDP – Integrated Development Plan). The unit is responsible to build and maintain the network infrastructure, data centres and business applications. In so doing the data management is inherent together with systems analysis as major functions. Then the

governance in terms of legislative compliance and decision making is of high importance in managing IT services with security management of the infrastructure. The other responsibility is the development, implementation and coordination of Disaster Recovery and Business Continuity. Then the responsibility of supporting local municipalities as legislated and in our business model coordinated by the Municipal Unit then implemented by the line departments/ business units”.

2.9.1 Infrastructure

“The network infrastructure internally is of sound quality and standard. It connects all head office blocks around the East London main town via Virtual Private Network (VPN) which is currently being upgraded to meet the requirements as stipulated by the business to operate and run the business systems/applications. The VPN extends to the 7 satellite offices in each main town of the local municipalities under its jurisdiction. The other remote areas beyond these main towns are connected via Asymmetric Digital Subscriber Line (ADSL)_including the Water Schemes and Treatment Works (WSTW). The major challenge is telecoms service availability to install fixed lines and ADSL in other areas where this is not attainable which resulted in other areas being covered via 3G broadband. But it suffices to indicate that there are areas where none of these services are available thus leaving those site not connected and no communication. The most sites affected are service delivery related and core function of the municipality which is water, sanitation and health. The requirement is to create connectivity in all areas” (ADM IDP, 2014-2015: 46).

“ADM has a healthy Internet connectivity that suffices the needs and the ability to host its own website and mailing services. This has further been enhanced by a second line

support and mail being hosted as backup for continuity of using emails with an external service provider. This allows ADM to receive emails if the internal systems are down. Furthermore key users have been equipped with 3G cards to access systems and emails for enhancing and improving connectivity and communication. The only issue would be balance the requirement/need, which is the users, application and devices, with the bandwidth to be available. This will require upgrading the internet bandwidth. This is mainly caused by the organisational growth in terms of personnel with access to computers and internet. The IT Master Strategic Plan (ITMSP) guides this” ADM IDP (2014-2015: 46).

2.9.2 Data Centres

“ADM has data centres that are consolidated and virtualised to host business systems/applications. These are used across the municipality and all areas hence the network connectivity using any available technology in those areas. Currently, the institution is building a data centre as a recovery site in terms of business continuity at first level. This has been a challenge since it is costly to replicate systems and cater for redundancy from all aspects. This has posed a challenge and issue in terms of meeting governance requirements for disaster recovery and business continuity, surely implications on audits in terms of legislative and standards compliance. The financial distress of municipalities has a heavy impact since ADM is not immune to this especially being a rural municipality where poverty levels are very high. The plans guiding this are the Disaster Recovery Plan (DRP) and Enterprise Business Continuity Management Plan (EBCMP)” ADM IDP (2014-2015: 46-47).

2.9.3 Systems

Realistically, ADM IDP (2014-2015:47), pointed out that “ADM has implemented systems internally and shared others with its Local Municipalities and therefore made requirements for reporting to National and Provincial government and hence implementation of systems is key to meet these requirements. Further mentioned that at minimum, the following systems are implemented at for major business processes and functions” ADM IDP (2014-2015: 47):

- Financial Management System (FMS)
- District Information Management System (DIMS) {Project Management & Reporting (PMR), Performance Management (PM), Mapping of Projects (MP), Supply Chain Management, Human Resources (HR)}
- Water Information Management System (WIMS)
- Electronic Document Management System (EDMS) (Documentum)
- Geographic Information System (GIS)
- Payroll {Human Resource} System (Payday)
- Health Information Management System (HIMS) (Inzekile – for environmental health practitioners)

In addition, ADM IDP (2014-2015: 47) also revealed that there are core services that form the foundations of building information systems that are in place in ADM and they are listed as follows:

- Directory Service (DS) - (Microsoft Active Directory (MAD))

- Electronic Mail (EM) - (Microsoft Exchange (ME))
- File Storage (FS) - (Storage Area Network (SAN))
- Print Servers

More so, “the business systems applications analysis was conducted and currently being concluded with a Master Systems Plan (MSP) which is a roadmap for all IT systems/applications which in turn will be the guide. Of course, the recommendations will have to be implemented and resources be allocated to achieve the desired outcome” ADM IDP (2014-2015: 47).

2.9.4 Support Services

“ADM has implemented a call logging system to track and log calls thus establishing the IT helpdesk. The system is Information Technology Infrastructure Library (ITIL) compliant, thus requiring proper processes to be put in place in terms of IT Service Management. This is the area that is a challenge since it requires external support and experience and resources to be allocated such as funding. This area also forms part of the IT Audit as auditors put reliance on security, logical and physical access to systems, user accounts management etc. this ensures that the systems that hold data which contributes to the Annual Financial Statement (AFS) are secured, integral and reliable. Also this area requires personnel (in the form of IT Technicians) to be available to support and fix computer and IT related problems so that users in the service delivery departments are able to perform their functions. This includes the ability to write and produce reports, to have access to systems/applications related to their functions, and being agile to respond to all IT related issues. The major challenge is having enough resources to address these problems and get to reach all sites that are connected to the

network and provide support at that level. The organisation is growing and expanding where possible technology is required to be used for remote support and automation. Furthermore with regards to office automation, this areas needs focus and strategy due to the shared responsibility internally. This creates a gap in providing support fully to a point of resolution. The Information Technology Master System Plan (ITMSP) is guide and its implementation will yield result with the required resources. The helpdesk system is accessible via the web and intranet and linked to emails with notifications, escalations and satisfaction surveys” ADM IDP (2014-2015: 47-48).

2.9.5 Geographic Information System (GIS)

Evidently, ADM IDP, (2014-2015:48) also revealed that ADM has been able to developed a three year GIS Strategy in 2009 which was reviewed in 2012 for another three years.

The major are as follows:

- Land Audit (LA) – this covers the entire district using Deeds data with ownership and land parcels.
- Social/Local facilities/amenities – this project captured all facilities within the district including schools, community halls, clinics, heritage sites, churches, shops, etc. of course the maintenance of this data is posing a challenge.
- Water Infrastructure Integration (WII) – capturing and integrating the corporate GIS system with the Water Information Management Systems (WIMS) since it holds the infrastructure assets. The challenge is maintenance and updating of new water infrastructure and assets. But the major issue is the backlog in terms

of the assets transferred from the local municipalities and Department of Water Affairs (DWA).

- Cadastral – verification of Enerplus Resource Fund (ERF) as allocated by the Surveyor General for surveyed land parcels and divisions approved.
- Land Use Management System (LUMS) – integration to the corporate GIS and updates from the local municipalities. The major challenge is to complete and be consistent in flow of information thus requiring a business process mapping exercise with a requirement for all role players involved in managing land parcels.
- Geographic Information System Shared Services (GISSS) established for local municipalities due to the lack of GIS skills at local municipality level. Of course the benefit being the ability to continue with the GIS service and maintenance of the systems deployed in each local municipality as ADM installed a GIS server for each municipality in its jurisdiction.

2.10 ALICE AND FORT BEAUFORT'S SOCIO-ECONOMIC INTERVENTIONS

As Alice and Fort Beaufort have being recognised as part of the socio-economic development areas within the Nkonkobe Local Municipalities', several involvements has been proposed to enable socio-economic, growth and development on the two towns take place.

2.10.1 ICT Development

In fact, ICT development for improving the socio-economic, growth and development in the Nkonkobe Local Municipality cannot be overemphasis as it plays a vital role in the

establishment of speedy investment for businesses. According to Aspire (2010:32), “Information and Communication Technology (ICT) is an important enabler of economic development and a critical resource for businesses in the current fast paced, global economic. Poor ICT assess in Alice has been has been a constraint to the development of enterprises usually found in a university town. The development of ICT infrastructure and services are seen as critical for the regeneration of the Alice as a university town. In order to facilitate ICT development, it will be necessary to expand the ICT network infrastructure in Alice. This will require institutional partnership between the key local stakeholders and private ICT enterprises. In addition to ICT development, two possible ICT site was identified by Aspire which include ZK Mathew’s former house (off Gaga Street) which is situated in the Sport and Education centre and the other in the development of the ICT Centre in a Thusong or Multi-Purpose Civic Centre (MPCC). Local Entrepreneurs should also be supported in the establishment of ICT businesses, such as internet cafe’s, website development et cetera”.

2. 11 THE SIGNIFICANCE ROLE OF ICT IN ORGANISATIONS

As the review of literature shows that the uses of ICT is important to various business organisations, they also play a significant role in improving a variety of employees performance in various organisations, both locally and internationally. Hence, Mahlatse (2011: 20-21) therefore, points out that ICT help various businesses reach out and connect with their customers, suppliers and collaborators and in fact, also identified the following summary of key advantages of ICT in organisations.

2.11.1 ICT improves efficiency of business operations

ICTs encourage innovative conduct of operationalising hence, facilitating various move toward various business operate. Mahlatse (2011) reveals in his example that “through the use of wide area communications technology, it is possible to rationalise the operations of a company that originally operated as separate business units in different geographic locations. Linked business units can use common ways of working facilitated by video conferencing. This mode of communication helps organisations to reduce costs as compared to traditional communications (Bocij, Chaffey, Greasley, and Hickie, 2006: 191)”

2.11.2 ICT improves communications in an organisation

It is very clear that “communication and collaboration systems enhance communication and collaboration between people, both external and internal to an organisation. Examples of communication and collaboration systems are electronic emails and office automation systems (Bentley and Witten (2007:7))”.

2.11.3 ICT facilitates managerial decision making through Management Information System (MIS)

Knowingly, the managers and employees at all levels of the organisation need information to make decisions and solve problems in their daily-today activities. This is facilitated through MIS that are able to provide management with accurate and timely information necessary for decision-making. Large amount of data can be easily presented in a summarised form that can be presented to both internal and external clients of an organisation (Ferreira, Erasmus and Groenewald (2009: 15).

2.12 ASSESSMENT OF IMPORTANCE OF ICT IN DEVELOPMENT

The review of literature distinctly states that ICT is important and in fact play a significant role by enhancing growth and most importantly in improvement socio-economic of a country. According to Waal (2006: 3) the utilisation of ICT in development is just like an easiest ways to deal with or offer solution to different obstacles confronting development. “For instance, providing the poor with access to information is a huge developmental challenge due to various factors. With the use of ICT, access to information could become quicker, cheaper and simpler” (Waal 2006: 3). Waal further points out that the utilisatiion of ICT would boost the public service performance particularly on the areas of information management and communications.

“There is much ‘hype’ surrounding the use of ICT for development purposes and this examination aims to show the different theoretical positions on ICT for development that currently exist. There seems to be two main positions emerging from the literature on ICT for development. The one position argues that the ‘Information Age’ has brought with it many advantages in terms of information gathering and knowledge acquisition. In this new information age, it is believed that those without access to information will be left behind and the divisions already existing between developed and developing communities will become deeper. By enabling poor communities to gain access to ICT, these people especially, will be able to acquire information and this has the ability to empower these poor people. The other position on ICT for development, argues that although Information and Communication Technology has resulted in many new ways of acquiring information, there is still a big problem regarding access to these ICTs among the less privileged communities. In a country like South Africa where there exist

so many levels of inequality, it is becoming clearer that information is still only available to the more privileged of our society. If the application of ICT for development purposes is to be successful, the existing inequalities must first be addressed otherwise ICT will only be distributed along these inequalities. Thus, it is argued that ICT applications will still only reach the more affluent, skilled and educated among the population” (Waal 2006: 4).

Even if this may be the case, the commencement of the technological demonstration has led to numerous changes globally and these changes have to be recognized (Waal 2006: 4). Most importantly, the acquirement, storage and processing of information has also bring about immense changes and in fact, these changes eventually have a positive consequence on a range of facades. To improve employees performance effectively and efficiently within the LGA The employees bad performance orientation which could due to lack of ICT skills and knowledge at the local government areas in South Africa for instance, must be changed to meet the requirements of a changing society and as well be capable to withstand both the employees and organisational challenges. Therefore skills development has to be associated with the changing nature of work opportunities.

Therefore, Waal argues that “there could be an over-supply of unskilled labour and an under-supply of skilled workers. Various development priorities with ICT applications have to be determined. In order to be achieved, these development priorities must be included in municipal integrated development planning. To show that this development is part of the municipality’s development agenda, the Integrated Development Plans (IDPs) must include these ICT-related initiatives. In order to ensure ICT strategies for

development is successful, the formulation of any ICT policy must have at its core a development agenda. ICT development initiatives must also be demand-driven and not technology-driven”.

2.12.1 Development of ICT

”New perspectives on development, based on earlier theories, emerged in the 1970s to the 1990s. These new perspectives of development have included concepts such as ‘human’ development, ‘gender’ aspects, institutional theories and ‘sustainability’ in development discourse (Moodley, 2003: 42-48). A broad definition of development, particularly relevant to this discussion, defines development “as the fulfillment of the necessary conditions for the realisation of the potential of human personality, which translates into reductions in poverty, inequality, and unemployment. (It is also) the increasing satisfaction of basic needs such as food” (Akpan, 2003: 262). This broader definition of development implies that there is “a relationship between economic growth and the equal distribution of resources” (Akpan, 2003: 262). This definition also alludes to the “consequences of the processes of globalisation and ICT diffusion for people in developing countries by referring to the development of human potential, possibly, through the use of technology” (Akpan, 2003: 262 cited in Waal 2006: 22-23).

“Development is seen more as being the joint responsibility of government, communities, civil society and the private sector (Ballantyne, 2002: 368). New ways of fighting poverty are emerging, which include participation, empowerment, public-private partnerships and joint action (Ballantyne, 2002: 368). Development agencies are also changing their development strategies in terms of focusing more on processes, developing local expertise instead of merely providing technical assistance, focusing on

qualitative rather than quantitative results and also reforming their approaches in the way they work and also who they work with (Ballantyne, 2002: 369). Furthermore, this new approach includes notions like decentralised cooperation, good governance, capacity building and also ensuring that initiatives are demand-responsive (Ballantyne, 2002: 369). Local ownership and local programming (ensuring relevance of initiatives) are essential for successful development to take place” (Ballantyne, 2002: 369 cited in Waal 2006: 23).

In addition to the development strategies aforementioned such as the idea of corporation, Waal (2006: 23) also points out that “ICT has the potential to make a huge contribution to human development but this can only take place for those who have access to ICT. According to the United Nations Development Programme, technological innovation can affect human development in two ways (Kozma, McGhee, Quellmalz & Zalles, 2004: 361). First, by directly affecting human capabilities in increasing people’s ability to participate more actively in social, educational, economic and political life of a community (Kozma *et al*, 2004: 361). Second, it can also encourage economic growth through the increase in productivity it creates. At the same time, human development, in terms of a highly skilled workforce can contribute to the development of technology (Kozma *et al*, 2004: 361)”.

More so, with regards the conducted by Waal (2006: 24), the study points out to answer the following questions such as: “how can the use of information and knowledge be supported so that they promote sustainable development and alleviate poverty (Ballantyne, 2002: 366)? What also needs to be taken into account are the roles and responsibilities of different actors (local, national, and international) that should be

defined so that they respond to the demands of poor communities, promote local ownership and strengthen local capacities (Ballantyne, 2002: 366). Ballantyne emphasises some important lessons learnt using ICTs for development. These say that ICT initiatives should be explicit about their developmental goals; initiatives should be demand-driven (not technology-driven), ICT solutions should be long-lasting, they should be sensitive to local conditions and limitations and the interest of the key stakeholders should be aligned with the goals of the intervention (Ballantyne, 2002: 366). Furthermore, the necessity is identified for holistic approaches with multi-stakeholder involvement, links and partnerships with the global economy is required, national ICT strategies should also allow bottom-up approaches to take place, advantage should be taken of new and emerging technology and new approaches to development assistance is also needed (Ballantyne, 2002: 366). Heeks and Davies (as cited in Moodley, 2003: 123), have concluded that the majority of ICT-based initiatives in developing countries have failed. This is largely due to not following the above recipe for ICT in development". As a matter of fact, government plays an important role in making and ensuring that environment is conducive to applying ICT for development (Moodley, 2003: 125). Therefore, Waal (2006: 25) also suggests that the developing countries in which South Africa is not excluded must develop their own applications, which draw on local knowledge. In light to the above suggestion, Moodley, (2003: 125) also points out that ICT policy can thus play a role in advancing development but only when it is coherently tied to national priorities and a pro-poor agenda.

In relation to the study conducted by Waal (2006: 25), the study confirmed that there are various that can be used to ensure the provision of ICT in developing countries and

some of these ways include: “Community Access Centres (CACs) or telecentres (in the form of mall kiosks, libraries, police stations, post offices, tourist information centres, etc.) can be used for e-governance initiatives as a grassroots way to bridge the digital divide and to bring excluded rural communities to the center (Sealy, 2003: 337). Innovation and the application of knowledge are considered to be the driving forces behind economic and social development (Sealy, 2003: 338). These are the most important factors that create knowledge societies, which are formed by knowledge economies that are grounded in innovation, research and development (Sealy, 2003: 338). If these are used in the correct way in terms of prioritising development initiatives, a continuous cycle of sustainable social and economic development is created (Sealy, 2003: 338). It should be remembered that in order to ensure sustainable development, all stakeholders should agree that the process is a developmental and not a technological one (Sealy, 2003: 338)”.

2.12.2 ICT in governance

According to Sealy (2003: 336), the stipulation of ICT has a tremendous impact on and enormous potential for achieving good governance in developing countries. Odendaal, (2003: 586) refers to “E-governance” as “the ability of government agencies to interact with the public on-line in the delivery of services and in fulfilling their mandates to the communities they serves”. In the same views with the definition given by the World Bank, (Odendaal, 2003: 586) also points out that e-governance could be referred to as “the use by government agencies of information technologies that have the ability to transform relationships with citizens, businesses, and other arms of government”. The connection linking “ICT and local governance is affected not only by issues of

technology and capacity but also by elements such as social pressures, community activism and capacity within the local” government area (Odendaal, 2003: 587). Therefore, Waal (2006: 26) points out that the each specific role played by ICT is very ambiguous; “it could overcome inequalities but also widen inequalities. ICT, according to Odendaal (2003: 587), must address the Digital Divide if it is to facilitate democratic and inclusive governance. Local government is thus in an interesting position with regard to this. On the one hand, local government is best suited to meet the local needs, while, on the other hand, it is not clear how well local government is placed to deal with digital inequalities (Odendaal, 2003: 587)”.

According to the views of Odendaal (2003: 589), various procedures of governance require the “management of data, processing of information and efficient communication” and ICT has the prospective to develop and improve these procedures. According to Odendaal 2003: 589), “economic development, policy priorities and technological development will definitely determine the capacity of municipalities to incorporate ICT into governance processes”. According to (Moodley, 2003: 114 cited in Waal 2006: 26), it is undoubtedly seen and clearly stated that ICT can improve governance in three overlapping ways: “First, ICT can assist decision-makers in acquiring, managing and transmitting information and data, therefore creating increased efficiency. Second, ICT can assist in service delivery and, third, civil society can become empowered by increased access to government information and increased participation in government. Therefore, these three factors combined have potential benefits for education, health and environment (Moodley, 2003: 114)”.

Sealy, (2003: 340) in that case also states evidently that it is absolutely believed from the developed countries that ICT applications can solve many of these problems but the challenge for developing countries remains how to balance the benefits of “investing in new ICTs against the need of building human resource capacity, a highly skilled ICT workforce and a literate public who would be able to apply their knowledge to local needs”.

Even though ICT has immense development potential, it must be known that there are unavoidable essential needs, which include: food and access to water, which in any one way or the other cannot be easily addressed by ICT (Moodley, 2003: 115). Waal 2006: 27) hence stresses that “the application of ICT for development purposes can only really take place if a huge amount of financial resources within a country is assigned to the development of the ICT sector (Sealy, 2003: 340). But this is not always possible, especially when one considers that most financial resources are assigned to meeting basic needs”.

2.12.3 The Progression of ICT and the Manifestation of the Information Society

With fact that one of the definitions of ICTs which state that “ICT are a diverse set of technological tools and resources [used] to create, disseminate, store, bring value-addition and manage information” (Nath, 2001: 318) is mostly considered and used by different authors, yet, there are still more to be discussed particularly on the advancement of ICT and manifestation of the information society. ICT includes a range of tools which does not merely include the Internet but which could be used independently or in combination with each other to speed up the transformation process to the knowledge economy (Nath, 2001: 320). Nath, (2001: 320) points out that

“Convergence technologies include community radios, Internet radio, local area networks, telecentres, information kiosks, mobile phones, WAP applications, etc. They improve the reach and penetration of ICT”.

2.12.1 Definition of ICT

Evidently and glaringly, there is no specific generally accepted definitions of ICT worldwide and in fact, the reviews of literature have also shown that various authors on ICT studies have defined it in terms of its functions or activities its performs, roles and importance it play in improving the employees performance, delivering qualitative services to the public et cetera. According to Mahlatse (2011:17), ICT, Information Technology (IT) and Information System (IS) are frequently utilised interchangeably. In the study conducted by Mahlatse, the following different definitions below were identified:

Table 2.1 provides definitions of each one of these terms as defined in the literature.

Table 2.1 Different Definitions of ICT

Terms	Definitions
ICT	“ICT describes the organisation’s computing and communication infrastructure, including computer systems, telecommunication networks and multimedia hardware and software” (Frenzel, 1999:10).
Information Technology (IT)	“Is a contemporary term that describes the combination of computer technology (hardware and software) with telecommunications technology (data, image and voice networks),” (Bentley & Witten, 2007:6).
Information System (IS)	“Is an arrangement of people, data, processes, and information technology that interact to collect, process, store, and provide as output the information needed to support an organisation (Bentley and Witten, 2007:6)”.

Source: Mahlatse (2011:17).

In addition to this above study conducted, Mahlatse, also points out “that the scope of the terms is different. The stress in ICT and IT is on the technology while IS does not only refer to technology, but also incorporates how it is applied and managed to contribute to the business”.

Furthermore, Quibria, Ahmed, Tschang and Reyes-Macasaquit (2003: 812) cited in Waal (2006:28) categorise ICT into three broad types namely: ICT for computing, ICT for communication, and ICT for Internet-enabled communication and computing. They are of the opinion that, “computers generally improve the thinking capabilities of individuals and organisations. They also improve efficiency (Quibria *et al*, 2003: 812).

Secondly, in the category of ICT for communication, there are two further categories, namely, one-way communication and two-way communication (Quibria *et al*, 2003: 813). The most common of these is one-way communication, including broadcast media, such as radio and television. Two-way communication includes faxes, telephones, telegraphs and pagers (Quibria *et al*, 2003: 813). These have undergone major improvements over the last two decades. For instance, the growth of the Internet has taken place as a result of the convergence of telephone lines and computers (Quibria *et al*, 2003: 813). Thirdly, the Internet, including the World Wide Web, is one of the most important technologies to affect communication technology (Quibria *et al*, 2003: 813). Through the Internet, new ways of communicating have come about, including e-mail, chat lists and video conferencing for group communication”.

Therefore, from the study conducted according to Waal (2006: 28), it is very glaring that “the information demonstration that has taken place over the last two decades has resulted in significant technological and institutional changes in the information and communication sectors” and this is the more reason why Wilson & Wong, (2003: 156) also points out that various “technologies and industries are now rapidly converging” to form innovative “multimedia”. Wilson & Wong, (2003: 156) are therefore argues this rapid converging has caused the transformation of various industries into global and “local networks that assist health, education, commerce, government, leisure and other activities through cheaper, more powerful information processing and communication”.

Ayres & Williams, (2004: 315) reveal that “a converging set of innovations led to the transition of the global economy to a digital economy”. At this junction, it was noted according to Waal (2006: 29) that from information technology, “the first transistor was

developed in 1947 and the first transistorised computer appeared in 1956. In the early 1960s, a new industry of computer manufacturing emerged (Ayres & Williams, 2004: 317). Intel, one of the leaders in processors for computers, was founded in 1968 and in 1971 the microprocessor was invented by Intel. This caused a shift in the design function from computer manufacturers to chip manufacturers (Ayres & Williams, 2004: 318). The first non-military government user of computers was the United States of America Census Bureau in 1951 and the first business applications took place in 1958 in the insurance and banking industry (Ayres & Williams, 2004: 318). In the 1980s, the impact of computers on manufacturing was still very limited. Computer-integrated manufacturing, which combined software and hardware systems, was the next stage of development of computer-use in factories (Ayres & Williams, 2004: 319). The types of sophisticated management software systems we see today only became reliable and widely available in the 1990s (Ayres & Williams, 2004: 319). By 1976, a new market was created for personal computers when the first Apple desktop computers were built using third-generation Intel microprocessors (Ayres & Williams, 2004: 320). In the late 1970s, the first mass-produced software applications were developed for personal computers (Ayres & Williams, 2004: 320). Windows, developed by Microsoft, was introduced in the early 1990s (Ayres & Williams, 2004: 321). Microsoft started as a small company and today more than 90% of the 500 million computers in use worldwide use Intel microprocessors and Microsoft Windows operating systems, as well as applications software (Ayres & Williams, 2004: 321)".

Nonetheless, Waal (2006), stresses further that "Since the beginning of the computer era in the 1990s, it was predicted that the "convergence of computer technologies with

communications technologies” would take place (Ayres & Williams, 2004: 322). The internet expansion and improvement has invariably resulted from the convergence of processor in addition to telephone technologies (Ayres and Williams, 2004: 324). E-mail originated accidentally as a by-product and the first real e-mail started in 1982/1983 (Ayres & Williams, 2004: 324). The World Wide Web was invented in 1989 and the first website was created in 1990 (Ayres & Williams, 2004: 325). Websites are places on the internet where information could be adequately stored, “read or downloaded by any user”. Presently, “three quarters of all internet traffic is Web traffic, to and from websites” (Ayres & Williams, 2004: 325). The introduction of the World Wide Web resulted in many new information services being created in the early 1990s, which led to terms such as “browsers”, “search engines” along with “portals” and in fact assist many users of internet to be able to discover relevant information (Ayres & Williams, 2004: 325). Present innovations include the Internet coupling with cellular telephones and personal digital assistants”.

The abovementioned technological innovations discussed above have therefore had a innovative effect most especially on the way people obtain, store, control, administer, manage and handle information. In fact, these technological innovations have created a positive impact on how people communicate nowadays.

2.13 THE IMPACT OF DIGITAL DIVIDE AND ICT IN DEVELOPING COUNTRIES

The term “Digital Divide” simply refers to access, or lack of access, to telecommunications infrastructures and, specifically, the Internet (Molina, 2003: 138). Molina, 2003: 138), perceived the Internet as the central component for participating in rising electronic commerce and, generally, participating in the knowledge economy,

which is at the centre of the Information Society. “Castells (2001: 27), cited in Waal, (2006: 34), refers to the Internet’s “self-evolving development”, which refers to the fact that users of technology are becoming the producers of technology and thus the ‘shapers’ of the network and by extension, the shapers of the network society”. This rapidly evolving technology has had very negative impacts on various “fields of employment, especially for unskilled and semiskilled” workers (Hull, 2003: 131). It must be made clearly at this innovative dispensation that this “digital divide is a reality”, not only within developed economies but specifically in developing nations.

As a result of these new developments in information and technology, the social exclusion of Africa becomes emphasised. According to Castells (2001), the inclusion/exclusion takes place in terms of the processes of production, circulation and consumption, which have been globalised as well as “informationalised” (1996: 133). It has thus created a new type of division of labour. The new global economy does not accommodate the majority of the African population in this new division of labour. Where Africa is included, it is usually in exchange for their valuable natural resources and Castells (1996: 135) describes Africa’s transition to the new global economy as “structured irrelevance”. This, according to him, is a more threatening state than Africa’s state of dependency. The dangers posed by the digital divide to Africa are, by extension, also applicable to South Africa.

Although referring to a divide between those with access to ICT and those without, Moodley, (2003: 94) cautions that the notion of a digital divide may be focusing too much on the technological aspect. The idea of a digital divide draws the focus away from the serious development divides that exist, even with no technological element.

The point is emphasises once again that ICT itself cannot overcome these divides but must be used to improve equality; otherwise ICT can lead to more, instead of less, problems (Moodley, 2003: 95).

ICT has the potential of making many positive contributions to economic and social development but if it is not managed effectively, there is a danger of widening the gap connecting various nations including the rich and poor economic status (Fourie, 2001: 593). The process of globalisation has resulted in a vast reliance on knowledge and information. According to Waal, people (as well as poor or small nations) “who do not have access to this knowledge and information feel excluded and threatened (Fourie, 2001: 598)”. This exclusion from the Information society has been named the “Digital Divide”.

Many developing countries in Sub-Saharan Africa include globalisation and the inherent potential of ICT to assist in socio-economic development as part of their development agendas (Akpan, 2003: 261). This seems to be problematic when taking into account that most of these countries have yet to provide basic needs to their populations (Akpan, 2003: 262). Furthermore, many people are in danger of being left behind if Sub-Saharan countries have development strategies that favour competition in the global economy, especially when 80% of populations live in rural areas (Akpan, 2003: 262). It is necessary to explore the issue of what role ICT could play in a development strategy of developing countries in order to ascertain whether it could be valuable and helpful to the public and community members living within their countries (Akpan, 2003: 262).

According to Waal (2006: 36), “In 1996, South Africa hosted the Information Society and Development Conference of the G7 countries. A number of infrastructure goals were

proposed for South Africa at this conference. The broad goals were to develop integrated information systems in order to meet people's needs, improved universal access, development of appropriate applications and content (with regard to excellence, expertise and resources), human resource development, support for business, support for good governance, cultural heritage, building ICT infrastructure and reach-out services to regional countries with special circumstances (Fourie, 2001: 605-606). Fourie (2001: 606), however, believes a real danger exists in terms of development and economic growth because few ordinary people have gained from ICT. This is especially true when basic needs such as housing, electricity, running water in houses, basic health care, basic telephone services and basic educational needs have not been met (Fourie, 2001: 606). If technology is controlled by those whose primary goal is to make money, this will not necessarily lead to the social good of ICT. This use of technology for the sake of technology, not for the sake of development, can become dangerous as precious resources are wasted on ICT-initiatives that are doomed from the start. Access in terms of availability of basic communication services at affordable prices is important, but the ability to use communication services, content and ICT is also important and thus training is necessary (Fourie, 2001: 608-609). Quality of information with regard to development needs must also be considered. There is a popular notion that information is power. But information can only be a source of power if there is the necessary infrastructure for its production, processing, storage, retrieval, transportation and if it is accessible to the people with the skills to apply this information into social practice. This must allow people to participate in social networks that enable them to further their own interests (Moodley, 2003: 203). The notion that knowledge is power implies that poor

people have never used their power because they lacked information and were ignorant. This is not necessarily true according to Moodley (2003: 203), instead, poor people lack the material and strategic means for attaining power”.

Participation from communities is vital in developing ICT services to ensure the process has input from below so that ICT services are relevant to the people who use them (Fourie, 2001: 610-611). Thus any policy regarding ICT should take note of grassroots needs and uses, keeping in mind that information-seeking and handling of information may vary among ethnic groups (Fourie, 2001: 614). Developing countries should have sustainable development as their goal with regard to ICT. The strategies of national ICT planners should not begin by focusing on the most sophisticated users but they should be designed for the marginalised people in urban areas and rural villages (Fourie, 2001: 615).

2.14 INFORMATION SYSTEM (IS)/INFORMATION TECHNOLOGY (IT) POLICY AND TRATEGY FORMULATION PROCEDURE

Each organisation particularly the LGA should be able to formulate an IS/IT strategy that would defines how information, knowledge and applications would be used to support business and local government objectives. The formulation of the IS/IT strategy is the responsibility of the Chief Information Officer (CIO) and he/she should ensure that the IS/IT strategy is implemented.

Figure 2.3 depicts an IS/IT strategy formulation process and provides the relationship between business strategy and IS/IT strategies (Bocij, *et al.*, 2006: 583).

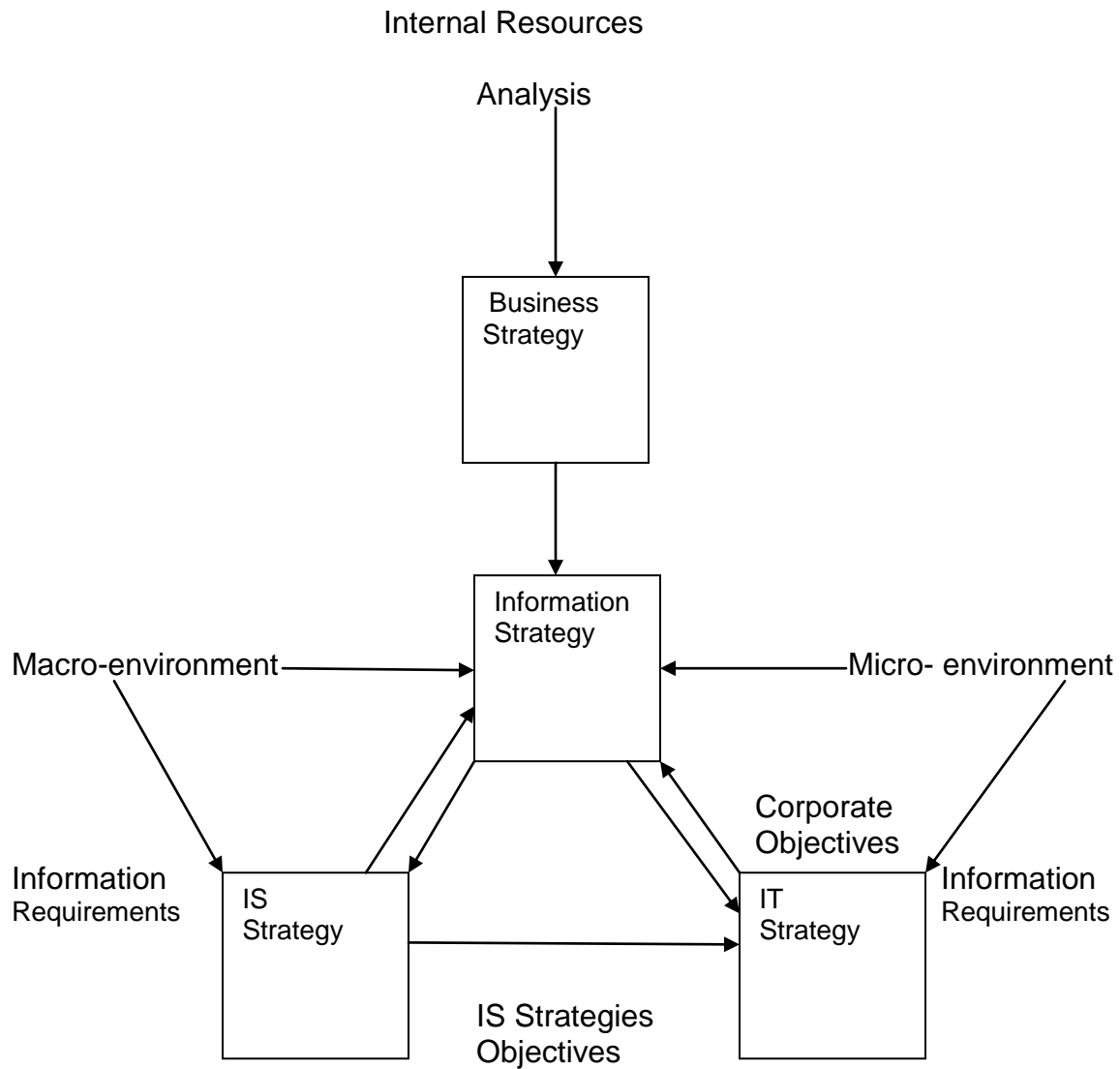


Figure 2.3: The “IS/IT strategy formulation process”

Source: (Bocij, *et al.*, 2006: 583, cited in Mahlatse, 2011:23).

The section below describes the IS/IT strategy formulation process as depicted in Figure 2.3:

- IS/IT strategy should be driven by the objectives of the business strategy. IS/IT objectives will then be aligned with the vision, mission, goals and objectives of an organisation.

- An audit of the internal environment is recommended as per figure 2.3 during the IT/IS strategy formulation process. The process will then indicate the resources currently available in order to ascertain the resources that are required.
- An analysis of the micro environment which includes customer demands and competitors, relationships with suppliers and partners should also be done.
- This should then be followed by an analysis of the macro environment in which the organisation operates including economic development and regulations by government in the form of law and taxes.
- After an internal resource analysis of the micro and macro environment, an information strategy can now be formulated as driven by the information needs of an organisation, where IT and IS strategies will be formulated. "IT strategy determines the technological infrastructure of the organisation and IS strategy determines how IT is applied in an organization".

Observably, with the fact that various studies have examined the IS/IT strategy formulation process within some organisations, particularly business organisations, it is often seen that not much of this IS/IT formulation strategy process were clearly and intelligently known by most of the LGA personnel. As result, this has contributes immensely to poor performance of their employees. This is to say that, for any LGA to achieve its organisational goals and objectives, there IS/IT strategy formulation process must be clearly stated, well defined and much attention should be focused on both macro-environment and micro-environment. This would invariably and consistently assist the municipality management to know where their organisations lack the necessary information that would improve the employees' job performance.

2.15 ICT CAREER

The rapid pace of ICT innovation brought “unprecedented growth of job opportunities fueled by an ever increasing need for skilled managers”. He further mentioned that this demand is driven by the growth of computer applications and by rapid advances in telecommunications such as the growth for electronic commerce and Internet. The following section describes different skills found within the ICT discipline (Frenzel, 1999:6).

2.15.1 The Chief Information Officer (CIO)

CIO is normally the senior executive in an organisation responsible for information management and for delivering IT services (Marchand, Davenport and Dickson 2000: 349). Marchand, *et al.*, (2000: 346) further indicates critical qualities of the CIO that he or she should have the ability to share the vision with the organization’s wider management so that IT strategy can be supported and embraced, form a close relationship with senior executives, especially the Chief Executive Officer (CEO), a willingness to pay attention to day to day IT performance and an ability to judge the importance of political and organisational changes in the business.

Deloitte and Touché (2004) offer guidelines for public service CIO and recommend the following factors to be on top of the CIO’s agenda if ICT is to make a significant impact in the organisation.

- Security and risk as top priorities;
- Procurement processes to be streamlined to accelerate decision making;
- Integration and interoperability emphasise silo bursting and cooperation across government agencies;

- ICT governance to facilitate decision making in the organizations;
- Performance measures to allow effective measurement of IT initiatives;
- Portfolio management to ensure that resources allocated are aligned to the mission and objectives of the organisation; and
- Human Capital as critical to the success of the organisation.

2.15.2 ICT capabilities and related job categories

ICT has created a growing job market and evolving technology has created new career opportunities. Meyer and Barber (1997:96) indicates that the microcomputer explosion has resulted in new jobs in repairing computers, installing and building communication links between them and providing user support. The internet has also opened up new career opportunities. Table 2.2 depicts the ICT functionality with related job categories.

Table 2.2: ICT functions and related job categories

ICT Function	Related Job Category
ICT Governance and Architecture entails the development of ICT standards and governance framework, designing of the enterprise and information architecture and to manage the quality assurance of IT.	Business architecture Information architecture ICT security architecture
ICT Service Management entails the development of service management framework including the management of the ICT help desk center. Service level agreements are also facilitated within this function.	Help desk practitioners Customer relationship managers Vendor and contract monitoring
Information Management entails the management of information for planning, operational and decision management purposes.	Knowledge Manager, Content manager, Record Manager, Business Intelligence Officers
Information Systems Development entails the development and management of information systems.	Business and Systems Analysts, Database Administrators, Programmers
ICT infrastructure management entails maintenance of the network, installation of the computer systems and development of disaster recovery plans.	Local Area Network (LAN) Administrators, Network Engineers

Source: Mahlatse (2011:26).

2.16 ICT INTERACTIONS WITH OTHER DISCIPLINES

Mahlatse (2011:26-30) make this assertion the study conducted that the inclusion of organisational strategies is vital when defining ICT and in fact, this indicates that ICTs

alone cannot be implemented separately from other functions in the organisations. Hazlett and Hill (2003) therefore mentioned that for technology to be a true business leader and enabler, technology must support business and other Local Government (LG) administrative service delivery both within and outside the organisations. ICT should be about increasing choice and efficiency and creating more ways of interacting with public services and this would assist government to achieve its long term objectives.

2.16.1 Electronic Commerce

According to Turban, Lee, King and Chung (2000:4 cited in Mahlatse (2011:26-30) “electronic commerce as a concept that describes the process of buying and selling or exchanging of products, services and information via computer network including the Internet. There are three types of electronic commerce transactions, namely: business to business, business to consumer and consumer to consumer”. In relation to ICT, the infrastructure for electronic commerce is network computing which permits all customers to right to utilised any information stored in a number of places in order to disseminate and also work together with each other from inaccessible locations. Customers can carry out extra communications twenty four hours per day from roughly every area. Turban, *et al.*, (2000: 16) hence, points out that electronic commerce through the use of ICT infrastructure can facilitate qualitative service delivery to government service sectors such as “health care, education and distribution of government social services at a reduced cost and improved quality”.

2.16.2 Information and Knowledge Management (IKM)

According to Rumizen (2002: 9 cited in Mahlatse (2011:26-30) “knowledge management is a systematic process by which knowledge needed for an organisation is created, captured, shared and leveraged”. Basically, “there are two types of knowledge, namely: explicit and tacit knowledge. Explicit knowledge is knowledge that can be readily expressed and recorded within information systems whereas tacit knowledge involves mainly intangible knowledge that is typical institutive and not recorded. ICTs are used to capture and share information and knowledge in organisations (Mahlatse 2011:26-30). Knowledge management is also seen as competitive force for acquiring and retaining customers and to ensure that the organisation is able to keep pace with competitors. Business intelligence tools are used to gather and analyse information in areas such as the new advances in technology, market conditions and the actions of competitors” Mahlatse (2011: 26-30).

2.16.3 Business Process Management

Tibco, (2003) points out that Business Process Management (BPM) allows automation of “tasks involving information from multiple systems, with rules to define the sequence in which the tasks are performed, responsibilities, conditions and other aspects of the process”. From the study conducted by Tibco (2003) the following benefits of implementing Business Process Management (BPM) were identified:

- Improved customer focused and service;
- Improved internal efficiency;
- Transparency and control; and
- Availability of management information.

2.16.4 Business Process Reengineering (BPR)

According to Bentley and Whitten (2007:166), BPR is the application of system analysis methods and the goal is to dramatically improve company procedures within the organisation and IT autonomous. In addition, potential benefits of BPR implementation are improved organisational effectiveness and smooth implementation of new systems. BPR helps simplify business processes where as ICT automate business processes.

According to Avison and Fitzgerald (2003:57-58) as cited by Davenport and Short (1990), information systems and BPR have a recursive relationship. He indicated that on one hand, the IT usage was to be determined on the basis of how well it supported redesigned business processes and on one hand how BPR was often enabled by information technology and information systems. The combination of information systems and BPR presented key opportunity to change the way in which business is conducted.

2.17 THE ASPECT AND COMPONENT OF ICT TO PEOPLE

As more and more the use of technology become widespread, Mahlatse (2011:30-31) also points out that “the social environment surrounding technological evolution also present many challenges and opportunities. The growth and complexity of these technologies and the Internet, the threat to personal privacy and confidentiality present significant challenges to both businesses and individuals today. The following section examines the impact of the adoption of ICT’s on individuals and businesses”.

2.17.1 Safety and Seclusion

It is very important to point out at this current dispensation of the computer age that ICT development and growth has brought about several consciousness, alertness,

wakefulness, responsiveness and attentiveness of safety and seclusion to the people as well as several government and private organisations in the country (Bentley and Whitten 2007:19). Stair and Reynolds (2008:583-591) as cited by Ferreira, *et al.*, (2009:307-308) cited in Mahlatse (2011:30-31) “also indicated that administrative professionals and other individuals in the organisation need to guard against computers becoming the objects of crime. He identified the following:

- Illegal access and use: hackers gaining access to computers;
- Data alteration and deletion: computer programs that contain viruses can cause the loss of data;
- Information and equipment theft: illegal access of information system with the intention of stealing data and information;
- Software and Internet privacy: illegal duplication of software for personal use or distribution for profit;
- Computer related scams: get-rich-quick scams sent via email, where personal banking details are asked; and
- International computer crime: using computers to commit cyber-terrorism”.

2.18 DEPARTMENT OF PUBLIC SERVICE AND ADMINISTRATION

ITWeb, (2010:62) cited from a study conducted by Mahlatse (2011:30-31), “the mandate of the department is to promote and manage the use of ICT, in the design and delivery of citizen-centered services”. Mahlatse (2011:30-31) further stresses that they should also ensure that ICTs are used as enablers in ensuring that the internal administrative operations of the public service are as efficient and effective as possible. In addition, Mahlatse, also points out that an important aspect of several sectors or organisations

commitment have been as a result of different implementation of the recommendations made in 1998 by the Presidential Review Committee (PRC) “on the reform and transformation of the public service in South Africa”. PRC revealed that absence of clear roles and coordination, incompatible systems and of skills development on ICT in the public service (“Department of Public Service and Administration (DPSA)”, 2003:72).

To address these challenges, it was realised that ICT should bring value to government service delivery and there should be a universal understanding of the role of ICT in the public service (Mahlatse 2011:30-31). Mahlatse further reveals that “guidelines on ‘Government ICT House of values’ were then developed by the State Information Technology Agency (SITA) to guide the various government departments on the implementation of ICT. An ICT governance structure was institutionalised to ensure that there is proper management and coordination of Information Technology (IT) and Information Management (IM) within the public service”.

Figure 2.2 depicts that SITA, OGCIO, GITOC and the GITO function within departments effectively constitute the institutional arrangements through which the Department of Public Service and Administration (DPSA) can ensure that ICT’s are leveraged as a strategic resource to enable government to improve service delivery (Mahlatse, 2011:37).

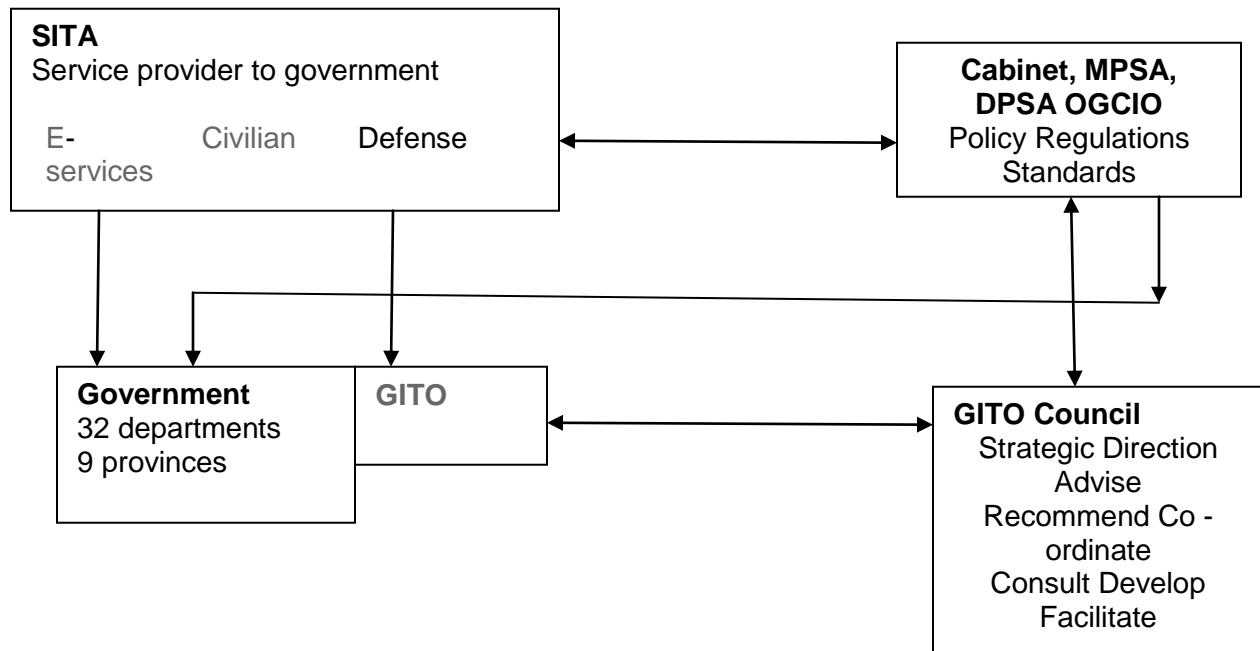


Figure 3.2: ICT Governance Structures in Government

Source: DPSC (2003:74, cited in Mahlatse, 2011:37)

Mahlatse, (2011:37-38) therefore identified the following role from each of the components of the structure in detail:

2.18.1 State Information Technology Agency (SITA)

“SITA is the primary service provider of ICT services for the public service. SITA was established through the “State Information Technology Agency Act, 1998 (Act 88 of 1988) to achieve the following objectives:

- To improve service delivery to the public through the provision of information technology, information systems and related services in a maintained information systems security environment to departments and public bodies; and
- To promote the efficiency of departments and public bodies through the use of information technology”.

In delivering its purposes, SITA will assist government in achieving the following objectives:

- That government will get value for money through ICT procurement;
- Effective utilisation of expensive ICT resources such as consultants;
- Integrated ICT solutions across government; and
- A rationalised IT infrastructure.

2.18.2 Office of the Government Chief Information Office (OGCIO)

The OGCIO is located within the DPSA and its responsibilities are: (DPSA, 2006:18)

- To serve as an IT coordination and consolidation vehicle in government with the purpose of improving service delivery,
- To monitor the impact of ICT on the overall government programmes,
- SITA oversight, e-government project coordination and management and provision of secretariat services to the GITOC, and
- The formulation of IT/IM policies, regulations, standards and norms for e-government.

2.18.3 Government Information Technology Officer Council (GITOC)

The mandate of the GITO Council as derived from the Cabinet resolution 38(A) of August 2000 is as follows (DPSA, 2005:3):

- To develop “recommendations for overall government information and IT resources management, policy, procedures, norms, standards, guidelines and best practices;

- To improve quality, management and usage of information and IT through sharing experiences, ideas, including work processes redesign and the development of performance measures;
- To identify opportunities, make recommendations for, and sponsor cooperation within government and between the public and private sector in providing access to and using information and IT resources”;
- To leverage the use of information and IT resources for effective and efficient delivery of government services;
- To remove duplication in government by promoting common solutions for common requirements across the department; and
- To ensure that SITA is capable of and does leverage information technologies to support government service delivery initiatives within a proper information security environment.

2.18.4 Chief Information Technology Officer (CITO)

The purpose of the GITO function in government is mainly to give ICT tactical guidance to various employees’ within various the department as well as the administration of ICT services demand and supply (Government Information Technology Officers Council (GITOC), 2007:1).

The primary responsibilities are:

- To develop and implement the master information system plan as an ICT/IT strategy. These include the alignment of the IT strategy with departmental strategy, management of the implementation as per government plans and priorities;

- To ensure good governance of deployment and use of ICT/IT solution in the departments;
- To ensure the security of information and information systems in government departments. This include the provisions of systems and procedures that will assist the departments in ensuring the integrity of information and information systems; and
- To render user community support to ensure that departments, supported for effective service delivery, using ICT systems.

In addition, it is evidently seen and believed that the South African public service has made some tremendous and remarkable important improvement in the National Treasury (NT) in ensuring that ICT contributes to the strategic goals of government.

2.19 NATIONAL TREASURY

The review of literature also shows that the “National Treasury (NT)” contributes immensely in maintaining different nation’s financial system. Additionally, Mahlatse, (2011:40) also points out that the South African public service, through National Treasury, currently houses a number of transversal “financial systems such as Basic Accounting System (BAS), Personnel and Salary System (PERSAL), Logistical Information Systems (LOGIS), Vulindlela as well as Integrated Financial Management System (IFMS).

Mahlatse, therefore, identified and described each of the following system below (DPSA, 2007:22).

2.19.1 Basic Accounting System (BAS)

BAS is an accounting system used to record all income and expenditure transactions in different national and provincial departments. The system provides detailed analysis of transactions, including the history of transactions and allows for production of management information reports.

2.19.2 Personnel and Salary System (PERSAL)

PERSAL is a human resources system with fully integrated human resources and payroll functionalities. The system has interfaces with other systems in other institutions such as educational, financial, medical and other public service institutions.

2.19.3 Logistical Information System (LOGIS)

LOGIS is a supply chain management system and has procurement, asset management and inventory management functionalities.

2.19.4 Vulindlela

Vulindlela is a management information system and aid managers in the decision making processes. The system is used to extract reports related to expenditures and financial information in government departments.

2.19.5 Integrated Financial Management System (IFMS)

IFMS is a programme that is implemented to replace the current transversal financial systems. The need to replace the systems came largely from functional shortfalls provided by current financial systems. The current financial systems environment is unable to adequately deal with the requirements of the financial management legislation

and guidelines, such as “Public Finance Management Act (PFMA), 1999 (Act 1 of 1999)” and Supply Chain Management Framework (SCMF).

In fact, this is the more reason why, National Treasury was on the opinion that there is a need to implement new financial management systems in order to address these challenges. A Cabinet memorandum 16 of 2005 was then issued and IFMS programme was proposed to tackle these present “transversal system problems and shortcomings in terms of functionality, business systems integration, support interoperability and cost effectiveness” (National Treasury, 2008:7). The main objective as it is stipulated and noted to improve efficiency, honesty and success of monetary administration, “human resource management and supply chain management” as well as performance reporting in order to improve service delivery.

IFMS encompasses the following functionalities (State Information Technology Agency (SITA, 2010:7) :

- Human Resource Management (HRM);
- Financial Management (FM);
- Integrated Supply Chain Management (ISCM); and
- “Business Intelligence” (BI), “Audit and Decision Support System” (ADSS),

The following are the envisaged benefits of IFMS implementation (SITA, 2010:7):

- Streamlining and eliminating of inefficient manual processes;
- Elimination of disparate stand-alone systems such as BAS and PERSAL;
- Provision of integrated, enterprise wide common tools, processes and systems that can be shared among government departments;

- Integration and “increased control of budgeting, planning and financial management processes;
- Provision of enterprise wide reporting and decision support”;
- Presents opportunity for reengineering with industry best practices; and
- Ensures that the system adheres to legislative requirements as required by the public sector.

The role of the Department of Communications (CoC) in ensuring that ICT contributes to the strategic goals of government is discussed in the next section.

2.20 DEPARTMENT OF COMMUNICATIONS (DoC)

ICT as observed by Bridges.org, (2002:1) “is a vital catalyst for social change and economic development that is increasingly seen as an essential tool for developing countries”. (DoC is responsible for ensuring that ICT initiatives are coordinated, and ensures that various government departments are aware of the initiatives of other departments in order to provide the necessary support in a structured and timely manner. Its mandate “is to create a vibrant ICT sector that ensures that all South Africans have access to affordable and accessible ICT services in order to advance socio-economic development goals and support on the African Agenda and contribute to building a better world” (Mahlatse, (2011:43).

Most importantly, to achieve the aforementioned mandate, a number of initiatives have been started by the Department of Communications. The following highlights some of the initiatives according to Mahlatse (2011:43):

2.20.1 The formation of Presidential National Commission on Information Society and Development (PNC on ISAD)

“PNC on ISAD plays a key role in ensuring the inclusion of provincial and local government in the planning of national ICT initiatives. This recognition led to the formation of the 24 member Information Society and Development (ISAD) Intergovernmental Relations Forum (IGFR), chaired by the Minister of Communications. Participants included the Minister of Public Service and Administration and 18 provincial representatives, made up of two members of the provincial executive councils from the nine provinces, SALGA and a member from the House of Traditional Leaders (ITWeb, 2008:179). PNC on ISAD also developed a plan around which all stakeholders will be rallied for the building of an Information Society to ensure that activities, initiatives, projects and programmes are aligned, coordinated and integrated (DoC, 2008:1).

The 10 pillars of the ISAD Plan are the following (ITWeb, 2008: 177):

- Ensuring that there is an investor friendly, progressive and enabling policy and regulatory environment;
- Provision of access to ICT infrastructure and services at affordable prices thus enabling meaningful participation in the economy and society;
- Development of a national content strategy and ensuring that the Information society in the country reflects the imperative of building a national identity and diversity; Increasing the awareness of the benefits of ICT’s to all, especially vulnerable groups such as people with disabilities, women, youth and children;

- Restructuring of the education curriculum to address the needs of the knowledge economy as well as to develop the skills necessary for a vibrant and sustainable technology sector;
- Development of a sustainable, science, technology and research sector and increasing employment and growing knowledge intensive industries for competitive advantage in the knowledge economy;
- Harnessing efforts of across government structures in all three spheres of government with all stakeholders to realise Information Society and national development objectives;
- Ensuring that investments by both government and private sector are made so that basic infrastructure is financed adequately;
- Adopting greater coordination and strategic synchronisation across government to ensure that ISAD policies, programmes and initiatives are sequenced and driven in concert towards a shared vision through a series on institutional arrangements that enable planning, alignment and coordination; and
- Development of an indicator system that supports monitoring, evaluation and impact assessment, development planning, budgeting, forecasting and decision making processes regarding the development of the Information Society in South Africa”.

2.20.2 Deregulation of the Telecommunication Industry

Through the Department of Communications, the South Africa (SA) government saw the commencement of Independent Communications Authority of South Africa (ICASA) Amendment Act, 2006 (Act 3 of 2006) and the Electronic Communications Act, 2005

(Act 36 of 2005) in 2006. This is part of the converged new regulatory framework of ICT which is intended to lower access costs and increase efficiency of telecoms service provision in the country. The information, telecommunications, broadcasting and electronic industries, once governed by a fragmented body of legislation, are now replaced by ICASA Amendment Act, 2006 (Act 3 of 2006) (ITWeb, 2008:123).

2.20.3 The development of the ICT Empowerment Charter

The Department of Communication, together with the Department of Trade and Industry, constituted a working group comprising of different stakeholders in the ICT industry to develop an ICT empowerment charter.

The following primary objectives of the charter help “to promote and facilitate economic development in the ICT sector (ICT Charter, 2004:15):

- Enabling meaningful participation of blacks in the growth of the ICT sector;
- Achieving a change in the gender and racial composition of ownership, management and control structures;
- Increasing the extent to which black women, communities and disabled persons and the youth participate in all areas of the sector;
- Facilitating access to ICT by black people, both in rural and urban as well as marginalised groupings; and
- Provisioning of skills development and training and thereby increasing access to, and participation in, the national economic activity”.

2.20.4 The development of the ICT Rural Development Strategic Framework

One of the objectives of the Department of Communication is to use ICT to accelerate social and economic development. To achieve this, the department has developed an ICT rural development strategic framework. The framework provides guidelines to ensure that the deployment of the infrastructure is accelerated in rural communities, there is an adequate ICT skill, and to ensure that the development of business in rural communities is enhanced in order to foster local economic development and improving the living standards of rural communities (DoC, no date). The strategy is also linked to the New Growth Path (NGP).

In order to facilitate the implementation of e-government, the SA government developed an electronic government framework to provide guidelines to government departments. The following section describes the purpose of the framework in detail.

2.21 ELECTRONIC GOVERNMENT POLICY AND FRAMEWORK

The SA government, through the “Department of Public Service and Administration”, recognised that ICT as a powerful enabler for service delivery to the public and developed a policy and a framework for electronic government. Turban, *et al.*, (2000: 345) defines “electronic government as the use of information technology in general, and electronic commerce in particular, to provide citizens and organisations with more convenient access to information and services to provide delivery of public services to citizens, business partners, and those working in the public sector”.

The framework recommended that electronic government should essentially embrace the following three main domains:

2.21.1 Government to Government

Turban, *et al.*, (2000: 346) defines “government to government as an e-government category that includes activities within government units and those between governments”. On this note, a one stop portal containing information to be exchanged online, between government departments and agencies was also observed.

2.21.2 Government to Business

“Government to business refers to e-commerce in which government sells to business or provides them with services, as well as to business selling products and services to government (Turban, *et al.*, 2000: 347)”. The benefits include working more closely with business and sharing the risks, assist government to procure services and products more cheaply and to build partnerships with communities and third parties.

2.21.3 Government to Citizen

Turban, *et al.*, (2000: 346) defines government to citizen as an “e-government category that includes all the interactions between a government and citizens that can take place electronically. This enables citizens to quickly obtain service on line, while improving responsiveness and consistency across government departments. This category provides initiatives geared entirely towards improving the relationship between government departments and citizens by streamlining processes, improving services and focusing on convenience”.

2.21.4 Progress on the Current execution of Electronic Administration

The review of literature also reveals that several progresses has been made in relation to the execution of e-government and this can be measured in the following phases (ITWeb, 2010:49):

- The first phase of the e-government was the release of Government Wide Enterprise Architecture (GWEA) framework to guide future electronic government systems implementation to avoid duplications and ensuring interoperability through standards and specifications for business architecture, application, data and technology architectures (ITWeb, 2010:49). The objectives of GWEA are increased productivity, citizen convenience, economies of scale, digital inclusion and interoperability. pp46Secondly, phase one of e-government was also aimed at allowing greater public access to information. This has been delivered through the Batho Pele gateway project, which has provided a single point of entry for access to government information as reflected in the www.gov.za website (ITWeb, 2008:134). Opportunities include cost reductions and efficiency as services are available 24 hours a day.
- The second phase of e-government implementation is to develop the prototype platform in order to automate the following services as offered by government, namely: application for an identity document, application to register birth, foster care grant application, old age pension application, application for a maintenance order and the application to give notice of death (ITWeb, 2008:134). All these services will be available on line ensuring citizens' convenience when accessing government services.

2.22 ICT GOVERNANCE AND REGULATION

The detailed planning, implementing and managing ICTs in the public service is guided by the following industry best practices and guidelines issued “by the Department of Public Service and Administration (DPSA, 2007:14 cited in Mahlatse 2011: 50-51).

- Minimum Information Interoperability Standards (MIOS) is a handbook developed to provide guidelines for seamlessness and interoperability for government departments;
- Minimum Information Security Standards (MISS) is an information system security standard endorsed as a code of practice for information systems security;
- Control Objectives for Information and related Technology (CobIT) is adopted as a generally applicable and accepted standard for IT for security and control purposes. CobIT provides guidelines for auditing and control of the IT environment; and
- IT Infrastructure Library (ITIL) is an industry best practice framework for service management". ITIL has been adopted by the SA public service and is concerned with delivering and supporting IT services that are appropriate to the business requirements of the government agencies.

2.23 ICT INFRASTRUCTURE DEVELOPMENT

The “Department of Public Service and Administration”, through SITA, has built the next generation network and policy for free open source software that will enable “the delivery of electronic government services to all citizens”.

2.23.1 The implementation of Next Generation Network (NGN)

SITA have in the past four years replaced the previous legacy common core network for the public service. SITA services around 3100 government sites, providing wide area networked services that enable government and public services such as the emergency services, schools and colleges, and hospitals to function (ITWeb, 2010: 64). The previous network, Government Common Core Network (GCCN) was unreliable and could not keep up with the demand posed by the growth of the public service. The current network has the potential to accommodate the expansion of government services into underserved areas and allows video services such as video conferencing, allowing staff the option of holding virtual meetings, saving time when it would take to physically attending meetings.

2.23.2 The adoption of “Free Open Source Software” (FOSS)

“The South African public service” has made significant progress in its focus in the adoption of Open Source Software (OSS). Therefore, it is very important to point out that “OSS is often refers to any software that is developed” and examined collaboratively and in fact, distributed freely to anyone who wants to use or customise it (ITWeb: 2008:184). “A policy on free and open source software” was enacted in 2007 in an attempt to guide government departments to adopt open source solutions, instead of procuring proprietary technologies.

The major benefits accruing from FOSS implementations are the following:

- Reduction in costs. OSS has a lower total cost of ownership as government can reduce their dependency on imported technologies and skills. For example,

instead of paying software licensing fees like Microsoft in dollars, local people can be educated and employment can be created by developing locally;

- It is affordable because it is available free of charge. The departments only incur maintenance and labour costs;
- It makes provision for universal access because it is cheaper and there are no costs for licensing which means that there are no restrictions on how many people can have access to the system; and
- There are no barriers to sharing information across government department and agencies. Propriety software comes with restrictions and different data formats, which makes it difficult to share information.

2.23.3 SUMMARY

The chapter has explored the literature review on Information and Communication Technology (ICT) by considering both an international perspective and a local perspective. An international perspective is necessary as Information and Communication Technology are now global players operating across national boundaries. It started by defining Information and Technology in different major national economies context in South Africa. An Administrative Behaviour Theory and Decision Making Process, Forms of “Information and Communication Technologies (ICTs), Information and Communications Technologies (ICTs)” development were discussed. The role and contributions of ICT to both major international economies and South African economy were also tackled. The discussion highlighted in importance of ICT to the scientific and industrial international world economies perspectives. Depending on the environment in which they operate and the support given by the different countries,

the contributions of ICT differ considerably. The précised contributions of ICT to the municipalities in South Africa include the area of infrastructure, data centers, systems, support services and Geographical Information System (GIS). This contribution as well comes inform of job creation, innovativeness, production and distribution of goods and services and assisting in local development. The success of ICT is basically relied on the ICT skilled personnel and the government's supportive interventions. In addition, the significance role of ICT in organisations, assessment of importance of ICT in development, the impact of digital divide and ICT in developing countries, Information System (IS)/Information Technology (IT) policy and strategy formulation procedure were discussed. The discussion highlighted the important role of ICT career, ICT interactions with other disciplines, the aspects and components of ICT to people. The chapter therefore concludes by evaluating various government departments such as: "Department of Public Service and Administration", National Treasury, "Department of Communications (DOC)" to see how electronic government policy and framework, ICT governance and regulation, ICT infrastructure development could be used to solved some of the calamity facing various government organisations in developing countries in which South Africa Local Municipalities are not excluded.

The next chapter discusses an overview of the role of ICT assessment, barriers to ICT development and growth and challenges faces by the municipality in the utilisation of ICT in South Africa.

**CHAPTER THREE: THE OVERVIEW OF THE ROLE OF ICT ASSESSMENT,
BARRIERS TO ICT DEVELOPMENT AND GROWTH IN SOUTH AFRICAN
GOVERNMENT ORGANISATIONS.**

3.1 INTRODUCTION

Despite the fact municipalities provides many opportunities both within and outside their organisations such as organising training for the serving volunteers and ensures that they secured permanent posts, building both internal and external capacity through training. Internal capacity include (strengthening the employees skills with new knowledge through training) while external capacity - when there is availability of funds to embark on some crucial community projects, such as learnership program in which in 2012 - 2014, Amathole District Municipality employed 9 fire fighters to foster service delivery among the various municipalities in which Nkonkobe Municipality was not excluded (ADM IDP, 2013-2014: 76). Yet, to ensure effectiveness and efficiency in the service delivery from the employees all above benefits are still not enough. This means that the some government organisations such as the municipalities are still facing some challenges in an attempt to improve, promote and enhanced their employees' poor performance within and outside their organisations. It is also glaring that government effort in the improvement of resources like equipment, computers, office furniture, and procurement of vehicles in order to enhance employees performance within the municipalities has not been met yet.

3.2 ASSESSMENT OF INVOLVEMENTS OF ICT DEVELOPMENT IN THE NKONKOBÉ LOCAL MUNICIPALITY

With reference to Aspire (2010:46), the involvements of ICT development assessment reviewed in the previous section shows that: “Three key opportunities for ICT development were identified in the previous (Business Case) report namely:

- Expand the ICT network infrastructure in Alice through institutional partnerships between key local stakeholders and private ICT enterprises.
- Support the establishment of ICT enterprises in Alice to service the ICT needs of local enterprises and residents, such as an internet cafe, and website development and support to local tourist enterprises.
- Establishment of a Thusong Service Centre to, inter alia, provides ICT training opportunities and facilities in Alice for local residents”.

In order to review and assess the involvement of ICT development in the Nkonkobe Local Municipality, Aspire (2010: 46-48) used the following assessment criteria below:

Table 2.3 ICT Assessment Criteria in the Nkonkobe Municipality

Criteria	
Demand	<p>“UFH has fast broadband internet access that all universities in SA have access to. In the rest of Alice, the internet is only accessible through slow dial-up modems or mobile GPRS/Edge. It is estimated that approximately 1,000 individuals in Alice, excl. UFH students, require faster broadband internet access for private home and/or business purposes. An additional 2,000 individuals may want to access the internet occasionally through internet cafes or public facilities such as at a library or Thusong Service Centre”.</p>
Technical Aspects	<p>“Expanding ICT coverage in Alice requires expanding the broadband network infrastructure, which is provided by private telecoms companies such as Telkom, Mobile Telephone Network (MTN), Vodacom or Neotel. It is deemed not financially feasible for these operators to provide fibre optic / ADSL connections to individual households or businesses in Alice in the short term. If demand for and usage of broadband internet increase in Alice it may become a viable option in the medium to long term given the close location of national fibre optic cable close to Alice.</p> <p>Instead, wireless coverage through a Wireless Local Area Network/Wireless Fidelity (WLAN/WiFi) network or mobile 3G/HSDPA is proposed. The former provides faster access, but require more</p>

	<p>physical infrastructure to cover the whole town, i.e. each access point only has an effective radius of 30m providing up to 54MB/s access. In contrast, 3G/HSDPA is slower (up to 3.6MB/s), but each access point can cover a much greater area (up to 30km radius).</p> <p>Technical skills development and support could be provided by suitably skilled UFH students and/or staff for the maintenance of the local network, providing local individuals and enterprises with internet services, and providing internet access to the wider community.</p> <p>UFH could provide the server infrastructure for use in a local, town wide network. The server could also be a server for hosting of websites of local and regional enterprises. This will ensure that a greater percentage of the locally generated ICT value chain is retained in Alice”.</p>
<p>Social Impact</p>	<p>“Broadband internet in Alice will improve the productivity of local enterprises and raise their competitiveness. In addition, it will enable Alice to attract highly educated individuals who require broadband internet access for work and leisure to live and work in Alice, which will benefit the whole Alice community. Using local UFH students will reduce the cost of providing ICT services in Alice. It will also provide them with working skills and experience which would increase their employability when their studies are completed.</p> <p>Providing cheaper, faster internet and communication to the wider Alice community through the Thusong Service Centre, internet cafes and</p>

	public internet access, will improve their quality of life, i.e. information about employment opportunities, government services, national news, etc. will be cheaper and more accessible”.
Environmental	<p>“Providing wireless broadband internet in Alice will have minimal impact on the environment. It will make use of proven technologies that use existing bandwidth frequencies instead of laying additional fibre optic cables in the ground. It could make use of existing University of Fort Hare (UFH) servers, minimising additional electricity consumption and heat generation associated with computer servers.</p> <p>Establishment of the Thusong Service Centre and development of other ICT enterprises will mostly be in already built up areas of Alice with minimal additional impact on the local environment”.</p>
Customer	“The customers will be the community of Alice, who will be the beneficiaries of cheaper and faster access to information through the internet and other communication technologies”.
Market Research	“The estimated demand above is based on average internet access in the rest of South Africa. A more detailed feasibility study will be required to determine the exact size of the local demand from Alice residents and enterprises for individual and public access to the internet. This will inform the specific extent and types of services demanded by Alice residents and enterprises”.
Spatial	“The immediate focus for wireless broadband will be on the Central Business District (CBD), surrounding affluent residential areas, and the

	<p>educational areas of Lovedale FET (Further Education and Training), UFH and the schools precinct. Public internet access through the Thusong Service Centre, schools and the Alice library will likely also be in the CBD or close to it”.</p>
<p>Partners</p>	<ul style="list-style-type: none"> • “Private Sector: Local businesses, Telkom, Vodacom, MTN and/or Neotel, Axxess DSL, Aerosat, EastTel (Amatole Telecoms Services (ATS)), Route 63 Wireless Internet • Local government: Nkonkobe Local Municipality, Aspire, Amathole District Municipality • Provincial government: Department of Economic Development and Environmental Affairs (DEDEA), “Office of the Premier, Eastern Cape Socio-Economic Consultative Council (ECSECC), Department of Education, Eastern Cape Development Corporation (ECDC)”, Eastern Cape Information Technology Initiative (ECITI) • National Government: Department of Higher Education (DHE), Department of Cooperative Governance (DCG), Department of Communications (DC) • Non-Profit Organisation (NPO): Borer Education Foundation for Southern Africa (BEFSA)”
<p>Financial</p>	<p>“Capital and operational costs for providing wireless internet (WiFi or 3G/HSDPA) will be borne by the private sector partners. UFH estimated the cost of WiFi access points to cost about R100, 000 per point. Cost to the individual and business consumer will be between</p>

	<p>R300 and R2, 000 per month, depending on the access speed and download usage.</p> <p>Equipping publicly accessible ICT facility at the Thusong Service Centre, library and/or Visitors Centre with IT hard- and software will cost an estimated R15, 000 per computer station. Operational costs will be about R5, 000 per computer station. Costs to the consumer will be approximately R20/hour”.</p>
Other	<p>“ICT technology is developing fast with access speeds and coverage constantly improving, for example, WiMAX, another wireless ICT technology, that can provide up to 40MB/s access over an effective 30km radius is rapidly expanding coverage in the urban areas of South Africa. It provides cheaper access than High-Speed Downlink Package Access (HSDPA) is faster speeds, roughly comparable to ADSL”.</p>

Source: Aspire (2010: 46-48)

3.3 UTILISATION AND IMPORTANCE OF ICT IN NKONKOBÉ MUNICIPALITY UNDER ADM IN THE EASTERN CAPE PROVINCE OF SOUTH AFRICA.

Since the introduction of ICT in municipality, one of the most discussed policy questions has been its impact on municipality outcomes. This explains why almost all existing data on ICT use in municipality are derived from sample-based international comparative assessments that rely on the employees, managers and municipalities for descriptions and analysis of job inputs, processes and outcomes.

“ADM (Amathole District Municipality) has established an Information Management Unit (IMU) with the main responsibility of providing and maintaining Information Systems (IS) that responds to the information needs and requirements of the municipality. Among its many responsibilities, the unit has to ensure connectivity of ADM users at all times by focusing on the following areas” (ADM IDP 2013-2014:119):

- “Security of all Information Technology (IT) systems and assets;
- availability of systems;
- high performance of systems;
- increase service delivery of ADM to its greater customers through highly effective systems;
- support and maintain systems used by ADM departments;
- ensure IT systems work according to business requirements;
- ensure seamless integration of systems and platforms; and
- to lead delivery of IT systems and services according to industry best practices and government based procedures”.

3.4 ROLE OF INFORMATION MANAGEMENT UNIT (IMU) IN UPGRADING ICT INFRASTRUCTURE IN FACILITATING THE EFFECTIVE CONNECTIVITY WITH NKONKOBÉ MUNICIPALITY UNDER ADM

“The unit has recently upgraded its ICT infrastructure. The upgrade was meant to ensure that there is continual connectivity for users and also system availability to an acceptable level. Furthermore, the unit has taken up the responsibility of developing the ADM website in-house, in order to manage content easily. This will assist in ensuring

that there is less reliance on 3rd parties in content updates and monitoring of timed content” (ADM IDP, 2013-2014:119).

The ADM IDP, (2013-2014:119) also reveals that for the municipalities to ensure proper IT governance, the 12 policies of the information management unit adopted by the council must be strictly adhere to in order to enhance employees performance and ensure effective and efficient service delivery. “The implementation of the policies will ensure that queries raised by the Auditor General’s office are resolved. The queries have been mainly the absence of documentation on procedures which the unit follows in operational matters and the absence of approved policies which govern the operations of the unit. Thus, the adopted policies will assist in this regard” (ADM IDP, 2013-2014:119).

According to ADM IDP, (2013-2014:119-120), “The unit is currently investigating ways to improve support to local municipalities. The assessment on the support needed by each LM is to ensure that the district municipality assists each local municipality in the area they need the most. The main areas of the assessment are on IT governance, infrastructure, systems integration, capacity issues and Geographic Information Systems (GIS) support. Thus, the assessment of the assistance needed by the LMs will be determined by the projects to be embarked on. In all, the unit will be developing a shared services model which will outline how the municipality will assist LMs and how the services of the municipal support unit will be coordinated with the services from the information management unit”.

3.5 IMPORTANCE OF ICT IN ENHANCING EMPLOYEES PERFORMANCE

The innovative perception accentuates ICTs as “self-management and self-reliance, contextual interactions, communication orientation, and right to participate in planning and implementing indigenous knowledge to people’s participation in decision making (Nair and White 1993:16)”.

However, ICTs present various importance of positive impact that immensely enhanced employees’ performance in utilising ICT effectively and efficiently in the LGA. In addition, “they may also result in greater risks for social and economic segregation. ICTs require broadly based social capabilities if they are to be used effectively and efficiently in enhancing employees performance within the municipalities. If these potentials and competencies are not developed, then it will be difficult for the municipalities’ employees, individuals, groups, organizations and even the whole country to contribute or partake in the opportunities that the advancement of ICT relevance is making accessible (Crede and Mansell 1998). The subject matter for the 2002 World Telecommunication Day (WTD), “ICT for all: Empowering people to cross the digital divide”, emphasizes the fact that contemporary communication technologies have not brought about consistent effects in all countries. While the developed countries have generated large amounts of revenue from innovative communication technologies, many of the developing countries have not yet been able to access these technologies (International Telecommunication Union (ITU) 2002).

Innovative communication technologies have therefore shaped a great digital divide between the information affluent and the information underprivileged (Goonasekera, 1997: 6). Though, the vast growth of the internet in the previous decade, the digital

divide has further widened. According to the 2002 World Telecommunication Development (WTD) report issued by the International Telecommunication Union (ITU), the gap between the developed and emerging nations in terms of telephone diffusion (fixed-line plus mobile telephones) is shutting. Wireless appliance, the utilisation of the internet for a broad diversity of important information broadcasting on every day jobs, holds the promise of overcoming basic hurdles that have pandemic the developing world (United Nations Development Programme (UNDP) 2002:2). Consequently, the foreword or establishment of innovative technologies and the indispensable or innovative infrastructure will open the gates of sustainable development”, opulence as well as affluence.

3.6 HURDLES CONFRONTING THE MUNICIPALITIES EMPLOYEES’ IN UTILISING ICT EFFECTIVELY

Perhaps, the following hurdles below could as well be perceived as some of the noticeable hurdles affecting employees in order to enhance their performance effectively and efficiently for the purpose of delivering qualitative services within the municipalities.

3.6.1 Internal Hurdles

The majority of municipalities’ employees in South Africa are immensely confronted with many internal problems most especially in their endeavor to utilised ICT effectively and efficiently in order to execute their daily duties or responsibilities and also to provide qualitative service delivery within their municipalities. These internal problems however, have led to the employees performing ineffectively, inefficiently and in fact, performed below the municipalities’ expectation. Realistically, the following hurdles stated below

are some the apparent hindrances confronting the municipalities employees from delivering qualitative services within their municipalities.

3.6.1.1 Lack of IT or ICT skills

In fact, despite the fact that the ultimate utilisation of ICT bring about innovation in the service delivery, however, lack of IT or ICT skills have pose a number of hurdles in the enhancement and enrichment of the employees performance in the LGA in South Africa. Therefore, these snags are as a result of low levels of technology skills and as a matter of fact, the majority of the municipalities employees are less expose to the vibrant opportunities that are achievable from utilising ICT. Perhaps, lack of access to ICT infrastructure such as internet facilities; low educational achievement and lack of computer skills have contributes immensely to the drawback confronting employees in the dissemination of such skills within the municipalities in South Africa.

Impertinently, many employees in most of the government organisations such as municipalities in South Africa as a nation have been found performing ineffectively, inefficiently and below government expectation due to lack of Information Technology skills. Perhaps, most of the employees in these municipalities are unskilled; they merely manage to finish high schools probably with poor examination results. This could hinder their performance and acquisition of computer skills in order to provide qualitative service delivery within the municipalities. Therefore, it is on this note that there is a need to improve and enhance employees' performance in order to ensure quick and qualitative service delivery within the municipalities.

3.6.1.2 Lack of IT training

Interestingly, IT training is one of the most important ways whereby employees in any government organisations could acquire IT skills. Knowingly that computer training or IT training is all about IT preparation, IT education, instruction, guidance, exercise, teaching and schoolings. At this end, it could results to effective employees IT skills which would invariably improve and enhance employees' performance within the municipalities. However, absence of IT training in acquiring IT skills by the municipalities' employees in utilising ICT in order to enhance their performance have resulted to ineffectiveness, inefficiency, drastically and eventually rendered their ability futile.

3.6.1.3 Unawareness of Importance and Benefits of ICTs Physical Access

In arguably, most of the employees in the municipalities performed inefficiently and ineffectively due to unawareness of the importance and benefits that could be derive from utilising ICT such as: computer amenities or services; data processing; input and output of data.

Rooksby, Weckert & Lucas (2002) also revealed that lack of relevant awareness and ICTs benefits by considering the physical access such as: "basic computer facilities; word processing; data storage and printing; advanced communication and information services; web browsing; searching and discussion mediums" was as well considered as another most important obstacle confronting employees in enhancing their performance. Access is glaringly a versatile theory or idea put in a nutshell a variety of factors. Nevertheless, Black and Atkinson, (2005) indicates that access is the aptitude for achieving unflinching "physical access to ICT resources" at logical and consistent stages.

For instance, maximally utilising ICT or computer for effective and faster internet access would invariably enhanced good employees job performance within an organisation and in fact, it would also bring about qualitative service delivery to the public.

In spite of the fact that some of the employees use laptops, own computers and access internet, yet, the majority of them have little or no full capacity or opportunities to connect to internet and also faced fluctuated internet access snags and a result, they “are unaware of the socio-economic crucial benefits that ICTs can bring to their lives” as well as in enhancing and improving their job performance within the municipalities in South Africa. Therefore, at this end, it is believed that because of the nonattendance of effective and thorough demonstration projects and to “advocate for the impact of ICTs” as regards the improvement and enhancement of employees performance within the municipalities was due to inadequate availability of information to access to ICT.

Therefore, lack of unawareness of the benefits and the importance of ICT physical access and other vital information that could assist the employees in improving their poor performance at the point of utilising ICT in order to provide qualitative service delivery within the municipalities have pose a number of problems. In addition to this, poor computer knowledge which resulted to inexperience in utilising and accessing computer appropriately or accessing appropriate computer data base which could facilitates an effective job specification and job enrichment within the municipalities are as well deficient.

3.7 INSTITUTIONAL DEVELOPMENT

3.7.1 Strategic challenges –Budget Constraints

Observably, the reviewed of the “ADM IDP (2013-2014: 17)”, reveals various budgets allocated for the purchasing of some government capital projects such as computers in order to ensure smooth communication processes and enhance employees performances within the government institutions most especially within the municipalities’ has pose many challenges in attempting to speed the rate of progress, improve employees performance, and to ensure effective as well as efficient service delivery within and outside the organisations. This is to indicate that many government institutions or organisations among which are the municipalities in South African failed in discharging qualitative service delivery within and outside their organisations due to few or non-availability of computers to perform their functions.

In addition, this reviews also shows that government budget constraints has hindered the growth and development of many municipalities among which is Nkonkobe Municipality in which the majority of employees in Alice and Fort Beaufort are greatly affected. For example, the capital expenditures on fire services allocated by the government for purchasing new computers in year 2013-2014 is R16, 543, this is the original and actual budget without any indication values for adjustment budget, in addition to this, the table also indicated R7500 represents the original replacement value in which there is no specific indication for actual budget in the same year (ADM IDP 2013-2014: 76). According to this reviewed report, this inadequate budget constraints, has therefore reduced the power and extend the inability and incapability of

the local government to improve and enhance their employees' service delivery most especially within and outside the municipalities.

For the purpose of clarity, the table below shows the capital budget on fire services.

Table 3.1 Capital Expenditure: Fire Services

Detail	"Year 0"	"Year 1"			
	"Actual"	"Original Budget"	"Adjustment Budget "	"Actual"	"Variance"
New					
Computers		16 543		16 543	0%
Office Furniture		32 000		29 294	8.5%
Procurement of vehicle		4 500 000		2238 844	50%
Equipment		389 455		341 605	12%
REPLACEMENT		-	-	-	-
Computer		7 500		0	100%
Equipment		6 700		6700	0%
Vehicle [2x refurbishment]		955 000		869 554	9%
TOTAL		5 907 189		3 502 541	41%

Source: ADM IDP (2013-2014: 76).

3.8 FACTORS AFFECTING THE UTILISATION OF ICT IN AMATHOLE DISTRICT

MUNICIPALITY: NKONKOKOBE MUNICIPALITIES.

However, many evidence from the literature or studies conducted by various authors investigating on various issues related to ICT “in the Eastern Cape Province of South Africa”, there is little or no studies that have been conducted on the factors affecting or influencing the utilisation of ICT in enhancing employees performance in Nkonkobe Local Municipality in which much studies has been conducted in Alice and Fort Beaufort “in the Eastern Cape Province of South Africa”. It is therefore, evidenced from the above that Nkonkobe Local Municipality do not operate in vacuum but it was emancipated or emerged or created to be part of the seven municipalities operating under Amathole District Municipality (ADM). According to ADM IDP (2013-2014:16-17; 2014-2015:15-16), ADM ward of authority or control comprises of seven municipalities, which include “Amahlathi Municipality, Nxuba Municipality, Nkonkobe Municipality, Ngqushwa Municipality, Great Kei Municipality, Mnquma Municipality, Mbhashe Municipality”. For the purpose of clarity, “Nkonkobe Municipality comprising the towns of Alice, Fort Beaufort, Middle-drift, the smaller towns of Hogsback and Seymour, numerous peri-urban and rural settlements”.

3.9 IMPEDIMENTS AFFECTING EFFECTIVE UTILISATION OF ICT IN ADM: NKONKOKOBE MUNICIPALITY

For the purpose of this study, therefore, it is on this note that these factors affecting the successful utilisation of ICT in enhancing employees performance in Nkonkobe Municipality which operate under Amathole District Municipality (ADM) reviewed various

issues underpinned those variables affecting ICT from ADM Integrated Development Plan (ADM IDP, 2013-2014).

3.9.1 Impediments

ADM IDP, (2013-2014:120) pointed out that barriers facing Information Management Units (IMU) in facilitating effective Information and Communication Technology (ICT) in order to enhance efficient employees performance within the municipality are mostly found to be:

3.9.1.1 Application

The actual impediments that the Information Management Unit (IMU) is confronting are the “lack of integration of ADM applications which is immensely due to the lack of an integrated approach in systems acquisition. Therefore lack of systems integration can easily lead to systems not being utilised maximally, as the potential of the systems can go unnoticed. In addition, systems integration will assist the municipality in ensuring that the evidence used in audit submissions by departments is system generated. It has been noted that the use of system generated reports in performance reviews is a generally accepted practice by auditors”.

3.9.1.1.1 Other impediments facing the Information Management Unit

Furthermore, ADM IDP, (2013-2014:120) also stressed that the Information Management Unit therefore faced some other barriers in an attempt to perform and operates effectively and efficiently. The IDP reviewed hence, highlighted the following factors:

- “Poor document management which has led to audit queries for the past 2 financial years;
- No IT service performance reporting to management. The unit is currently procuring tools that can generate automate reports which will assist in providing reports on system performance. The AG’s office requires IT units to report on systems performance and monitoring to management in order to ensure that IT governance principles are adopted. The reporting to management will be done through the IT Steering Committee;
- Lack of adopted IT project management methodology – this has led to poor project management;
- The non-availability of a test centre. The test centre will ensure that all back up tests are tested for recoverability in order to ensure continuity of systems in case of disruptions”.

3.9.1.2 Capacity

“It has been discovered that the absence of a Business Systems analyst is affecting the alignment of business strategies to Information Technology (IT) strategies. ADM has information systems for its key functional areas. However, it has been noted that the systems are not fully utilised, and this is due to the non-definition of the business processes that have to be automated. Thus, the systems analyst will ensure that there is a constant alignment of strategic issues to the IT strategies. This alignment, is not done once, but is supposed to be a continuous exercise which leads to maximisation of the use of information systems. When analysing the system, other factors such as

infrastructure, capacity, readiness and maturity of the organisation are considered so that feasible steps are taken in increasing system usage” (ADM IPD, 2013-2014:120).

3.10 COMMUNICATION STRATEGY (CS)

In addition to the hurdles stated above, the report from the survey conducted in terms of the communication strategy between 2009 and 2010 by Nkonkobe Municipality Draft Annual report (2009/2010:57-58), shows that:

- **“Development Stage of the Communication Strategy**

A draft communication strategy was developed with the assistance of Councilors’, Ward Committee members, officials, Community Development Workers (CDW), Office of the Premier, Department of Local Government and Traditional Affairs (DoLGTA) , Government Communications and Information Systems (GCIS) together with Amatole District Municipality. Scheduled dates for the review which would result to a final document of a communication strategy could not materialise due to a myriad of challenges such as clash with the Amatole District Municipality’s calendar on proposed dates, unavailability of key representatives whose role is to assist in the development of such. Internal problems also hindered the crafting of this document; the tight municipal calendar had its own effect.

- **Human Resource available to lead the Communication activities**

The communication unit was operating with just one incumbent until February of the year under review. An additional staff member was recruited enabling communication activities to be well attended with limited concerns from both the external and internal

public. Prior to the appointment of this individual, all communication related activities were a responsibility of one.

- **Infrastructural Resources available for Communication activities**

Inadequate resources are a cause of concern; as a result the unit utilizes service providers. This is with specific reference to challenges experienced in updating the website, printing of a municipal publication and any other material that requires printing. As a means to guard against reliance on service providers, the unit proposed for purchasing of equipment, as these tools will enable the unit to design and print its own material”.

3.11 Recommendations for Formulating Pro-poor ICT strategies in South Africa

According to Moodley (2003: 218) cited in Waal (2006: 44), “the key to integrating ICTs in the fight against poverty, then, is not to begin with ICTs or need to posit them as an essential”. Waal (2006: 44) further reveals that Moodley therefore “suggests that an assessment should rather be made of the major obstacles to poverty alleviation and the combating of inequality in society. Only once this has been completed, can the role of information, communication and knowledge in removing the above-mentioned obstacles be determine (Moodley, 2003: 218).

Moodley, (2003: 233) claims a consensus regarding the steps needed to utilised the positive impact of ICT is emerging. This includes: to determine the demand for sustainable ICT services in poor communities; policy and regulation reform; investment in education and training; the introduction of regulated competition to increase infrastructure roll-out, services and bandwidth and to reduce costs; and, to pursue ICT

for development purposes in an integrated way within a national policy framework (Moodley, 2003: 233). Government departments must cooperate to avoid competing and overlapping ICT projects. A national ICT strategy is required that reflects South Africa's development needs and which also monitors implementations (Moodley, 2003: 237).

Moodley (2003: 238) recommends the following principles in formulating a pro-poor ICT strategy by the South African government: Firstly, the focus should be on applying information and communication dimensions to poverty and the appropriate use of ICT in development Moodley (2003: 238). Secondly, information and communication aspects should be addressed in national poverty reduction strategies. Thirdly, national ICT strategies should be integrated into national poverty reduction strategies. Fourthly, ICT policy should enable the poorest communities to address their information and communication needs. Fifth is to develop the capacity within community and government to enable substantial contributions on ICT-related issues in order to form part of a national poverty reduction strategy. Finally, monitoring and evaluation of successful and unsuccessful ICT applications in order to acquire a database of best practice models" (Moodley, 2003: 238).

3.12 SUMMARY

This chapter gave a detailed exploration of the literature on conceptual and theoretical discussions related to "assessment of the role of Information and Communication Technology (ICT)". This chapter commenced by describing assessment of "Information and Communication Technology (ICT)" in its different forms. It assessed the ICT

assessment criteria in the Nkonkobe Municipality by focusing on demand, technical aspects, “social impact, environmental”, customers “market research, spatial partners and financials” among others. Different literatures have identified the usefulness and importance of ICT utilisation in “Nkonkobe Local Municipality” under ADM “in the Eastern Cape Province of South Africa”. The role of Information Management Unit (IMU) in upgrading ICT infrastructure in facilitating the effective connectivity with Nkonkobe Municipality has also been examined from ADM IDP (2013-2014) and discussed in detail. Various studies from the literature has also identified ICT as an important impetus, momentum and force that could enhance employees performance within an organisation in order to provide qualitative service delivery. Most importantly, the section reviewed factors affecting the Information and Communication Technology development and growth in South African government organisations.

Constraints facing effective utilisation of ICT in the municipalities were also evaluated. The discussed constraints are application and capacity while other constraints include poor document management, Lack of adopted IT project management methodology, lack of adopted IT project management methodology and the non-availability of a test centre. The discussed impediments undoubtedly give rise to the high ineffectiveness and inefficiency of ICT utilisation in the municipalities in South Africa. According to past studies, the factors was also categorised as technological, external and organisational factors.

The chapter concludes by evaluating the state of ICT utilisation within the municipalities in the South Africa as the focuses of the study. Therefore, as observed in the reviewed of IDP of the ADM, it is evidenced that Nkonkobe Municipality among the other

municipalities in the ADM where Alice and Fort Beaufort municipalities emaciated from faced some challenges in order to assess the role of ICT in enhancing employees' performance. for instance "non-provision of fire services by Local Municipalities responsible for the function i.e. Amahlathi, Nxuba and Nkonkobe, and because ADM is seen in the other 4 local municipalities, the community members assume that ADM should be providing the service and is not meeting their responsibility" (IDP 2013-2014: 75). The literature also identified that Moodley, (2003) as cited in Waal (2006) also highlighted some recommendations for formulating pro-poor ICT strategies in South Africa and thus, some of these recommendations included "for ICT-initiatives to be successfully implemented for addressing development needs, they must be pro-poor and demand-driven, as well as integrated with poverty alleviation strategies". The next chapter covered the research methodology and design.

CHAPTER FOUR: RESEARCH METHODOLOGY

4.1 INTRODUCTION

Clark, Riley, Wilkie & Wood, (2000:7) define the word “research’ as a study and investigation especially to uncover new facts”. They define the word as referring to the fact that research may be directed towards the confirmation of existing facts. This study is aimed at assessing the role of ICT in enhancing employees performance in the LGA for the purpose of improving and promoting service delivering in the Nkonkobe Municipality (Alice and Fort Beaufort District) “in the Eastern Cape Province of South Africa”, and it is intended to provide recommendations to enhance solutions to some of these mentioned problems effectively and efficiently. The researcher also introduces the most important reason for selecting a specific research method. Data collection used by the researcher to obtain information for the purpose of analysis was as well identified, which was through desktop and review of documents. In addition, data analysis was also used by the researcher to describe data handling and other relevant information.

For the purpose of this study, this section deals with the research design and methodology followed in conducting the study. It starts with the focus and scope of the research. It then describes the research design, data collection, research instrument, as well as sources of data, which are primary and secondary data. In addition, the limitation of the study is also discussed.

4.2 FOCUS OF THE RESEARCH STUDY

The study assesses the impediments or variables faced by utilising “Information and Communication Technology (ICT)” in enhancing employees’ performance in Nkonkobe Local “Municipality in the Eastern Cape Province of South Africa”. These variables can either be motivations or impediments faced by the employees in order to enhance or improve their job performance within the municipality.

4.3 SCOPE OF THE RESEARCH

The study was delineated in scope to effectively and effectively meet the research objectives and to report on the investigated problem.

4.3.1 Study Area

The study was carried out in Alice and Fort Beaufort in the “Nkonkobe Local Municipality in the Eastern Cape Province”. Nkonkobe Local Municipality covers the major towns like Alice and Fort Beaufort municipalities.

4.3.1.1 Brief Background of the Study Areas

Observably, Nkonkobe Municipality Draft Annual report (2009/2010: 63) reveals that “Nkonkobe Municipality was established in 2000 and is made of now disestablished TLCs i.e. Alice, Middeldrift, Fort Beaufort, Hogsback and Seymour. Alice is a legislative seat and Fort Beaufort is the administrative seat, the latter is situated about 140 km North West of East London on R63 and is approximately 200 km North East of Port Elizabeth. The municipality is the second largest local municipality covering 3 725 km², and constituting 16% of the surface area of the Amatole District Municipality. Nkonkobe

municipality is a countryside municipality that sits on the foot of the ever imposing and majestic mountain range of the Winterberg (liNtaba zeNkonkobe)".

The study was done in these towns because the researcher lives in Alice. Alice is a little bit far away from Fort Beaufort which makes the study easier for the task of visiting the offices in order to obtain some necessary and valuable information that is useful for the study such as the hard copies of the Nkonkobe Local Municipality IDP et cetera. The researcher was well aware of the boundaries of the two towns and this helped to reduce excessive cost of travelling.

4.3.1.2 Analysis of Total Population of the Household in study Areas from 2001 to 2008

"According to Global Insight, in 2008, Nkonkobe Municipality had an estimated total population of 131 071 and 28 259 households. There are 21 wards within the Nkonkobe municipal area. Approximately 74% of people living within the Nkonkobe municipal area are indigent. The majority of the population of Nkonkobe (72%) resides in both villages and farms and 28% resides in urban settlements. Urbanisation is mainly concentrated in Alice and Fort Beaufort. Urbanisation ratio (Urban/rural) has improved from 4.1 in 2001 to 2.6 in 2008" (Nkonkobe Municipality Draft Annual report 2009/2010: 11).

4.3.1.3 Population Distribution by Race in the study Area

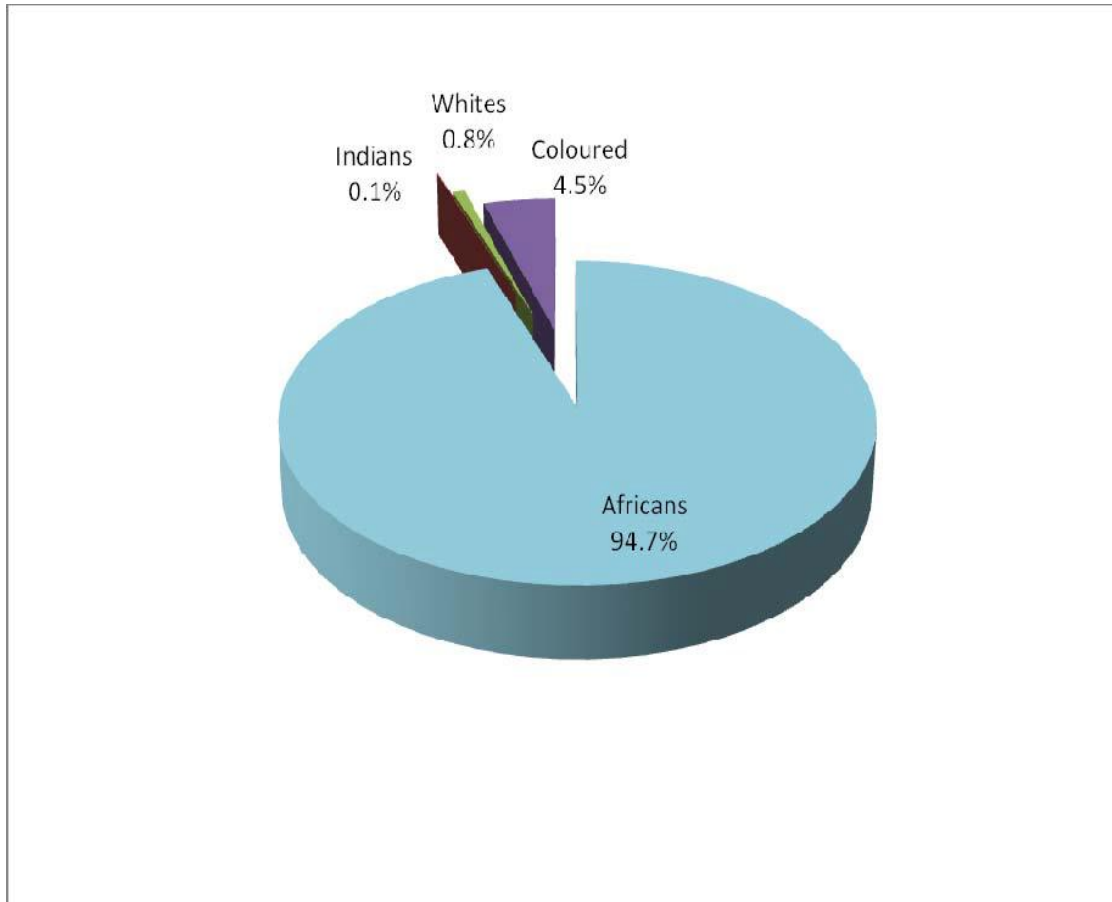


Figure 4.1: Population Distribution by Race

Source: Global Insight 2009 cited in Nkonkobe Municipality Draft Annual report, (2009/2010:13)

Observably, it is evidenced that the figure above indicates that Africans actually occupied the majority areas in “Nkonkobe municipality with 94% while Colored community occupied the second largest group as they are at 4.5%”, Whites with 0.8% and finally, Indians with 0.1%

4.3.2 The Study Unit

The study concentrates on the field of Public Administration, covering Alice and Fort Beaufort in the Nkonkobe Local Municipality. The utilisation of ICT in enhances employees' performance in other municipalities or government parastatals in South Africa were omitted in order to reduce variability of units under study. The following section discusses the research design.

4.4 RESEARCH DESIGN

Brewer & Miller, (2003:203) defines a research design as a 'blueprint' on how a person intends conducting the research. The researcher utilised qualitative research design and document analysis. "Qualitative research is concerned with attempting to accurately describe, decode and interpret the meanings of phenomena occurring in their normal context" (Fryer, 1991:101) cited in Cornelius 2010:77). The researcher, by using qualitative research design, focused on assessing the intricacy, the genuineness and conceptualization of the role of ICT "in Nkonkobe Local Municipality in the Eastern Cape Province of South Africa". The researcher used qualitative research design because it is descriptive and explanatory in nature. It is also used for the purpose of collecting an in-depth understanding of the research work. In addition, Cornelius, (2010:78) also reveals from his study conducted that "qualitative research has the following advantages:

- Obtain a more realistic feel of the world.
- Provide a holistic view of the phenomena under investigation (Bogdan and Taylor, 1984:125).
- Descriptive capability based on primary and unstructured data”.

It is on this note that the qualitative research design that is used in this study is a desktop research. A desktop research simply referred to the reviewing of different documents such as several publications, research literature, articles, books, conference reports, journals, dissertations and internet sources as secondary sources of data is used in this study. Document analysis was designed to collect the necessary data.

4.5 DATA COLLECTION

4.5.1 Primary data

When the researcher collects “data for the purpose of a particular study”, this data is known as “primary data” (Bless & Higson-Smith, 2000:97).

The researcher employed primary data sources. Primary data is the data that is collected with a primary aim of answering the research question and is the first-hand information written on account of a direct witness (Roberts-Lombard, 2002:57).

The researcher in this study requested for valuable documents as a source of collecting primary data to support the study from the municipality as a way of gathering information for a review.

4.5.2 Secondary data

It is accepted that secondary sources broaden the understanding of the key concepts, definitions, theories and empirical results of any study (Bryman & Bell, 2000:69).

The researcher used several publications, research literature, articles, books, conference reports, journals and dissertations as secondary sources of data in this study. Internet sources were also used as a secondary source. Bless & Higson-Smith, (2000:97) believe that data collected from other investigators in connection with the problem should be used by every researcher in relation to other “problems or as part of the more frequent method of gathering social data as in the case of population census, such data is known as secondary data”.

The information sourced for this High Level Feasibility Assessment is a desktop research, with specific reference to:

- “Previous reports generated for the Alice and Fort Beaufort Regeneration Programme: the Status Quo
- Report and the Business Case Study;
- Nkonkobe Strategic Planning documents - the Nkonkobe Development Agency's”;
- Nkonkobe Integrated improvement Plan (2007-2012) and Spatial Development Framework;
- Amathole District Municipality (ADM) Integrated Development Plan (2013-2014);

- Nkonkobe Integrated Development Plan (2014-2015).

4.6 METHODOLOGICAL APPROACH TO THE STUDY

The “aim of the study conducted was to investigate the impact of ICTs” in enhancing employees’ job performance. The “objectivities in conducting this research was to find out” to what extent could ICT important to the municipalities in order to enhance, promote and improve employees performance and as well as delivering effective and efficient qualitative service delivery within the municipalities, to analyse the challenges that are affecting the employees poor performance, to assess the skills needs in the ICT field within the municipality Administration and finally to make recommendations to the municipality on how to improve the employees performance through the use of past research and review of documents.

4.6.1 The Setting

This study was carried out within Nkonkobe Local Municipality “in the Eastern Cape Province of South Africa where data was collected from the Alice” and Fort Beaufort municipalities. According to Alao (2010), “Alice town is situated 20 kilometers to the east of Fort Beaufort and grew around a military encampment known as Fort Hare. Many of the current political leaders in South Africa were educated here and at the University of Fort Hare, which was established to cater for the needs of black graduates from Lovedale and other schools. Alice has geographical boundaries such as Hogsback, and Fort-Beaufort as well as Middle-drift. Alice and Fort Beaufort town are located in Nkonkobe Local Municipality which was created under the Amatole District Municipality, on the Eastern Seaboard of South Africa and is known to be the most diverse province. Amatole District Municipality is the most populous local municipality in the country and

is populated by the Xhosa also known as the South Nguni or Cape Nguni (http://www.ectourism.co.za/districts_eastern_cape.asp).

Below is a map of Alice and Fort Beaufort (Nkonkobe Municipality) in the Amathole District Municipality”.



www.bookaplace.co.za/.../grahamstown-region.htm

Figure 4.2 Maps of Alice and Fort Beaufort (in Nkonkobe Municipality)

4.6.2 Demographic Profile of Amathole District Municipality

According to Integrated Development Plan (IDP, 2014-2015:15), "the Amathole District Municipality is situated within the Eastern Cape Province, between Port Alfred and Port St John's. The district stretches from the Indian Ocean coastline in the south to the Amathole Mountains in the north. The District includes the large parts of the former

Ciskei and Transkei homeland areas, which means the district has large disparities within its borders. It is bordered by the Cacadu, Chris Hani, and OR Tambo municipalities. The District covers a land area of roughly 21 229km²".



Figure 4.3 “Map of Amathole District Municipality”

Source: “Urban-Econ Eastern Cape 2011”, cited in ADM IDP (2014-2015:15)

With reference to ADM IDP (2014-2015:15-16), it was revealed that "the Amathole District Municipality’s area of jurisdiction is made up of 7 local municipalities, as follows”:

- “Amahlathi Municipality, comprising the towns of Stutterheim, Cathcart, Keiskammahoek and Kei Road, numerous peri-urban and rural settlements;
- Nxuba Municipality, comprising the towns of Bedford and Adelaide and surrounding rural areas;
- Nkonkobe Municipality, comprising the towns of Alice, Fort Beaufort and Middledrift, the smaller towns of Hogsback and Seymour, numerous peri-urban and rural settlements;
- Ngqushwa Municipality, comprising the town of Peddie, the coastal town of Hamburg, numerous peri-urban and rural settlements;
- Great Kei Municipality, comprising the town of Komga, the small coastal towns of Kei Mouth, Haga, Morgan Bay and Cintsa, and a number of rural settlements;
- Mnquma Municipality, comprising the main town of Butterworth, the small towns of Ngqamakwe and Centani, numerous peri-urban and rural settlements; and
- Mbhashe Municipality, comprising the towns of Idutywa, Elliotdale and Willowvale, and numerous peri-urban and rural settlements”.

4.7 POPULATION

The review of IDP on the population distribution of the Amathole District Municipality in 2001 indicates that the population census of Nkonkobe Local Municipality was 129, 874 with 13.4% while the 2011 result shows that the population census was 127, 115 with

14.2% of the total population (Statistic South Africa ADM, 2011 in ADM IDP 2013-2014:17; ADM IDP 2014-2015:16).

4.8 LOCALITY AND GEOGRAPHICAL CONTEXT OF THE STUDY AREA NKONKOBÉ LOCAL MUNICIPALITY

Aspire (2010:12), “the Nkonkobe Municipality's main office is located in Fort Beaufort and a further four offices that operate as satellite cashier points are located in Alice, Hogsback, Seymour and Middledrift. There is a control centre in Alice and Fort Beaufort for solid waste and the regional solid waste sites are located in Alice. There is also a Fire station in Alice. It is widely held that the low capacity of the local authority to act as a catalyst for development in the area and address service and infrastructure backlogs³ is a major cause for concern”.

Aspire (2010), further stated that “in order to promote economic development within Nkonkobe, the Nkonkobe Economic Development Agency (NEDA) was launched in 2004. As a Section 21 Company, operating separately from the Municipality, NEDA's role is to identify and efficiently manage sustainable economic development of projects, facilitate investor attraction and trade promotion, and leverage public and private resources for development around opportunities which offer economic and developmental potential”. It is on this note that the researcher of this study observed that “NEDA is working closely with Aspire in the development of the Regeneration Strategy for Alice”.

4.8.1 Fort Hare University (UFH)

Aspire (2010:12-13), also revealed that “the University of Fort Hare (UFH) is one of South Africa's oldest universities – having been established as an institution of higher learning for Africans in the early 20th Century. Its biggest campus is based in Alice, with many of the more than 5,500 students coming from poor socio-economic backgrounds. As an historical icon, UFH attracts tourists and academics from near and far. The current strategic focus points towards research specialisms such as rural development and heritage studies. As an institution which focuses on teaching, learning, research and community engagement, UFH is a key partner in the development of Alice and the greater Nkonkobe region. The University is deeply committed to community engagement, having established a Community Engagement department which seeks to develop relationships with the community it serves (local, national and international), through a variety of initiatives focused on the interlace of teaching and research, which are aimed at addressing the social, cultural and economic development objectives of society”.

According to Aspire (2010:3), “The Nkonkobe Municipality is the second largest Municipality in the Amathole District, covering an area of some 3 725 km² with a population density of 43 people per square kilometer. Alice is the second largest town in the Municipal area. Alice is a service centre and a university town nestled in the Tyume Valley, at the foothills of the Amatola Mountains, at the confluence of the Gaga and Tyume Rivers. Its Genius Loci or “Sense of Place” is very strong as it “feels” like it belongs where it is located. The areas immediately surrounding Alice are rural in nature, with a number of small settlements established on the outskirts of Alice, which are

heavily reliant on Alice as a service centre”. Evidently, the figure below depict synopsis of the communications among the different vicinity and in fact, several institutions in Alice:



Figure 4.4 “Spatial relationship between areas in Alice”

Source: Aspire (2010:3)

4.9 LIMITATION OF THE STUDY

Firstly, the study is limited to the qualitative impediments faced by employees in Alice satellite office and Fort Beaufort head office in the Nkonkobe Local Municipality in utilisation of Information and Communication (ICT) in enhancing effective job performance and does not focus on qualitative barriers by making use of numerical and

statistical method. It is also limited to the evaluation of various ICT users in Alice and Fort Beaufort “in Nkonkobe Local Municipality in the Eastern Cape Province of South Africa” and thus, cannot be generalized to include the whole municipalities operating under Amathole District Municipality (ADM). Secondly, this study is limited to the qualitative research where desktop research approach is used and cannot be generalized to include the whole of South Africa. Lastly, time limitations and finance had a hampering effect on the study as well.

4.10 SUMMARY

The main purpose of this chapter is to describe the methodology used by the researcher in order to enable him make right decision about the nature of the study, the approach introduced by the study, sources of data as well as the document analysis procedures.

The next chapter presents an overview of the analysis of documents obtained and the researcher makes use of the next chapter to interpret and analyse the observed findings on “the assessment of the role of Information and Communication Technology (ICT) in enhancing employees’ performance in Nkonkobe Local Municipality in Eastern Cape Province of South Africa” hence, activities were based on the data collected through a desktop research and documents obtained from the two municipalities. The following section reveals the findings and discussions.

CHAPTER FIVE: FINDINGS AND DISCUSSION

5.1 INTRODUCTION

The previous chapter represented the focus of the research, the scope of the research, study area, the study unit, the research design, the study also discussed document analysis procedures to provide ways of looking at determining the relationship between dependent and independent variables, it also give an idea about the qualitative research technique where a desktop research was used to collect all the important information that are relevant to the study. In addition, locality and geographical context of the study area: Nkonkobe local municipality as well as the limitation of the study was also discussed.

This chapter provides the empirical findings from the document collected and reviewed. However, this chapter begins with findings and discussions. In discussions, the immediate findings of the research work were exposed and discussed. However, the variables undermining the factors affecting the employees' enhancement in Nkonkobe Municipality (Alice and Fort Beaufort Municipalities) in assessing and utilising an effective and efficient ICT in promoting and improving qualitative service delivery was discussed. In the discussion of the findings, several questions relating to a specific research question highlighted in chapter 1 of this study was addressed adequately. The qualitative analysis was done through the use of document analysis which could in other words called contents or thematic analysis.

5.2 FINDINGS AND DISCUSSION

The study aimed at finding out the extent to which ICT could be important in improving the employees' job performance, the technological challenges affecting the employees' performance, whether the employees have the necessary qualifications, skills and knowledge in utilising the ICT: A Case study of Nkonkobe Municipality and how these challenges can be resolved. The study focused on Alice and Fort Beaufort district. In this section, the findings are discussed in light of premise drawn from the study sub-questions that guided the study. The discussions focuses on finding generated from qualitative data collected through the review of documents and published materials.

5.2.1 Awareness and Understanding of Information and Communication Technology

This study required to bring to light the level of ICT knowledge among Alice and Fort Beaufort municipalities' employees in improving their job performance. Awareness of ICT and or its absent in one way or the other definitely affect its utilization in improving the employees' jobs performance within the municipalities.

According to the in-depth interviews conducted by Kiula and Wafula (2010), it shows that most employees in local government in Kenya are aware of various important uses of ICT, but the knowledge of using them is limited in order to improve the employees' performance among the municipalities. The reviews also show that most of these municipalities' employees are basically from different departments and they mainly use the cell phone which allows instant communication. Hence, it also found that not everybody owns a cell phone within their municipalities. Communication is usually about

the employees' job performance. They however, cannot access the Internet, which is required to access market information for their external service delivery. Some of the employees from both municipalities lack ICT skills to search, select and process information which was due to lack of basic literacy skills and the municipalities do not have training programs for them. They also lack strategic skills, that is, the ability to use the computer and network sources to improve their job performance effectively. According to study carried out in Intsika-Yethu Municipality by Chisango (2014), the finding shows that

“Those who have access to these resources they do not know how to fully utilised these resources, they have a challenge of the background knowledge on how the ICT infrastructure can assist them”. More so, “most women afford the cellphone for making calls and SMS, very few people are able to use the Internet”.

According to the interviews conducted by Chisango (2014), the finding indicates that there were no ICT skills training offered in Emalahleni Municipality.

The review of documentary analysis of Nkonkobe Municipality shows that there are no programs that could assist the employees in obtaining ICT skills needed to provide a qualitative service delivery within the municipalities. "There is no strategic reporting tool to measure performance by employees in various departments and rewards for excellent performance has yet to be implemented due to teething problems with the management of Performance Management System (PMS) (Amathole District Municipality Integrated Development Plan Review, 2013-2014)".

5.2.2 Accessibility of Information and Communication Technology

Accessibility of ICTs within both Alice and Fort Beaufort district is a great challenge in enhancing some employees' job performance and intestinally, this is the more reason why the research of this study wanted "to find out the degree of ICT access in Alice and Fort Beaufort Municipalities". In Lesame, Mbatha & Sindane (2011), they reveal that the government of the republic of South African implements the Telecommunications Policy in 1996 to achieve his goal which "promoted equal access to telecommunication services or universal service to these services, whether one resides in an urban or rural area." From the analysis of document reviewed, findings also show that ICT physical access gap exist in both Alice and Fort Beaufort district due to different levels of education acquired and income earned. Some employees absolutely rely on government social support while very few are employed at government institutions. Those who are employed at government institutions easily have access to ICT compared to other employee in the community. Therefore, Fuchs and Horak (2008) argued in the digital divide theory that the income gap also creates a social divide, meaning that, there are some employees who can afford computer and internet access while other who cannot. Hence, these inequalities in education and income create a lot of disparity among these municipalities' employees in delivering qualitative services within the municipalities.

From the reviewed of document analysed, it was also found that physical access to ICT infrastructure in order to enhance employees performance in both Alice and Fort Beaufort Municipalities is limited. As observed within Alice environment, it was found that there is only one library centre in the Alice municipality, and has ten computers.

However, there is an ICT centre in Alice town; the centre is not a Multi-Purpose Community Centre. Previously, there were no ICT centres in Alice Municipality, making it difficult for both municipalities' employees to improve their job performance and the resident to access ICT services.

Therefore, accessibility to ICT is also a major concern within the municipalities in enhancing employees' performance in order to provide effective and efficient service delivery within the municipalities' schools. As reveals by "Cunningham (2000); Harste (1994); Leu (2002); Moll (1994); Paris, Lipson & Wixson (1994); Yopp & Singer (1994)" "literacy" has bring about immense enlighten and huge changing world of technology and hence, also extended to "include literacy in information and communication technologies". In this context, literacy therefore does not necessarily mean the ability of any local government employees to read and write only but must also possess computer skills that could enhance their job performance in delivering qualitative services within the municipalities.

5.2.3 ICT Literacy Level among the Employees

The finding also reveals that the majority of employees in both Alice and Fort Beaufort Municipalities have low levels of ICT literacy. Hence, this has hindered them from performing their jobs effectively and efficiently. Utilization of ICT in order to enhance employees performance within the municipalities has been one of the major challenges because majority of employees do not want to be associated with ICT which may be due to lack of motivation or low level of education. Therefore, for all the employees to improve their job performance within the municipalities, they must possess ICT literacy skills which will enable them to have proper understanding of how to assess interment

and acquire the required basic computer knowledge that will enhance their job performance within the municipalities. Quality education and employees training encourages technology shifts and innovation that are necessary to solve the ICT illiteracy challenges and hence, higher education is the major driver to the information and knowledge system in order to improve employees' performance in any organization (National Planning Commission, 2011).

According to Chisango (2014), *“With the ICT, the main language, that is, English, on the computer is not our language, remember our home language is Xhosa and a few Afrikaans and English, and so it does affect them”*.

5.2.4 Effect of Employees' Level of Education and Skills on the Utilisation of ICT

As observed in Nkonkobe Municipality Draft Annual report (2009/2010:31), the report of the survey conducted between 2009 and 2010 shows that out of 238 total number of staff level of education and skills in the Municipality, the number of employees without Grade 12 is 134, number of staff with senior certificate is 44 while staff with tertiary and accredited professional training is 60. As indicated in the analysis above, it is evidenced that the majority of the employees without Grade 12 occupied the highest number with lowest number of employees with the level of education and skills within the municipalities; hence, this could result to poor utilisation of ICT or ineffectiveness in the utilising of ICT within the municipality.

5.2.5 Possible Approaches to Overcome Technology Challenges in Alice and Fort Beaufort District “in Nkonkobe Municipality in the Eastern Cape Province” of South Africa.

The review of some documents shows that possible approaches was derived in an attempt to overcome the challenges that are faced by employees in Alice and Fort Beaufort municipalities in enhancing the their job performance and utilization of ICT effectively and efficiently. The possible solutions were obtained from the review of published materials.

Support from the municipalities and the government, is another possible solution that was suggested according to the Municipal Systems Act (MSA) (2000) cited in Nkonkobe Local Municipality IDP Review 2008/2009, the idea of a local government Performance Management System (PMS) enforces and requires all municipalities to: Develop a performance management system that could enhanced employees job performance, delivery qualitative services and Set targets, monitor and review performance based on indicators linked to their IDP. The employees from both Alice and Fort Beaufort Municipalities should be trained the basic ICT skills, so that they will able to assess the interment, search for information, collate and assess useful data that are necessary in executing their job.

5.3 DISCUSSION

It appears that Nkonkobe Local Municipality covering Alice and Fort Beaufort Municipalities has included ICT-related initiatives in its IDP but not to a large extent which is evident in the resulting strategies. These strategies are basically for smooth

running of ICT utilisation among other municipalities within ADM. The ADM IDP has recognised the need to emphasise that it is not sufficient only to develop skills and capacity within the municipalities but that the nature of these skills in order to enhance employees' performance within the municipalities also needs to be addressed. In this IDP mention is also made of a skills demand and supply. Therefore employees' skills improvement approaches and strategies must recognise this change when considering training and educating of personnel within the municipalities.

In the same views, Waal (2006: 91) also points out that ICTs thus have the potential of playing a huge role in governance organisations and presently, it is taking place through the use of technology. "For instance, the creation of government websites where information on government policies, services, speeches, news and so on is available to the public". The finding of this study also shows that the use of the new technologies is not only useful to private organisations, communities' members but also for local government employees. Waal further argues that "technology has major implications for improving municipal functioning by employing various systems, such as the Enterprise, Resource and Planning Programme used by the City Municipality, which aims to integrate various services to improve interdepartmental coordination. Another technological application is the Geographic Information System (GIS), which facilitates the municipality in providing relevant and accurate information about the municipal area. If utilised correctly, this information can be used to formulate successful strategies that are relevant to community needs. Many of the ICT-related initiatives identified in the Local Municipalities were concerned with building institutional capacity. This emphasises the importance of developing relevant skills for the knowledge economy".

The result of this study also shows that government needs to provide the necessary ICT training facilities that would improve local municipalities' employees in order to improve their performance for delivering qualitative services.

Without the necessary ICT training facilities, the utilisation of ICT applications for service delivery and improving employees' performance would not be possible. In addition, the application of technology for the purpose of obtaining essential information must be effectively and efficiently used by the municipalities' management in order to implement and evaluate strategies. The findings also reveal that for employees to acquire more capability and skills, they are required to have achieved tremendous knowledge through the various ICT applications and new technological advancement. This is similar to the study conducted by Wale, (2006) who postulated that "in municipalities this includes developing human resources, such as relevant skills for the municipal workers" in order to deliver qualitative services.

5.4 SUMMARY AND CONCLUSION TO THE STUDY

This chapter provides detailed findings on the demographic areas of Alice and Fort Beaufort Municipalities on the effective and efficient utilisation of Information and Communication Technology (ICT) in enhancing employees' performance. It further provides findings on the benefits as well as drawbacks of ICT in an attempt to improve employee performance within the municipalities'. The preliminary "aim of this section was to analyse the role of ICT utilisation" by the employees in Alice and Fort Beaufort Municipalities in enhancing, promoting and improving their performance as well as providing qualitative service delivery within the municipalities.

The ultimate objective of this chapter is to determine the significant benefits as well as the drawback or setback for the utilisation of ICT in enhancing employees' performance. The findings shows that the majority of the employees in these municipalities have not being able to have access to effective utilisation of ICT. The findings reveal that some of the obstacles confronting the employees include lack of information training skills, ICT illiteracy or lack of IT knowledge, lack of ICT accessibility, and lack of internet facilities. Accordingly, the findings show that the most significant variables in the "Nkonkobe Municipality in the Eastern Cape Province" are: the needy "to serve the niche" or actual employees, training and government support. It is therefore glaring that ICT could play a crucial role in providing and enhancing effective and efficient employees' performance within these municipalities if necessary measures to improve this ugly situation are put in place. This therefore, shows that employees in Alice and Fort Beaufort Municipalities in the Nkonkobe Municipality in this province require assistance to ensure that successful performance are adequately enhanced. It is on this note that these assistance are therefore expected to come from the government, local government Performance Management System (PMS) whose aim is to develop a performance management system that could enhanced employees job performance and organized adequate training and workshops that would facilitate effective employees' intuit ICT skills in order to provide qualitative service delivery within the municipalities.

The findings of this study confirmed that the employees in the LGA have inadequate internet facilities, lack of IT skills, ICT illiteracy or absence of IT knowledge, "absence of consciousness of importance and benefits of ICT as well as lack of ICT accessibility". In fact, they are identified as the hurdles underpinning the employees in utilising ICT

effectively and efficiently in order to enhance employees' job performance within the LGA "in the Eastern Cape Province of South Africa".

Realistically, ultimate utilisation of CT in enhancing employees' performance within the LGA in South Africa needs to be duly and strictly put into the consideration in order to improve qualitative service delivery not only in African countries but also in the rest of the world. The government and his policy-makers as well as the Local Government Administrators or Managers need to facilitate and ensure that maximum utilisation of ICT are extremely and thoroughly enhanced in order to ensure that the employees enrichment are adequately maintained.

In spite of the presence of crucial utilisation of ICT enhancement and the panacea the municipalities employees have achieved in the LGA, it is saddening to note that the employees poor performance in utilising ICT effectively within the municipalities displays a skewed where employees performance in utilising ICT were relatively below expectation in providing qualitative service delivery. The governments, policy-makers and Local Government Administrators or Managers need to accept these hazardous, harmful and glitches confronting the employees in ultimately utilised ICT effectively and efficiently in enhancing their performance and therefore also accept to undergo a paradigm shift of policies, ideologies and practices that would assist and support employees in utilising ICT to a greater extent in order to provide qualitative service delivery and improve job performance within the municipalities in South Africa. This would be a pivotal way to the LGA "in the Eastern Cape Province of South Africa" progressively achieving success, development and enhancement in promoting and maintaining socio-economic growth in the country.

Finally, the study findings are expected to inform the government to provide the necessary ICT infrastructures such as internet facilities that would facilities employees IT training; legislators to enact laws which can improve the state of employees' essentially utilising ICT in enhancing their performance within the municipalities in South Africa. It is evidenced that the study used qualitative research design where a desktop research approach were used to source for information and document analysis in the presentation of information that are related or relevant to the findings and discussions that are based on "the assessment of the role of Information and Communication Technology (ICT) in enhancing employees performance in Nkonkobe Municipality in the Eastern Cape Province of South Africa". The following section discusses the conclusion and recommendations.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

The previous chapter provides and presents the empirical findings and analysis from the information collected from the review of various municipalities IDP documents. However, the previous chapter begins with a presentation of findings and discussions in an attempt to explain in details the rudiments and outcome of the research findings.

This chapter concludes this study. It recommences by giving a bird's eye view to all the previous chapters of the study. This is followed by the theoretical implications, policy implication and recommendations to the municipality management, government and policy-makers by offering or providing positive solutions to these numerous obstacles affecting the successful utilisation of Information and Communication Technology in Nkonkobe Municipality. Lastly, the areas of further research are as well highlighted.

6.2 SUMMARY AND CONCLUSION TO THE STUDY

The main significance findings of this study premise on the notion that ICT have an important role to play in the development of the South African economy most especially in the Local Government Administration (LGA). It is perceptible that the Nkonkobe Local Municipality and Fort Beaufort Municipality have included ICT initiatives into their IDP but the fact remains that these two municipalities does not have their own ICT basic infrastructure such as internet which could facilitate effective and efficient utilisation of ICT in order to enhance their employees job performance within the municipalities. The finding shows these two municipalities depends the ADM which is the only district Municipality that have internet transition facilities. The implication of this is that, in as

much as they relied on ADM internet transmission facilities, once there is a problem with the AMD internet transmission, they would not be able to discharge their own responsibilities effectively and efficiently. In addition it contributes to the ineffectiveness of the employees in discharging qualitative service delivery apart from the fact that these employees have a variety of challenges that are facing them such as lack of ICT skills and knowledge, Lack of IT training, poor typing skills among others.

This study thus, provide an effective and efficient solution to identified challenges and impact as well as strategies to be adopted in order to reduce the failure rate of ICT utilisation in the Local Government Administration (LGA) in South Africa perhaps through various IDP. This implies, in turn, that it is necessary to improve the levels of man power or human skills and economic growth in the country. In addition, the study could also be seen as a valuable source of information to policy makers in the government sector. This research therefore contributes to the empirical literature on the impact of ITC supports in promoting the service delivery in LGA of South Africa.

Furthermore, “the overall purpose of the research has been to understand the assessment of the role of Information and Communication Technology (ICT) in enhancing employees’ performance in Nkonkobe Local Municipality in the Eastern Cape Province of South Africa”. The research targeted the employees in Alice Fort Beaufort Municipalities in order to investigate the reasons for assessing the “role of Information and Communication (ICT)”. It is anticipated that the study could provide practical solutions to the government, policy-makers and municipality management in Alice and Fort Beaufort.

The study used qualitative research design which includes a desktop research and document analysis method of data collection. A desktop research simply referred to the reviewing of different documents such as several publications, research literature, articles, books, conference reports, journals, dissertations and internet sources as secondary sources of data were used in this study to collect data or information related to the assessment of the role of ICT in enhancing employees performance in “Nkonkobe Local Municipality in the Eastern Cape Province of South Africa”. It must also be noted that for the purpose of analysis and presentation of the findings, all the necessary data or information were obtained from the documents reviewed.

The findings of this study confirmed that the employees in the Nkonkobe Municipality have insufficient internet facilities, lack of lack of Information Training (IT) skills, ICT illiteracy or lack of IT knowledge and lack of ICT accessibility and are some of hurdles underpinning the employees in assessing effective Information and Communication Technology (ICT) in South Africa.

Though, it was viewed from some of the document reviewed that a number of motivations and hurdles were highlighted, the study realized that not all variables established in other previous studies done elsewhere were relevant to the obstacles faced by the employees in Nkonkobe Local Municipality. Variables like gender, post of the employees, years of employees experience and uncertainty about the job security in the municipalities were found to be irrelevant.

Conclusively, it was also highlighted from some reviewed documents such as IPD that the variables which actually serve as hurdles to ICT in “Nkonkobe Local Municipality in

the Eastern Cape Province of South Africa” are lack of information training skills, ICT illiteracy or lack of IT knowledge, lack of ICT accessibility, lack of internet facilities, lack government support, and inappropriate policies.

6.3 THEORETICAL IMPLICATIONS

In this study, the theoretical implication focused on both theory development and policy formulated by the government, policy-makers and municipality management. The main contribution to the theory involves confirmation of the research questions concerning the variables which caused the hurdles faced by the employees in the Nkonkobe Local Municipality in order to utilised effective and efficient ICT enhancement.

6.4 RECOMMENDATIONS

The following recommendations are derived from the findings of the study:

- The Nkonkobe Municipalities’ Management in Alice and Fort Beaufort in the Eastern Cape Province of South Africa should provide adequate fund for the acquisition of appropriate ICTs Infrastructure.
- Management of the municipality must ensure that adequate training in the use of ICTs is given to the employees in order to enhance job performance in their areas of establishment.
- The Management of the municipality in Alice and Fort Beaufort in the Eastern Cape Province of South Africa must put ICT strategy in place.

- The municipality management in Alice and Fort Beaufort in the Eastern Cape Province of South Africa should assess their employees on a regular basis, not only for the purpose of improving the quality of job done within their areas but also for the employees to receive feedback on the quality of work they do. Therefore, some of the important areas that should be covered in a thorough employee assessment are: work processes and results, communication skills, decision making skills, interpersonal skills, leadership skills, planning skills and program/project management as well as interacting with external environment.
- The study also recommends that from both Alice and Fort Beaufort, the municipality employees who lack ICT skills should seek help from those who have the knowledge. Employees Forum Groups (EMG) should make the Special Programs Manager (SPM) of the Municipality aware of their problems regarding ICT utilising within the municipality. A project or programme should be organised by the municipality to educate the employees about ICT issues, its effectiveness and efficiency in promoting and as well as improving qualitative service delivery within the municipality.

6.5 RECOMMENDATION ACCORDING TO IDP

ADM IDP, (2013-2014:120) suggests that in order to ensure adequate smooth running of the ICT utilisation effectively and efficiently for the purpose of enhancing employees performance within the ADM and other Local Municipalities (LMs), the following strategic actions stated below must be generally and strictly adhere to:

- “Capacitate middle managers on IT project management. This will resolve issues such as document management, project management through the systems development life cycle;
- Fast track appointment of Business Systems analyst for business process mapping and analysis;
- Set- up a test centre for changes to systems to be tested before running on live environment;
- Procure tools that can enhance IT service performance/ monitoring tools;
- Identify violations to policy;
- Usage of software or hardware;
- Identify intruders to ADM network;
- Resuscitate IT Steering Committee and District IT forum – for performance monitoring and reporting;
- Engage the services of a Network Engineering to assess and re-configure the network to ensure connectivity of all applications;
- Develop IT based shared services model, in order to assist Local Municipalities (LMs) with IT support”.

6.6 OTHER RECOMMENDATIONS FOR THE STUDY

This study further suggests that employees' job performance could also be enhanced and improved in order to ensure effective service delivery within the municipality, therefore, the following suggestions below should be adhere to:

6.6.1 Recommendation to the Government and Policy- Makers

Policy makers should create a methodology for monitoring and evaluating the employees' job performance in the utilisation of ICT efficiency within the municipality. The creation and enforcement of effective ICT utilisation best practices that ensure all municipalities are meeting this requirement would then be possible. Government policies can incentivize the municipalities' management to adopt effective ICT utilisation policies in order to enhance the employees' job performance within the municipality. Policy makers should also highlight best practices within the municipality areas and encourage other municipality management to voluntarily adopt these practices.

In order to improve various employees' performance in utilising ICT effectively and efficiently there is a need for government to allow Nkonkobe Local Municipality IDP to recognised the need for creating cohesive and self-reliant on their own ICT infrastructure. This would facilitate more confidence on various employees' knowledge sharing systems that use existing infrastructure and some new infrastructure. Library services are also frequently included in the Local Municipal IDPs. A key here is the use of libraries. Libraries potentially play a pivotal role as access points in communities to information. More libraries should be created as they have observably often seen as the

potential of becoming multifunctional centres, where computer skills training and business training can take place.

6.6.2 Computer Education and Utilisation

Furthermore, it must be noted that on social mobility, computer and computer network play an increasingly important role in learning, utilising and enhancing employees performance, so that education or enlighten should include that of computing, process of information, data collection processing and use of the internet. Without such offerings, the existing digital divide works unfairly.” Modern communication technology is regarded as the most significant factor contributing to development communication in the 1990’s and beyond. The development communication model was adopted by many other developing nations with massive investment in installing elaborate medium wave radio network. New sectors in rural broadcasting, educational broadcasting and adult literacy opened up within existing broadcasting structures” (Jayaweera and Amunugama, 1987; Richardson, 1996).

6.7 RESEARCHER RECOMMENDATIONS

This researcher therefore, recommends that South African government should provide sufficient strategies to improve the utilisation of ICT infrastructures to a maximum level in order to enhance employees’ job performance within the municipality. This is pivotal in ensuring that employees have enough skills to utilised ICT. The government should also be endeavouring to organised ICT training, workshops and seminars for all the municipality employees in order to enhance their performance and improve their skills in rendering qualitative service delivery within the municipality.

The study is also advocating for strong cohesiveness or interconnectivity between the government and municipality managers by ensuring that the employees performance management in relation to ICT utilisation within the municipalities are effectively and efficiently enhanced in order to continue strengthening their skills and as well ensure proper employees performance evaluation and monitoring. In addition, the South African government should provide computer training centers closely and purposely for the municipalities' employees' within their vicinity so that employees can learn and know how to operate computers effectively and efficiently in order to improve their skills and enhance their performance within the municipality. The author of this study perhaps, also suggests that the government should make a policy that all municipality employees should at least acquired a diploma certificate in computer, by so doing, apart from the fact that the government is making an immense efforts by contributing heavily, immensely and tremendously to improve all municipality employees performance in utilising ICT, then, this also calls for all the employees to also wake-up and prepared themselves in acquiring the knowledge without waiting for the government to provide the basic training skills for them.

6.7.1 The Government, Local Government (LG) and Performance Management System (PMS)

It is therefore glaring that Information and Communication (ICT) could play a crucial role in providing and enhancing effective and efficient employees' job performance within the municipality if necessary measures to improve this ugly situation are put in place. This therefore, shows that employees in Alice and Fort Beaufort towns in the Eastern Cape Province of South Africa required assistance to ensure that successful performance are

adequately enhanced. It is on this note that the study advocate for urgent support from the Performance Management System (PMS) whose aim is to develop a performance management system that would sustain effective utilisation of ICT for the purpose of enhancing and improving employees' job performance. Hence, the South African government, Local Government Managers (LGM) should also be endeavour to organized adequate IT training and workshops that would facilitate and augment effective employees' intuitive ICT skills and utilisation in order to provide qualitative service delivery within the municipality.

6.7.2 Government Ample Strategies to Improve the Utilisation of ICT and Intensify Efforts to provide Adequate ICT Infrastructures.

This study therefore, recommends that South African government should provide sufficient, desirable, satisfactory or panacea strategies to improve the utilisation of ICT infrastructures to a maximum level in order to enhance employees' job performance within the municipality. This is pivotal in ensuring that employees have enough skills to utilised ICT. The government should also be endeavour to organised ICT training plans, campaigns or strategies, workshops and seminars to all the municipalities' employees in order to enhance their jobs performance and improve their skills in rendering qualitative service delivery within their municipalities.

6.7.3 Government Implementation Strategies to Improve IT Skills

Government needs to implement appropriate strategies that would augment and supplement employees' performance in utilising ICT in the LGA in order to provide qualitative service delivery. This is pivotal in ensuring that employees have enough IT

skills and knowledge to maintain and sustain them successively. Hence, government could also be a source of support that could be use to provide adequate IT training facilities that would supplement the municipalities' employees in precisely and importantly utilise ICT in order to improve performance needs.

6.7.4 Enhancing IT training within the Municipalities

This is critical to achieve maximum utilisation of ICT in order to enhance employees' performance effectively and efficiently. The employees need to be trained to change to relatively newer and effective ways of executing their jobs. This can be achieved through improvement of equipment and newer technologies and in fact, municipalities' management adopting employees monitoring and evaluation performance through effective IT training and employees' skills development. Hence, the government of South Africa should also be endeavour to provide adequate IT training centres located within or around the municipalities' establishment to facilitates the employees in acquiring IT skills and knowledge.

6.8 AREAS OF FURTHER RESEARCH

The research work recommends that certain outlines of investigation for further research. Additional research could determine whether the findings of this research are reliable through another research methodology. However, it is necessary to duplicate the research in other parts of the municipalities in the Nkonkobe, Amathole District Municipality and other Provinces in South Africa in order to check if the findings of this study can be generalized crossed the country.

6.9 SUMMARY

The general intention of the study has been to understand the assessment of “the role of Information and Communication Technology (ICT)” in enhancing employees’ performance in Nkonkobe Local Municipality (focused on Alice and Fort Beaufort Municipalities) which is located under “Amathole District Municipality in the Eastern Cape Province of South Africa”. The study targeted the employees in Alice and Fort Beaufort Municipalities in order to investigate the reasons for assessing “the role of Information and Communication Technology (ICT)” in improving employees’ performance within the municipalities. It is anticipated that the study could provide practical solutions to the government and policy-makers as well as the municipality management in enhancing, promoting, improving employees’ performance and ensure that qualitative service delivery are provided by the employees within the municipalities.

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[%20Version%202%20of%205%29.pdf](http://mfma.treasury.gov.za/BFFF3C6A-1F2D-4F26-906F8C9D8D68F4D2/Documents/01.%20Integrated%20Development%20Plans/2013-14/03.%20District%20Municipalities/DC12%20Amathole/Draft%20IDP%202013-2014%20%28Reviewed%20-%20Version%202%20of%205%29.pdf) > Retrieved on 20 February 2015

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ETHICAL CLEARANCE CERTIFICATE

Certificate Reference Number: THA131SOYE01

Project title: **Assessing the Role of Information and Communication Technology (ICT) in Enhancing Employees Performance: A case study of Nkonkobe Local Municipality, Eastern Cape**

Nature of Project: Masters

Principal Researcher: Akeem Adewale Oyelana

Supervisor: Prof DR Thakhathi

Co-supervisor:

On behalf of the University of Fort Hare's Research Ethics Committee (UREC) I hereby give ethical approval in respect of the undertakings contained in the above-mentioned project and research instrument(s). Should any other instruments be used, these require separate authorization. The Researcher may therefore commence with the research as from the date of this certificate, using the reference number indicated above.

Please note that the UREC must be informed immediately of

- Any material change in the conditions or undertakings mentioned in the document

The Principal Researcher must report to the UREC in the prescribed format, where applicable, annually, and at the end of the project, in respect of ethical compliance.

Special conditions: Research that includes children as per the official regulations of the act must take the following into account:


Note: The UREC is aware of the provisions of s71 of the National Health Act 61 of 2003 and that matters pertaining to obtaining the Minister's consent are under discussion and remain unresolved. Nonetheless, as was decided at a meeting between the National Health Research Ethics Committee and stakeholders on 6 June 2013, university ethics committees may continue to grant ethical clearance for research involving children without the Minister's consent, provided that the prescripts of the previous rules have been met. This certificate is granted in terms of this agreement.

The UREC retains the right to

- Withdraw or amend this Ethical Clearance Certificate if
 - Any unethical principal or practices are revealed or suspected
 - Relevant information has been withheld or misrepresented
 - Regulatory changes of whatsoever nature so require
 - The conditions contained in the Certificate have not been adhered to
- Request access to any information or data at any time during the course or after completion of the project.
- In addition to the need to comply with the highest level of ethical conduct principle investigators must report back annually as an evaluation and monitoring mechanism on the progress being made by the research. Such a report must be sent to the Dean of Research's office

The Ethics Committee wished you well in your research.

Yours sincerely


Professor Gideon de Wet
Dean of Research

16 March 2015