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THE CHALLENGES OF BUILDING AN INFORMATION SOCIETY IN THE LIMPOPO PROVINCE, SOUTH AFRICA.

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Submitted in fulfilment of the requirements of the degree of Master of Information Studies (MIS) in the School of Sociology and Social Studies, University of KwaZulu-Natal, Pietermaritzburg.

Abstract

The participants in the World Summit on the Information Society, including South Africa, have committed themselves to building the information society in their respective countries and communities. Most countries and communities that have benefited from the information society have been those in the developed countries. Developing communities specifically those that are poor and rural are expected to have unique challenges requiring specific approaches in dealing with the problems. This study has investigated the challenges of building an information society through utilising the Limpopo Province of South Africa as a case study. The dissertation has, by using the Harvard Readiness Guide for the Networked World, determined whether the Limpopo Province is ready to become an information society. It has also identified the activities and projects that are being undertaken within the province as well as proposing what should be done to build the information society for development.

The research was conducted through surveying selected leaders (leaders who are responsible for the information society implementation) within the Limpopo Province, to respond to a self-administered questionnaire as well as conducting content analysis of current planning documents for provincial departments and district municipalities.

Whilst the dissertation could not determine whether it was feasible to implement the information society in a community such as Limpopo Province, the selected leaders were of the view that by focussing on the issues they identified, the province could successfully build the information society. The respondents were

of the view that Limpopo Province was currently not e-ready, and thus could not be considered an information society. The study found that most of the activities related to the information society within Limpopo Province were not coordinated and were primarily related to e-government. Another key challenge that was identified, despite the high mobile telephone penetration, was the lack of access to the Internet as well as affordable connectivity. To address these and other challenges identified in the study, a framework for implementing the information society at the provincial level is proposed.

Keywords: information society, development, developing countries/communities, Information and Communications Technologies, Limpopo Province

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I would like to acknowledge and thank the following individuals for encouraging and supporting me to embark and complete this milestone. They are:

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Abbreviations and Glossary

3G	Third Generation
AISI:	African Information Society Initiative
APEC	Asia Pacific Economic Cooperation
APP	Annual Performance Plan
B2B	Business to Business
B2C	Business to Consumer
BPO&O	Business Process Outsourcing and Off-shoring
CIO:	Chief Information Officer
CSIR	Council for Scientific and Industrial Research
CSPP	Computer System Policy Project
DoC:	Department of Communications
DPSA:	Department of Public Services and Administration
EU:	European Union
GCIS:	Government Communications and Information Services
GDP:	Gross Domestic Product
GITO:	Government Information Technology Officer
HIV/AIDS:	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
HSDPA	High-Speed Downlink Packet Access
HSPA	High-Speed Packet Access
ICASA:	Independent Communications Authority of South Africa

ICT:	Information and Communications Technologies
INSPIRE:	Information Society Programme in the Republic of South Africa
IPSP	Integrated Provincial Support Programme
IT:	Information Technology
ITU:	International Telecommunications Union
LEGDP:	Limpopo Employment, Growth and Development Plan
MDG:	Millennium Development Goal
MTSF:	Medium Term Strategic Framework
OECD	Organisation for Economic Cooperation and Development
PC	Personal Computer
PGDS:	Provincial Growth and Development Strategy
PIAC:	Presidential International Advisory Council
PIT:	Public Internet Terminal
PNC on ISAD:	Presidential National Commission on the Information Society and Development
SABC:	South African Broadcasting Corporation
SITA:	State Information Technology Agency
SMME:	Small-, Medium-, and Micro-Enterprises
SMS:	Short Message Service
StatsSA:	Statistics South Africa
TB:	Tuberculosis
UNDP:	United Nations Development Programme
UNECA:	United Nations Economic Commission for Africa
USAASA:	Universal Services and Access Agency of South Africa

USF Universal Services Fund

WSIS: World Summit on the Information Society

Dedication

I dedicate this work to my parents, Mr. Frederick Sehlapelo and the late Ms. Nnyane Sehlapelo who have always encouraged and believed in me; my wife, Phuti, who has struggled with me through this journey; and to my children, Sechaba, Tshegofatso, Tokologo, and Koena for whom I believe this work may inspire not to always take the easy route to a better future for themselves and for the country.

Chapter 1: Introduction

Introduction

The information society is a society wherein suitable information is available to people whenever and wherever they require it (Van Audenhove, Burgelman, Cammaerts, & Nulens 2003: 81). Information Technology (IT), Information and Communications Technologies (ICT), as well as the Internet and associated technologies are important for the achievement of such a society. It is now a generally accepted fact that society has changed or is changing to an information society, and thus every country has to compete and survive economically in this "new" environment (Webster 2004: 9-10; May 2002: 1-18; Kasvio 2001: 19). As will be shown later in this chapter and the next, Limpopo province has a vision of building the information society. Due to its poor and rural nature, the province is likely to face unique challenges. These are the challenges that this dissertation intends to explore.

This introductory chapter lays the basis for the rest of the dissertation. The next section of this chapter sets the scene and provides the context for the information society which lays the foundation for the research problem that this dissertation addresses. Following on the research problem the chapter utilises the research aim and research questions to develop the rationale for the study. The rationale provides a justification for the study. Once the justification of the study is clarified, the chapter lays out the theoretical framework on which this research is based. The next section is an exposition of the delimitations of the research.

The chapter concludes by outlining the structure of the remainder of the dissertation.

Background

The World Summits on the Information Society (WSIS) held in Geneva in 2003 and in Tunis in 2005 declared that building the information society is a global challenge within the new millennium. This challenge is worth pursuing in order to harness the potential of ICT to promote the development goals of the Millennium Declaration (Bridges.org 2005a; Global Partnership on Measuring ICT for Development 2005). The eight Millennium Development Goals are to: eradicate extreme poverty and hunger; achieve universal primary education; promote gender equality and empower women; reduce child mortality; improve maternal health; combat Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS), malaria and other diseases; ensure environmental sustainability; and develop a global partnership for development. Whilst the information society should have an impact on all the Millennium Development Goals, the goal of developing a global partnership for development is the goal most relevant to this study because it includes target 18 which is to make available the benefits of new technologies - specifically ICT (United Nations 2000).

It is important to note that whilst ICTs are important for the development of the information society and should therefore not be underestimated, information poverty, which the development of the information society aims to reduce, is not only about ICTs; it is also about cultural and language diversity, the ability to

access information and make the best use of it, as well as the potential to access resources which the information is about (Britz 2004: 192-193; 195).

The WSIS had set a target for all countries to develop national e-strategies which are aimed at building the information society by the year 2010. In the report, "National e-strategies for Development, Global Status and Perspectives, 2010" by the International Telecommunication Union (ITU) it was reported that "as of April 2010, 161 countries and territories, that is, 84.3% of all economies, already had an national e-strategy in place, while another 14 countries and territories (7.3%) are currently on their way to formulate and adopt one" (ITU 2010: 4). The high number of countries with e-strategies in place or in the process of being finalised indicates the level of importance that countries attribute to the development of the information society. Furthermore it indicates that the building of an information society has to be based on a deliberate strategy or plan, hence the critical role that leadership plays in the implementation of the information society. Figure 1 provides a pictorial view of the status of countries' development of e-strategies.

Figure 1: Status of Countries' Development of e-Strategies

Source: ITU, 2010

The relevance of building the information society for the Southern African region is succinctly expressed by the following extract from a resolution of the Mozambican Council of Ministers in 2002 which states that "[i]n this information era, the capacity to effectively and efficiently use information and communication technologies determines ever more the competitiveness and relevance of a country in the global economy" (ICT Implementation Strategy 2002).

Building the information society at a country or provincial level within Southern Africa would necessarily bring to the fore a number of important challenges such as implementing a technology intensive plan in a region with comparatively little infrastructure and a very different social and cultural outlook to that of other regions and countries like Europe and the USA. The World Information Society Report for 2007 shows that in many of the important ICT or information society

indicators (see Chapter 2) the "developed" countries are performing better than the "less developed" countries. South Africa, for instance, is number 86 in the world whereas it is number five when compared to the rest of Africa in terms of information society development (ITU & UNCTAD 2007: 37, 44). These rankings correlate to the position of South Africa in terms of "level of development" in the world and in Africa respectively. The same report argues that there is a high correlation between an information society development score and some of the most common measures of economic development. If the argument presented by the report is applied to South Africa, it would predict a low score by Limpopo on the information society indicators because it is known that the province is one of the least economically developed provinces within South Africa (Limpopo Provincial Government 2004a: 3-4).

It appears that only developed countries have so far managed to benefit from becoming information societies (Bedi 1999: 34). In 2000 the European Union Heads of State developed an information society related programme, the Lisbon Agenda, with the aim to make Europe the most competitive and dynamic knowledge-driven economy by 2010. The "success" of the Lisbon Agenda as perceived by the Information Society Bench Marking Report for the European Union (EU) testifies to the success of the information society strategies as a key driver for growth and employment (European Union 2005). Another European report states that a 25% of growth in the Gross Domestic Product (GDP) of EU countries and 40% of productivity growth are due to ICTs (Commission for European Communities 2005: 3). A study which surveyed 22 public service libraries in 10 African countries where English is spoken (Chisenga 2004) illustrates the low level of ICT usage in African public libraries and by inference in African communities in general. Other studies on the link between the information society or ICT and development have provided mixed outcomes (McConnel 1998; Howkings & Valantin 1997). In supporting the development of

the information society and thus the reduction of information poverty Britz (2004: 193-195) argues that to achieve social justice and human rights "essential information" – which is essential to survive and develop, such as information relating to where the nearest health services can be found – should be provided to all people who require it in order to combat information poverty. Furthermore Lor and Britz (2005: 63-64) show that information is a public good that should be shared. Since there are conflicting outcomes of research findings regarding the benefits of ICTs and information society development it would be worthwhile to explore and determine the benefits of pursuing an information society by the Limpopo Province.

Research Problem

This study intends to determine whether developing countries, and more specifically very poor and rural regions/provinces within developing countries (such as Limpopo), can successfully create an information society that would drive socio-economic development.

The problem statement (in the form of a question) for this research is: Is it possible for a poor, rural province such as Limpopo to build an information society? The broad issue that the study will investigate relates to the challenges that poor and rural provinces face in building an information society to support economic and social development as per South Africa's information society vision. South Africa's information society vision is "To establish South Africa as an advanced information society in which Information and Communication Technology tools are key drivers of economic and societal development" (PNC on ISAD 2007: 4).

The discussion regarding the effort to build information societies in countries and regions raises the issue for leaders and policy makers as to whether they should be pursuing the information society, and if so how? It has been suggested earlier that developing countries are likely to have more challenges related to building the information society as compared to developed countries. Limpopo, as a poor and rural province, would have to determine the key challenges unique to it and thus the interventions it has to carry out, in order for it to become a successful information society.

Research Aim and Questions

The aim of this research project is to identify the challenges, as well as to investigate the options that a rural province such as the Limpopo Province has in order to build an information society. The research will have to outline the motivations and utility for building such an information society in the Province.

Thus the research question that this study intends to answer is: What are the key challenges faced by Limpopo Province in becoming an information society? In addressing the research aim and answering the question the following three research questions will be responded to:

- Is the Limpopo Province ready to be an information society?

- What is being done in the Limpopo Province to build an information society?

- What needs to be done in the Limpopo Province to build an information society?

Research Rationale

In his State of the Nation Address of 2001 the then President of South Africa, Mr Thabo Mbeki, stated that South Africa has to become part of the global information society for development. In the same address he established the Presidential National Commission on the Information Society and Development (PNC on ISAD) as well as the Presidential International Task Force on Information Society and Development now referred to as the Presidential International Advisory Council (PIAC). The PNC on ISAD is mandated to study, to advise, and make recommendations on issues related to information society development. The PIAC's role is to advise the President of South Africa on international ICT developments (Mbeki 2001). The Government Communications and Information Services stated in their briefing after the Cabinet Lekgotla of July 2007 that the South African Government's vision "is to establish South Africa as an advanced information society in which ICT tools and information are key drivers of economic and societal development" (GCIS 2007). This vision should encourage all provinces to participate in the development of an information society.

The author has observed that the Limpopo Province is attempting to change its position from being the poorest province in South Africa to becoming a major contributor to the economic growth of South Africa. Since its inception in 1994 the Provincial Government of Limpopo has pronounced its intention to spur growth and development in order to ensure that it becomes such a contributor (Limpopo Provincial Government 2009a: 31). When the then Premier of the Limpopo Province stated that "We are living in the era of information technological revolution" (Moloto 2004), it suggests that he was aware that the province should not be left out of this development. However, when perusing the

programmes and activities of the Limpopo Provincial Government, which are included in the Provincial Growth and Development Strategy (PGDS) (Limpopo Provincial Government 2004a) it becomes clear that the Province, at that time, had not yet mapped out a path to build an information society within the province. Scrutinising more recent documentation suggests that this assertion still holds true. Some of the more recent documents such as the Limpopo Employment Growth and Development Plan (Limpopo Provincial Government 2009b) refer to the importance of building an information society by, among other things, rolling out ICT connectivity to schools and other community facilities. It also appears that there is no information on the readiness of the Province for implementing the information society and thus no understanding of the challenges that the Limpopo Province and other similar provinces have to deal with in order to build an information society.

This research will add to the theoretical work that has already been generated in relation to Bell's Post-Industrial Society which has been defined in a similar manner to the information society. It has been suggested that Bell has over-generalised his observations of the Post-Industrial Society in the USA to other countries such as Zaire (now the Democratic Republic of the Congo) or Vietnam (Melin 2004: 83). Another argument suggests that ICTs' contribution to social, psychological, and economic change is not dependent on the technology itself but on the society in which the technology is deployed (Leaning 2005: 35-40). The theoretical significance of this study is that the challenges of implementing the information society in rural societies such as those found in the Limpopo Province will be explored. It will propose key elements for developing/implementing an information society in such a society.

In utilising the Harvard Readiness Guide to determine the readiness of Limpopo Province to become an information society this study provides a benchmark for other regions and provinces with a profile similar to that of Limpopo. This benchmark will enable such regions to be able to determine their progress or lack thereof in the implementation of an information society. This study will highlight the meaning and importance of promoting an information society to encourage socio-economic development in the Limpopo Province by surveying the views of identified leaders on the matter. It will indicate the policy gaps if any and propose policy options that the Province could follow.

The literature review has indicated that despite some South African studies on the information society (such as Van Audenhove 1999; Van Audenhove 2003; Moodley 2004; Lor and Britz 2005) there was nothing identified that was published specifically on Limpopo in relation to the information society and thus this research will be one of the first interventions in this regard. In exploring the relevance of the information society to Limpopo, the research will focus on the link between the information society concept and development, specifically human development. The study has estimated how far Limpopo is from becoming an information society and the challenges related thereto and has proposed policies, strategies, and other interventions to achieve a successful information society in the Province.

The study has identified what the Limpopo Provincial Government has done to date, as well as at a practical level, proposed actions that the province could take, in order to ensure that the Province competes successfully in the society where ICT related technologies are becoming dominant. The study is expected to also benefit the Limpopo Province by informing and assisting in the development planning process. According to the Organisation for Economic

Cooperation and Development (OECD) (2008; 2009) e-readiness is the preparedness of the technical, commercial and social infrastructures necessary to support and engage in e-commerce. This is a narrower understanding to that presented by the Information Technologies Group at the Centre for International Development at Harvard University which outlines e-readiness as the readiness for a community to participate in the networked society (Readiness for the Networked World N.d.). It is anticipated that the research will inform policymakers and planners as to what the Limpopo Province could do in order to succeed in building an information society. The importance of a study specifically targeting Limpopo Province has been emphasised by Petje, in personal interactions with the author, indicating that Limpopo needs different strategies than those that are relevant to provinces such as Gauteng and Western Cape due to the level of poverty in the province as well as the low level of ICT infrastructure that is available (Petje 2011).

Theoretical Framework

Since the late 1950s there has been an increasing literature on the concept which we now refer to as the information society. There is a very close relationship between the concepts of information society, the network society, IT and ICTs. The Information Society concept has been refined and many papers have been written describing the concept and the relationship between it and development (Kasvio 2001: 24-36). The concept of the information society on which this research is based is often referred to differently by different authors and thus in Chapter 2 the study will further explore the nature of the information society. In commencing the research, the author recognises the definition of the information society as presented by the Declaration of Principles of the "World Summit on the Information Society" held in Geneva which states that the

common vision for the information society is "a people-centred, inclusive and development-oriented", society. The information society is a society wherein:

> Everyone can create, access, utilise and share information and knowledge, enabling individuals, communities and peoples to achieve their full potential in promoting their sustainable development and improving their quality of life (WSIS Declaration of Principles 2003).

In terms of this definition the information society refers to a society wherein information and knowledge is effectively utilised to achieve the objectives of members in that society. In order to do so it is implied that the right tools and infrastructure, skills and knowledge, as well as content and policy support are available to that society. The WSIS declaration also states that the greatest challenge for building the information society is to "harness the potential of information and communication technology to promote the development goals of the Millennium Declaration" (WSIS Declaration 2003). As will be outlined below, the study will make use of the Harvard's Readiness for the Networked World (Information Technologies Group at the Centre for International Development at Harvard University N.d.) in order to determine whether the Limpopo Province is an information society or is ready to become one.

The following are some of the frameworks that have been developed to measure the extent of the information society for countries and for regions within countries:

- The Harvard's Readiness for the Networked World Guide which entails the evaluation of the readiness for the networked world by determining a community's preparedness to participate in the networked world in five areas namely access, learning, society, economy, and policy. It was developed by the Centre for International Development at Harvard University (Readiness for the Networked World N.d.).

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- The SCAN-ICT methodology utilises indicators based on themes which include infrastructure development, strategic planning, capacity building, sectoral applications, and e-governance as proposed by the United Nations Economic Commission for Africa's (UNECA) African Information Society Initiative (AISI) programme (UNECA N.d.).

- A list of ICT household and business indicators that are proposed by the Global Partnership on Measuring ICT for Development (2005).

Bridges.org (2005a) has provided a valid critique of some of these tools which should be considered when determining which information society readiness framework is applicable for Limpopo. The critique has been used by this researcher for an assessment of the available tools. This research will not determine the e-readiness or information readiness of Limpopo comprehensively as that exercise would be too large and time consuming for this level of project. This research will, however, utilise Harvard's "Readiness for the Networked World Guide", modified to suit the time and cost constraints as well as any theoretical limitation that may be identified. The choice of this guide as a framework is based on its comprehensiveness, simplicity, and the potential to modify it by the researcher and the fact that it has been designed specifically for communities in the "developing world"; these communities may be countries, provinces, cities, or villages and thus would be applicable to Limpopo (Information Technologies Group at the Centre for International Development at Harvard University N.d.: 5-6).

Delimitations

The study was delimited as follows. It was not:

- A comprehensive answer to the e-readiness or information society readiness state for Limpopo Province.

- A specific plan for the implementation of an information society in the province.

- An evaluation of the implementation of the e-government strategy for Limpopo Province.

- A detailed evaluation of the various ICT projects within the province of Limpopo. However, the ICTS projects were described and a cursory assessment of the projects was done.

Brief Outline of Methodology Adopted

In order to address the problem statement and respond to the research questions outlined above, this study will survey a group of selected leaders in Limpopo Province who would have a direct role in the direction and implementation of information society programmes and projects with regard to their views on the challenges facing the province to build the information society. The sample was sent a self-administered questionnaire whereby respondents outlined their views on the information society, the readiness of Limpopo Province to be an information society utilising the Harvard Readiness for the Networked World Guide, as well as the gaps and challenges faced by the province in building an

information society. In addition to this survey, the research analysed the contents of certain government documents, such as the Annual Performance Plans of Provincial Departments, to identify the ICT or information society related projects and how they relate to the Harvard Readiness Framework. Based on the above approach the study concluded by identifying the challenges that Limpopo faces in building the information society. The rest of this chapter outlines the layout of this research report.

Structure of Remainder of Dissertation

Chapter 2 of the study provides the background by undertaking a review of the relevant literature. It commences by providing an initial overview of the Limpopo Province ensuring that the reader has a sense of where the province is positioned both in terms of development and other key indicators. This exposition will clarify why a study of the challenges of building the information society in Limpopo Province will be of use. The chapter will then discuss development from the perspective of Limpopo Province. Through this discussion the concept of development will be elaborated on and some of the challenges of having a common agreement on the term "development" will be highlighted. The Provincial Growth and Development Strategy for Limpopo is then used as a basis for defining development in Limpopo Province. This discussion is then followed by an exploration of the information society concept definition. The discussion highlights the key theories related to the information society and how they differ with each other. Chapter 2 concludes with a discussion on the initiatives to build an information society in Limpopo. This discussion forms the basis of understanding the key challenges that could face Limpopo Province in building the information society. Having laid the theoretical basis of the study, the next

chapter focuses on the research design and methodology used to respond to the research questions.

The chapter on research design and methodology, Chapter 3, commences with an outline of the methodological approach to the study. This is followed by an exposition of the survey questionnaire and why this survey approach was chosen. Key elements of the questionnaire are then explained followed an outline of the sampling design and methods. In the process of outlining all this, the sequence that was followed in the research process is clarified to the reader. The chapter also details how the responses were collected, coded, analysed, and managed in order to ensure the integrity of the information. Chapter 3 closes by discussing the approach that was followed in analysing the open ended questions from the questionnaire as well as the selected documents.

Having presented the research methodology, Chapter 4 follows on by presenting the results of the study. It commences by outlining the profile of the respondents in terms of their key features. It then summarises the responses to the questionnaire through frequency tables, histograms, bar graphs, and pie charts. This is followed by a summarised version of the analysis of the selected documents relating to the priorities and plans for the province and district municipalities.

Chapter 5 discusses and interprets the results as presented in the previous chapter. The results are discussed in terms of the themes network access, networked learning, networked society, networked economy, and networked policy. These are the themes aligned to the Harvard Readiness for the

Networked World Guide. The chapter will also discuss the findings in the light of the research question presented above.

The last chapter, Chapter 6, will outline the key findings of this study to ensure that the findings address the problem statement as well as the three research questions. Having dealt with the key findings the chapter will conclude by presenting the recommendations.

Chapter Summary

This introductory chapter has introduced the view that the information society has the potential to contribute towards socio-economic development and that various countries, including South Africa, are making an effort to build such a society. The chapter has identified the problem statement selected by the researcher. The problem statement has been identified as determining the challenges that Limpopo Province would be facing in building an information society.

In providing the rationale for the study the chapter has indicated that Limpopo Province has not yet developed a path to build an information society, and in developing such a path these would have to be a sense of its readiness for an information society as well as being aware of the challenges to be faced in that regard. The chapter then presented the theoretical outline followed by the delimitations of the research.

Following on that the chapter then provided an overview of the research study as being based on a self completion questionnaire by selected leaders within Limpopo Province. The chapter then concluded by outlining the rest of the research report.

Chapter 2: Literature Review

Introduction

This chapter provides an overview of the literature which forms the basis and background of this study. In this chapter the sources are utilised firstly to provide a profile of the Limpopo Province in order to ensure that the reader has a view of the province within the South African context. Secondly, the chapter follows up by exploring the concept of development and what Limpopo Province aims to achieve by development. This brings forth the necessity of utilising the information society to contribute to development. The chapter then discusses the concept of the information society, exploring different views. The chapter concludes by highlighting initiatives to build the information society in Limpopo Province.

The Profile of the Limpopo Province

As this study focuses on the information society development in the Limpopo Province it is appropriate to provide an adequate overview of the province. Limpopo Province, as shown on the map in Figure 2, is the northernmost province of South Africa sharing borders with Botswana in the west, Zimbabwe in the north, and Mozambique in the East. On the southern side the province shares boundaries with the North West, Gauteng, and Mpumalanga Provinces.

Figure 2: Map of the Limpopo Province[1]
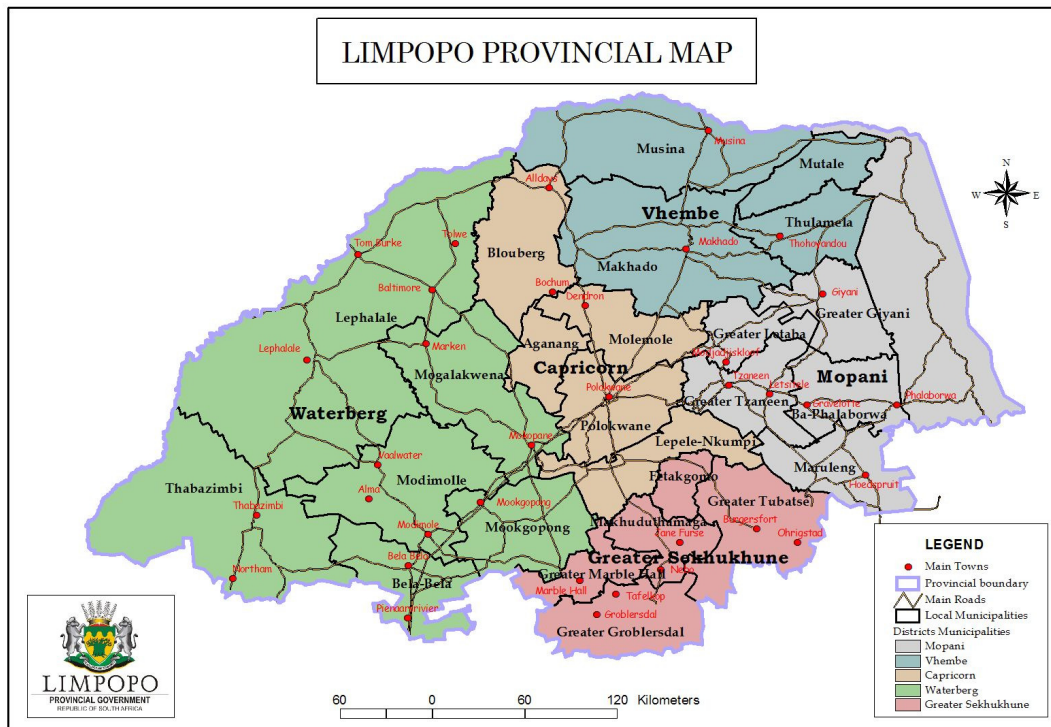
The population figures from Statistics South Africa as determined by the Community Survey 2007 indicate that the province has a population of 5.2 million people which represents about 10.8% of the South African population.   The population of the Limpopo Province is not significantly different from that of the Western Cape, 10.9%, the Eastern Cape, 13.5%, and that of Mpumalanga, 7.5% as per Figure 3 (StatsSA 2007a).

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[1] The map is sourced from www.limpopo.gov.za

Figure 3: Comparison of Population Size by Province
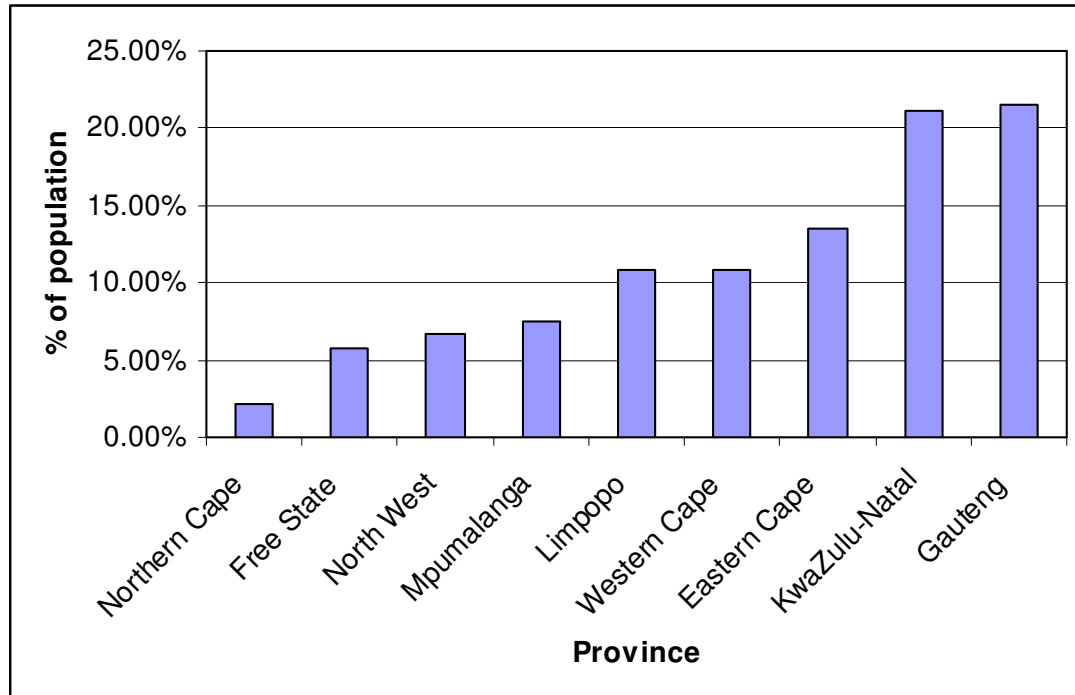
Source: StatsSA 2007a

In relation to the contribution of the provincial economy to the national economy, the Limpopo Province's contribution to the Gross Domestic Product is approximately half that of the Western Cape and comparable to that of North-West, Mpumalanga, and Eastern Cape as illustrated in Figure 4. Mining and quarrying constitutes about 23% of the province's GDP whereas it constitutes about 8% in the country on average (StatsSA 2007b: 55, 62, and 71). These statistics illustrate that the Western Cape, relative to the other provinces, has a GDP that is disproportionate to its population size and that the GDP of the Limpopo Province is bolstered by the contribution of mining.

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Figure 4: GDP Contribution per Province
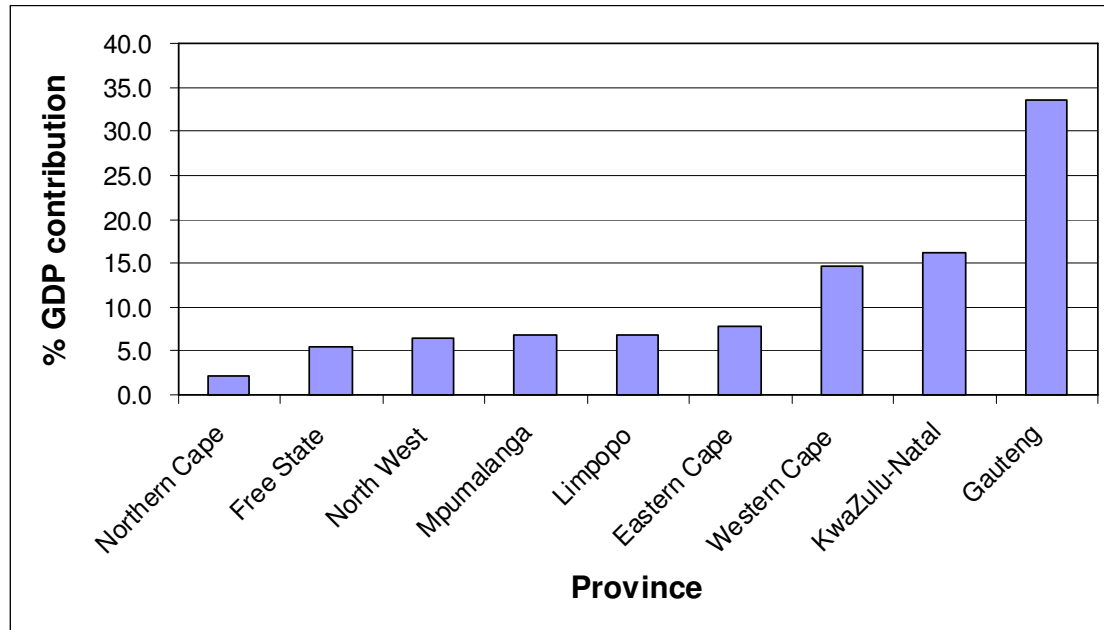
Source: StatsSA 2007b

In addition to the relatively low contribution of GDP, the Limpopo Province has the lowest average household income as measured by Statistics South Africa's Income and Expenditure household 2005/2006 survey released during March 2008. This survey also reports that the province has a comparatively low percentage ownership of assets that would be useful in the information society such as mobile and fixed line telephones and electrical appliances (StatsSA 2008: 155 and 168).

Sanitation in Limpopo Province is the worst in the country, only 20.2% (the country average is 60%) of households have access to flush toilets and 12.9% (the country average is 8.6%) have no toilet at all (StatsSA 2007a). The labour statistics of the province as presented by the StatsSA Labour Force Survey: March 2007 (2007c) indicate that the Limpopo Province has the highest

unemployment rate and the highest proportion of discouraged work seekers[2] in the country of 32.4% and 17.9% respectively. The labour absorption rate is also a low rate of 26.7% which has been on the decrease since 2001. The social conditions, as reflected by the relative lack of access to basic services, for the population of the Limpopo Province in general, seem to be lower than the rest of South Africa and for that reason the province has further to go in terms of improving the quality of life of its inhabitants.

Taking the above information into consideration, it is thus not surprising that the Province reflects a poor educational status in comparison with most of the provinces. The education indicators show that the proportion of adults with no education, ninth; the proportion of population above 15 years who are literate, eighth; the proportion of adults with higher education, eighth; the proportion of adults with grade 12, ninth; matric pass rate, seventh; and university entrance pass rate, seventh. The province ranks in the bottom three provinces for all except the pupil-to-teacher ratio where it ranks fifth.

The health related indices indicate a different trend; an observation of, for example, the adult mortality rate, life expectancy at birth, under five mortality rate, and proportion of population who are HIV positive, indicates a ranking in the top three provinces. There are, however, some health related indicators wherein the Limpopo Province reverts to similar trends as those of education. These indicators include, for example, diarrhoea incidents among children under five years, ratio of population to beds in private and public hospitals, and residents per public sector doctor (Eddy *et al*, 2008: 10). A closer examination of these

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[2] According to StatsSA (2007c), discouraged work seekers are "unemployed persons who are available to work but who say that they are not actively looking for work." This suggests that the individuals have lost hope of finding work or do not have the means of seeking for a job.

indicators which reflect a poor showing in health suggests that these may be the indicators that are susceptible to the level of poverty and/or the rural nature of the province.

Statistics South Africa (StatsSA 2007a) and Tlabela, Roodt, & Paterson (2007: 25) have reported that the Limpopo Province has the lowest access to the Internet in the country. Tlabela, Roodt, & Paterson (2007) provide a comprehensive, albeit dated, reference on access to ICT in South Africa which is supported by a Geographic Information System hosted by USAASA. Figure 5 which is adapted from the household figures provided by the Community Survey provides a graphic illustration of the lack of Internet access in the Limpopo Province (StatsSA 2007a). Internet access or lack thereof masks a myriad of other possible limitations such as lack of access to electricity, computers, inadequate relevant knowledge, and inadequate disposable income.

Figure 5: Households with Internet Access by Province
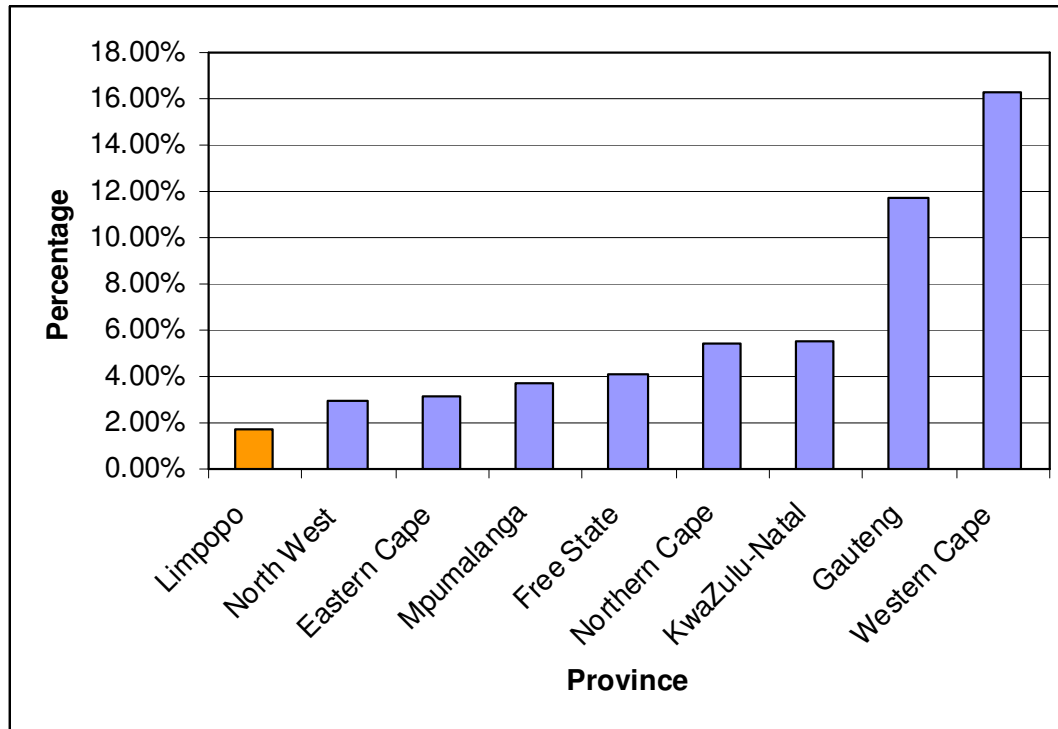
Source: StatsSA 2007a

Not only does Limpopo Province have fewer households with Internet access, but, as shown in Figure 6, at 8.3% the Province has the lowest percentage of households with members having access to the Internet (StatsSA 2010).

Figure 6: Percentage of Households for which at Least one Member has Access/Use of the Internet by Province

	WC	EC	NC	FS	KZN	NW	GP	MP	LP	RSA
▣ Internet access	32,3	10,5	19,5	22,7	20,0	12,9	38,2	20,8	8,3	23,5
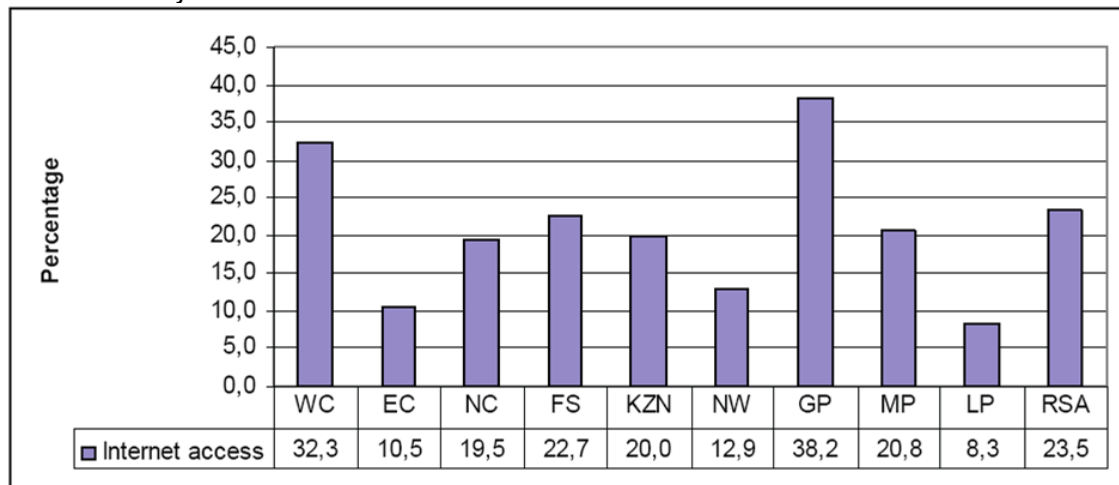
Source: StatsSA 2010

The low level of Internet access in Limpopo is highly correlated with the poor level of the telecommunication infrastructure. Figure 7 below, indicates that close to 85.1% of the households in Limpopo have a functional cell phone in their dwelling. However, only 5.4% households have a functional land line in their dwelling. (StatsSA 2010) This figure will naturally cap the level of Internet access.

Figure 7: Percentage of Households who have a Functional Landline and Cellular Telephone in the Dwellings by Province

	WC	EC	NC	FS	KZN	NW	GP	MP	LP	RSA
☐ None	18,3	24,2	24,1	16,0	15,6	18,3	8,3	11,4	14,8	15,1
☐ Land	3,5	0,6	2,0	0,8	0,6	0,6	0,8	0,2	0,0	0,9
■ Cell	43,2	65,9	58,7	72,6	67,0	73,5	70,0	80,8	79,7	67,9
■ Cell & land	34,9	9,3	15,1	10,6	16,8	7,7	20,9	7,5	5,4	16,0
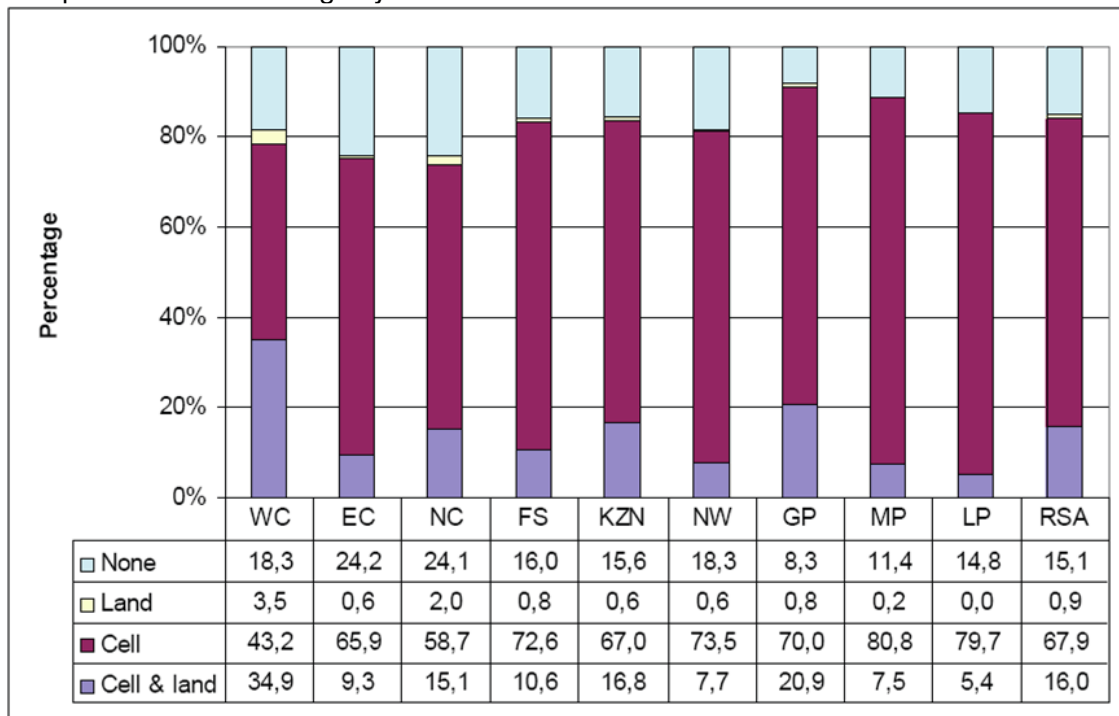
Source: StatsSA 2010

Figure 8, Figure 9, and Figure 10 provide a sense of the level of availability of wireless broadband in the province as provided by the three licensed mobile companies Cell C, MTN, and VodaCom. Wireless broadband covers a very small area of the provincial geography, in the three maps third-generation (3G)/High-Speed Downlink Packet Access (HSDPA)/High-Speed Packet Access (HSPA)[3] broadband level of access is represented by the dark red spots. Collectively fixed line and wireless broadband is not widely available in the province.

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[3] 3G, HSDPA, and HSPA are mobile telephony protocols that allow for very high speeds of data transmission.

Figure 8: Limpopo Coverage Map for VodaCom

Source: VodaCom 2011

Figure 9: Limpopo Coverage Map for Cell C

Source: Cell C 2011

Figure 10: Limpopo Coverage Map for MTN

Source: MTN 2011
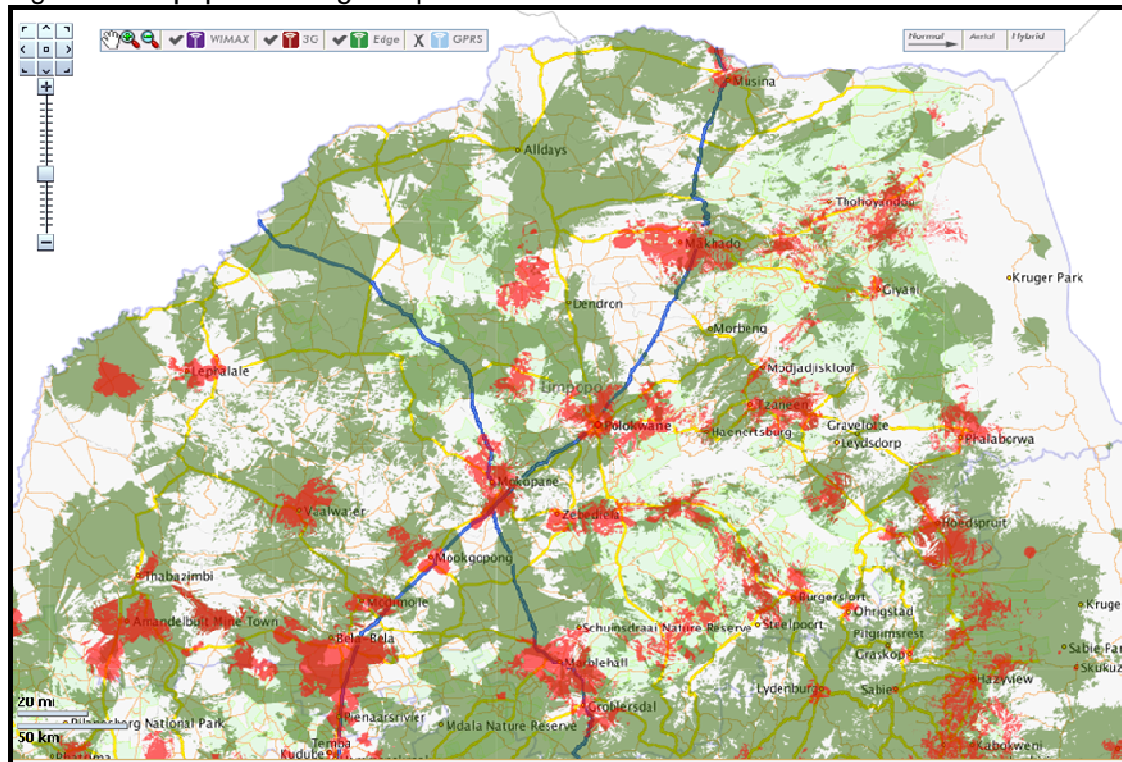
The presentation by the Limpopo delegation to the Broadband Intergovernmental Implementation Committee on 09 November 2010 shows that the lower the levels of income in a district, the higher its ICT deprivation as shown in Table 1. This suggests that with Limpopo being a poor rural province one would expect high ICT deprivation (Limpopo Provincial Government 2010).

Table 1: ICT Deprivation and Income Deprivation per District Municipality in Limpopo

District Municipality	ICT Deprivation Index[4]	Income Deprivation Index[5]
Greater Sekhukhune	14.1%	30.7%
Vhembe	15.2%	35.3%
Mopani	14.6%	37.6%
Capricorn	16.5%	39.0%
Waterberg	19.8%	48.4%
Limpopo Total/average	*15.8%*	

Source: Limpopo Provincial Government 2010

To understand the nature of Internet access in Limpopo province, Table 2 provides information regarding the type of access for those who have some access to the Internet. This shows that more than 60% of those with Internet access do so at their place of work or at a school/university/college. Most of these (about 50%) do so at their place of work. Close to 30% access the Internet in their household, and the rest do through a public Internet access point.

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[4] In terms of this index the lower the figure, the more ICT deprived a community is.

[5] The report that is quoted has considered households earning less than R800 per month to be more income deprived.

Table 2: Internet Penetration by Type of Access

	Limpopo[6]	SA	Gauteng
Internet for students at a school/university/college	1.2%	2.7%	3.8%
Internet Cafe 2km or less from the household	0.7%	2.2%	5.2%
Internet Cafe more than 2km from the household	0.4%	2.3%	5.4%
Internet in a library or community hall/Thusong Service Centre	0.3%	1.3%	1.4%
Internet not at home but at place of work	4.0%	8.9%	12.8%
Internet connection in the household	2.6%	8.8%	14.6%
Access to some form of internet	8.3%	21.9%	23.1%

Source: Limpopo Provincial Government 2010

Limpopo is a rural province which, when compared to other provinces in terms of population size and GDP contribution, is in the median position. However, when considering other measures related to basic services, education, and health, the province fares well below the rest of the provinces. In short, the Limpopo Province requires significant development or improvement in many of the areas discussed above. The information society has to contribute towards this improvement, thus it is important to outline the concept of development and how it applies to Limpopo Province.

Developing the Limpopo Province

Having identified the key socio-economic attributes of the Limpopo Province this section provides an outline of the concept of development as well as the development agenda of the Province within the context of building an information society.

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[6] Due to the fact that people can access the Internet though more than one medium, the sum of figures of the different Internet access types do not tally with the percentage of those with Internet access.

The Concept of Development

An early definition of development is that it is "a process by which one's overall personality is enhanced. This is so for society as well as for an individual. For society the identity is collective. Thus development for society means development of the collective personality of society" (Anonymous 1977). The key element of this definition is enhancement which means becoming better or improving. The *Oxford dictionary* explains that to enhance is to "improve the quality, value, or extent of" something (Pearsall 1999: 473). In line with this definition development basically refers to a process wherein a society improves or becomes better. This then raises the philosophical question of whether people can agree on what is better or what is good. It is the view of this author that such a question can only be answered within the context of a particular society or community and thus what is perceived by one society or community to be good may be found by another society or community to be not so good. However, it can be stated that at a level which few would dispute, human beings want to satisfy their basic needs and it would be good for an individual or a community to have food, shelter, health, and education. As with many definitions this approach to or definition of development is not the only one. Since the focus of this study is not on the relationship between the information society and development but rather on the challenges of building the information society within the Limpopo Province, this section will highlight the key aspects of development within the provincial and information society contexts. Roode, Speight, Pollock & Webber, (2004) present a concise yet insightful argument about the nature of the relationship between development and the digital divide, a concept related to the information society and which is discussed later on in this chapter.

The view of development has been evolving and new perspectives on, and definitions of, development have emerged. Soubotina (2004) and Aronson (2006) confirm that there are indeed a number of definitions of development and

for the sake of brevity many of these are not going to be discussed. In general, development is often qualified by a word describing the nature of development that is being referred to, such as economic, socio-economic, human, and sustainable development. This qualifier often refers to the objective of the development. Within the United Nation's discourse, the prevalent terms are sustainable development (Soubotina 2004: 7) and human development as described in the annual Human Development Reports (UNDP 2006: 263). The focus of these perspectives is that development has to deal with improvement of the human condition now and in the future. Given that these perspectives are aligned with that of Limpopo as described elsewhere in this chapter there is a need to further outline the nature of development.

Rist (2002) and other post-development theorists suggest that the concept of "development" should be rejected and specifically call for the abandonment of "standard development rhetoric and practice" (Pieterse quoted in Siemiatycki, 2005: 58). A reading and re-reading of the main work of Rist (2002) on development failed to elicit a clear definition of "development"; instead, what became clear was the inadequacy of all the other definitions of development that Rist refers to. Rist argues that "development" is a seductive illusion similar to a religious belief that tricks people into believing that technological progress will solve their problems (Rist 2002: 22, 27).

Whilst critiquing the concept and practice of development, Rist (2002: 13) defines development (my point above concerning the lack of a clear definition refers) as follows:

> 'Development' consists of a set of practices, sometimes appearing in conflict
> with one another, which require — for the reproduction of society — the general
> transformation and destruction of the natural environment and of social

relations. Its aim is to increase the production of commodities (goods and services) geared, by way of exchange, to effective demand.

At the core of Rist's definition is that development always involves the transformation and destruction of the natural environment and of social relations as production cannot happen without destruction and because the aim of development is to increase production it will of necessity increase the destruction of the natural resources. In line with Rist's definition a desirable development undertaking would thus have to attempt to reduce the destruction of the natural resources and social relations. This would be a challenge if, at the centre of one's view, is the belief that development aims to increase production and more production often leads to more destruction as argued by Rist (2002: 16). There seems to be no material contradiction between the view that Rist holds to the effect that people's conditions of existence should be improved and the view of the Human Development Reports of 1990 and of 2006, which state that the objective of development "is to create an enabling environment in which people can enjoy long, healthy and creative lives" (UNDP 2006: 263).

Siemiatycki (2005) in his review of the post-development theories argues that these theories actually create a "good" framework for improving the wellbeing and creating a better life for the population. This is a view shared by this author and will be utilised to underpin this study as it is premised on the view that pursuing development is a positive objective. It would of course be undesirable to promote development at the cost of world destruction and therefore development has to be balanced with protection of the physical environment, – that is, – sustainable development.

The Development Agenda of the Limpopo Province

By considering these different approaches to development this chapter does not lose focus of the fact that the intention of this discussion is to place the understanding of the concept of development within the context of the development of an information society in the Limpopo Province - hence the discussion below on the approach of the Province to development. The approach of the Limpopo Province towards development is captured in the PGDS which it, the Province, defines as its development framework. This strategy focuses on improving the quality of life of the people of Limpopo and on sustainable and integrated development. Furthermore, the document aims to provide a vision and a pathway for development (Limpopo Provincial Government 2004a: 2). Since this document is aimed at espousing the development strategy as well as a framework for its implementation to achieve the development objectives of the Limpopo Province it should be expected that all the relevant key strategies and programmes will be outlined therein. Of the four key principles that underlie the PGDS, the first principle that is most relevant to this study is that of the PGDS being "an integrated and developmental approach that brings together strategies and programmes of different spheres of government together towards achieving sustainable economic growth, poverty reduction, and unemployment" (Limpopo Provincial Government 2004a: 7). This discussion suggests that the perspective of the Limpopo Province is more aligned to the developmental perspectives of Saboutina (2004) and the UNDP (2006) discussed above. As was noted, these perspectives are, in essence, more practical and focus on improving the lives of the communities concerned.

Earlier on in the chapter it was argued that development should be understood within the context of what a particular community considers to be good. For the Limpopo Province the following objectives have been determined and agreed upon:

- The need to improve the quality of life of the population of Limpopo;

- Growing the economy of the province, sustainable job creation, innovation and competitiveness;

- Improving the institutional efficiency and effectiveness of Government;

- Addressing priorities that cut across the three objectives above, such as Black Economic Empowerment, HIV/AIDS-Tuberculosis (TB), poverty reduction, issues of Land and Environment etc; and

- Attaining regional integration (Limpopo Provincial Government 2004a: 19).

The Province perceives that the development and implementation of a strategy or plan to bridge the digital divide and build an information society will support achievement of the developmental objectives stated above for sustainable socio-economic development (Limpopo Provincial Government 2004a: 21-22, 54). This together with the fact that the PGDS says very little about the information society or related issues suggests that at the time the PGDS was being finalised the Province did not yet have a clear perspective of the relationship between development and the information society. In this regard the PGDS simply identifies the objective to "Bridge the Digital Divide and build the Information Society in Limpopo" and an associated target of implementing the plan to achieve the objective (Limpopo Provincial Government 2004a: 21-22, 54). According to the OECD the digital divide is both simple and complex. This is due to the fact that:

> Some of the approaches have focused on ICT connectivity, with emphasis on infrastructure. Others have been broader in scope, extending to general e-readiness issues, including e-strategies, ICT literacy, skills and training. Indeed, in a 2004 publication … the OECD states that the digital divide is progressively shifting from an 'access' divide to a more complex 'use' divide (OECD 2009: 68).

The digital divide can be described as the gap between individuals and or groups of individuals as represented by communities, regions, or countries with regard to their having access to ICT (OECD 2001).

It is noteworthy that the Limpopo Ten Year Report 1994 - 2004 which purports to be a "report of progress made by the provincial government in implementing government programmes over the past ten years" (Limpopo Provincial Government 2004b: 5) does not in any way refer to the information society or to bridging the digital divide. While there is some reference within the Ten Year Report to developments in information technology, this reference, however, is purely from an administrative rather than from a transformative point of view (Limpopo Provincial Government 2004b: 10-11).

A recent development is that during March 2010 the provincial government of Limpopo launched the Limpopo Economic Growth and Development Plan (LEGDP). The LEGDP is a bridge between the current PDGS and the new Limpopo Vision 2030 which is a long term provincial growth and development strategy. The LEGDP outlines 13 Key Action Programmes which are expected to contribute to the achievement of the long term vision of the Limpopo Province in relation to growth and development. These action programmes are outlined in Table 3 below.

Table 3: Key Action Programmes Outlined in the LEGDP2009-2014

Key Action Programmes
Industrial Development Programme: Priority Growth Sectors
Enterprise Development: SMMES and Cooperatives Development Programme
Regional Economic Development and Integration Programme
Public Infrastructure Investment Programme
Water Resource Development and Demand Management
Agriculture and Rural Development Programme
Education and Skills Development Programme
Health Care Development Programme
Safety and Security
Environmental and Natural Resources Development Programme
The Green Economy and creation of green jobs
Corporate Governance
ICT and Innovation Enabled Industries

According to the government of Limpopo, the key initiatives supporting the programme of "ICT and Innovation Enabled Industries" are to implement an inclusive provincial Information Society Programme in the Republic of South Africa (INSPIRE) and bridge the digital divide; to promote and develop ICT and innovation entrepreneurs through a Business Incubation and Entrepreneurship Programme; to develop demand-led and job-ready ICT skills required by the provincial strategic economic sector through the Limpopo ICT Institute Programme; to empower community members (youth, women, residents, unemployed and the marginalised) in rural areas with various knowledge/skills to enable them to participate in an inclusive information society; to facilitate the implementation of the Limpopo Integrated Innovation Plan; and to attract investments and to reduce unemployment amongst the youth, women and the marginalised through the business process outsourcing and off-shoring (BPO&O) sector (Limpopo Provincial Government 2009b).

The Information Society Concept

This section defines the information society as well as presenting some ideas regarding its measurement.

Defining the Information Society

The prime concept that this study relates to is that of the information society. This concept is sometimes referred to as a Networked Society (Castells 2004: 41; 2000: 21), Informational Society (Castells 2000: 21), Post-Industrial Society (Bell 1973: -88), and the Knowledge Society (Leadbeater 1999; Drucker 1993; Nonaka & Takeuchi 1995). Each of these terms emphasise a different aspect of the concept, for instance, the Networked Society focuses on the importance of physical and human networks, the Informational Society considers the information that is carried over the networks to be crucial and the essence of the new society, and the Knowledge Society emphasises knowledge which is seen as the implementation of information. According to Krishan Kumar the information society is simply a restatement of Bell's post-industrial ideas presented in the early seventies (Kumar 1995: vii). Despite the different terminology used by the different theorists such as Castells, the terms information society, informational society, network society, knowledge society, post-industrial society actually refer to the same concept which is described hereunder.

The information society has also been described by the Heinrich Böll Foundation (2004) as a new socio-economic structure in the same vein as the agrarian society or the industrial society. Some scholars, for example, Christopher May,

while acknowledging the crucial importance of information today, do not accept this model (May, 2002). He argues that the information society does not constitute a revolution in the same mould as the industrial revolution.

Manuel Castells defines a network society as a "society whose social structure is made up of networks powered by microelectronics-based information and communications technologies" (Castells 2004: 3). He further clarifies a social structure to be the arrangements of human beings in relation to how their production, consumption, reproduction, experience, and power are meaningfully organised and communicated through culture. A key element in Castells' definition of a network society is the network which he describes as a set of interconnected nodes which process flows of information. Castells is of the opinion that the concept of the information society does not fully clarify the current epoch in which we live. This is because, in his view, knowledge and information have always been key components of and sources of power and competitiveness (Castells 2004: 3). In distinguishing an information society from an informational society Castells argues that an informational society emphasises the role of information in a society. He points out that if one considers information in its broadest sense one will recognise that information has been critical in all societies and thus what is new is rather the extent to which information has permeated the economic and social aspects of life. Manuel Castells' preference for the term informational society rather than information society is aligned to the usage of the term industrial society in reference to a society wherein industrial organisation permeates all spheres of societal activity. In the analysis of Castells, the content of the informational society is fully encapsulated in the network, hence his reference to the network society rather than the information society or the informational society (Castells 2000: 21).

It should be noted that while Castells recognises the role of information and communications technologies within the concept of the network society he argues that the technology in itself does not create the network society. According to Castells the potency of the network society lies in the ability or capacity of human beings to take advantage of the technology to achieve their societal objectives such as productivity, competitiveness, power, and power-sharing (Castells 2004: 41-42).

Mansell and Steinmueller (2000: 8-9) define the information society from the perspective of the usage of information and communications technologies as well as what they refer to as the "related social, economic, political and cultural developments linked to the growing availability of new forms of information and means of communications." They argue that the information society brings forth the vision that the information revolution, which was ushered in by the development of machines that could store computer programs and open a path to new opportunities for sustainable growth and development, will transform society for the better.

As indicated in Chapter 1, for the purpose of this dissertation, the researcher defines the information society in line with the United Nations as per the WSIS. The information society is one in which knowledge and the processing of information takes advantage of ICT to drive development. According to the WSIS Declaration (2003) the information society is a society wherein:

> Everyone can create, access, utilise and share information and knowledge, enabling individuals, communities and peoples to achieve their full potential in promoting their sustainable development and improving their quality of life, premised on the purposes and principles of the Charter of the United Nations and respecting fully and upholding the Universal Declaration of Human Rights.

In order to determine success or failure in building an Information Society for Development there needs to be an acceptable means of measuring the Information Society. Here the concepts that are relevant are, for example, e-readiness or electronic readiness, network readiness, and ICT or Information Society indicators.

Measuring the Information Society

In Chapter 1, the "measures" of the information society have been outlined. Having decided that one of the outputs of this work is to develop a sense of where Limpopo Province is in relation to becoming an information society, it is thus necessary to review how this will be done. As already stated in Chapter 1 e-readiness is a measure of the extent of the information society in a country or region. Bridges.org (2005b) conducted a study to evaluate e-readiness assessment tools. This study divided the tools that could be utilised to assess e-readiness into four categories. These are: firstly, ready to use questionnaires. These are developed tools that produce scores or ratings that could be utilised to determine the level that a particular community is with regard to the information society readiness assessment. The ready to use questionnaires that were identified are the Harvard University's Center for International Development (CID)'s Readiness for the Networked World: A Guide for Developing Countries, Asian Pacific Economic Cooperation's (APEC)'s E-Commerce Readiness Assessment, and the Computer System Policy Project's (CSPP)'s Readiness Guide for Living in the Networked World. The second category of tools refers to case studies which could be utilised to develop and design a unique assessment tool. Similarly, third party surveys and reports may be utilised as a third category to assess the readiness of a particular society or community for the information society. These assessment tools focus on pre-determined indicators and tend to measure aspects such as number of people with access to fixed or mobile telephones. The fourth category of assessment tools exclude the formal

readiness assessment tools such as ready to use questionnaires, case study e-readiness assessments, and third party surveys and reports. These include non-formal documents such as digital divide reports and position papers as these can provide rich data which can be utilised to assess e-readiness or develop readiness assessment tools with modification (Bridges.org 2005b: 2-3).

In comparing the readiness assessment tools Bridges.org (2005b) is of the opinion that all the tools may have some advantage depending on what the intention of the user is. It is suggested that the Harvard Readiness Guide may be suitable to assess the level of technology in a region in order to forecast future technology levels.

The Harvard Readiness Guide, which was introduced in Chapter 1, measures 19 different categories, grouped into five areas dealing with networked access, networked learning, networked society, networked economy, and network policy. These categories address the availability, speed, and quality of network access, use of ICT in schools, workplace, economy, government, and everyday life, ICT policy (telecommunications and trade), ICT training programmes, and diversity of organizations and relevant content online. Whilst these categories are distinct, they are linked and mutually support each other. The Guide ranks each of the categories by level of advancement from stage one to stage four - this would thus provide a measure of where that particular community being measured is with regards to the information society. The authors of the Harvard Readiness Guide state that the aim of the guide is to assist "communities" within the developing world, be they villages or countries, to define a strategy to become an information society. They argue that a key benefit of the Guide is to provide a base on which to provide a planning dialogue that will assist in sound policy development and investment decisions based on an assessment of that community's stage within

each readiness category (Bridges.org 2005b: 10; Readiness for the Networked World N.d.: 4-5).

The next section of this chapter provides background on building the information society within the Limpopo Province.

Building the Information Society within Limpopo Province

In order to clarify the context of the information society initiatives at a provincial level this section will commence by outlining the ICT/information society regime as well as the key role players involved in building the information society within South Africa.

The National Context

It must be noted, that South Africa is a unitary state that is divided into national, provincial, and local spheres of government. In line with the Constitution of the Republic of South Africa both the legislative and executive authority of provinces and municipalities are listed in schedule 4 and 5 of the constitution whereas others are assigned by various national legislations (Republic of South Africa 1996: sections 114 and 125; Department of Public Service and Administration 2003: 15-20). Except in relation to archives, other than national archives and national libraries, provinces and municipalities have no legislative or executive authority over information society related matters. In other words provinces and municipalities have to act within the guidelines and policies emanating from the national sphere of government when dealing with information society related

matters. The implication of this situation is that provinces cannot implement the information society on their own and have to act within the parameters laid down by the national government.

The President, through the National Department of Communications, is the custodian of information society related matters in South Africa. The PNC on ISAD (introduced in Chapter 1) which is part of the Department of Communications has been established with the purpose of providing timely and informed advice to the President of South Africa on matters related to the development of an inclusive information society. It facilitates the coordinated development of such a society in South Africa as well as the achievement of South Africa's information society vision which is "to establish South Africa as an advanced information-based society in which information and ICT tools are key drivers of economic and societal development" (Department of Communications 2007). In line with its mandate the PNC on ISAD has facilitated the development of the Information Society and Development Plan for South Africa, a document which was approved by the National Cabinet on the 21st of February 2007 (Republic of South Africa 2007).

The key elements of the Information Society and Development Plan are the articulation of the information society vision for South Africa, the 10 main pillars, the 5 priority focus areas for ICT applications, as well as the Provincial ISAD Model. These elements of the plan should form the basis of any assessment or evaluation of the information society within the context of South Africa (PNC on ISAD 2007).

According to the Information Society and Development Plan for South Africa the success of building the information society should be based on the existence of

ICT infrastructure and universal access to such infrastructure. This is an obvious necessity because unless the population has access to ICT there is little chance that they will be able to participate in the information society. In actual fact, in the absence of accessible ICT infrastructure there is, arguably, given the discussion above, no information society to speak of.

In addition to the pillars mentioned above, the Information Society and Development Plan identifies five priority areas through which the development of the information society will be prioritised. These priority areas have been chosen because of their direct impact on the poorest of the poor in any society as well as the various opportunities that ICT creates. These are government service delivery; Small-, Medium-, and Micro-, Enterprise (SMME) development; local content development; health; and finally, education, skills development and training (PNC on ISAD 2007).

Various government entities have roles in building the information society. To ensure that the roles of the various government entities are clear, Table 4 below identifies the entity responsible for the pillar or priority area as per the Information Society and Development Plan. It should be noted that as the Department of Communications has overall responsibility for the coordination of the information society in South Africa it has a role in all the pillars and priority areas. Since the entities identified operate at a national level, they often collaborate with a provincial entity to undertake projects at the provincial level. The provincial initiatives that will be identified hereunder should be understood in this context.

Table 4: Responsibility Matrix for the Pillars and Priority Areas

Issue	Entity Responsible
Pillars	
Infrastructure and universal access	USAASA
ICT capacity development and R&D	Department of Science and Technology
Policy and regulatory environment	Department of Communications
Digital inclusion & e-awareness	PNC on ISAD
Coordination and integration	PNC on ISAD
Institutional mechanism	PNC on ISAD
Human capital	Department of Education
Local content	Department of Arts and Culture
Funding	National Treasury
Measurement of ISAD in the RSA	PNC on ISAD
Priority Areas	
Government service delivery	Department of Public Service and Administration
ICT & SMME development	Department of Trade and Industry
Local Content development	Department of Arts and Culture
Health	Department of Health
Education, skills development, & training	Department of Education, Department of Labour

The Universal Services and Access Agency of South Africa (USAASA) was formerly known as the Universal Services Agency and has been established primarily to promote universal access and universal service in relation to ICT. The USAASA has embarked on a number of programmes (some of which are in Limpopo) to address universal access and universal service (USAASA 2008). According to Chapter 14 of the Electronic Communications Act of 2006 universal access means "universal access to electronic communications network services, electronic communications services and broadcasting services as determined from time to time"; and universal service means the "universal provision of electronic communications services and broadcasting services as determined from time to time..." The understanding of universal access and universal service should be coupled with the definition of electronic communications. According to the Electronic Communications Act, electronic communications means:

> The emission, transmission or reception of information, including without limitation, voice, sound, data, text, video, animation, visual images, moving images and pictures, signals or a combination thereof by means of magnetism,

radio or other electromagnetic waves, optical, electro-magnetic systems or any agency of a like nature, whether with or without the aid of tangible conduct, but does not include content service (Republic of South Africa 2006).

As stated above, universal access and universal service are critical for the development of an information society and, for this reason the success of the USAASA in Limpopo has a bearing on the success of implementing an information society in the Province. Lewis (2006: 10-15) argues that the USAASA has not succeeded in the targets to achieve universal access and universal service. He illustrates this with the failure of the Universal Services Fund (USF) as well as the failure of the USAASA to monitor and enforce the universal service obligations. The key challenges facing the USAASA relate to its inability or incapacity to ensure that the telecommunications licensees comply with their universal services obligations (these obligations includes connectivity in under-serviced areas as well as the discounting of service charges to schools), to force disclosure by the telecoms operators with regard to their telecommunication infrastructure rollout (USAASA could thus not effectively determine the level of compliance with regard to their universal service obligations), as well as a lack of managerial competence to keep the telecentres and cyberlabs operational. The USAASA defines a telecentre as a community based facility that provides communities with computer, telephone, fax, internet, e-mail, typing, printing and photocopying, TV and Video/DVD Player as well as computer training services and facilities. The agency defines cyberlabs or cyber-laboratories as school based facilities, which can consist of up to 30 computers, a printer, and a fax machine which are aimed at providing ICT services and computer training to the school community (USAASA 2008).

It should be mentioned that the Department of Public Service and Administration (DPSA) has a responsibility for ICT related matters within the public

administration (Department of Public Service and Administration 2008). The Department is responsible for coordinating ICT through:

- its oversight responsibility for the State Information Technology Agency (SITA),

- its responsibility in relation to the Public Service Regulations promulgated in terms of the Public Service Act, 1994,

- its responsibility for coordinating the Government Information Technology (GITO) Council, as well as

- its responsibility for maintaining the *Batho Pele* Gateway Portal which provides a single gateway for government information and services (Department of Public Service and Administration 2007: 26-27, 36-42).

The DPSA has been contributing to the pillar of government services delivery in a number of projects and policy initiatives, for example, the Department has been championing the e-government gateway, a government portal that provides a single point of entry to access government information and online services (Department of Public Service and Administration 2007: 40-41).

Having examined the national context the discussion now turns to information society initiatives within the Limpopo Province.

Information Society Initiatives within Limpopo Province

One of the early projects related to the information society within the Limpopo Province is the development of the e-Government Strategy for Limpopo in 2003. The objectives of the project were:

> to review IT operations within government and identify current and future needs, explore the possibility of using government needs as a platform for creating a viable IT industry in the Province, to formulate a package of interventions that would position the Province as a preferred location for Private and Public sector 'Call Centres' (Matlala 2003).

The Integrated Provincial Support Programme (IPSP) funded the development of the Provincial e-Government Strategy for Limpopo (Matlala 2003). The objective of exploring the utilisation of government needs as a platform for creating a viable IT industry in the Province, and the formulation of a package of interventions that would position the Province as a preferred location for private and public sector 'call centres' are of particular interest as they have a direct linkage to the development of an information society.

From the view of Matlala (2003) the Provincial e-Government Strategy for Limpopo project was complete and successful in that the strategy document was accepted by the provincial government. It is of course clear that the success of strategy development cannot be equal to a successful implementation of that strategy. What follows is a brief examination of the relevant strategic activities as identified in the e-Government Strategy and a determination of their relevance and the extent of their (successful) implementation. The extent of the success or failure of the implementation of the e-Government Strategy should be evident from the results of this research as will be presented in Chapters 4 and 5.

The Provincial e-Government Strategy for Limpopo consists of three components. Firstly it aims to provide e-government to the people of Limpopo; secondly, it intends to promote e-citizens by "bridging the digital divide"; and thirdly, it intends to ensure that Limpopo businesses can operate in the global digital economy through e-business. The Provincial e-Government Strategy has been positioned to support the achievement of the Provincial Vision and Objectives as set out in the then PDGS. The planned roadmap outlined by the strategy is divided into three phases that were envisaged to be completed over five years ending in 2009. These phases are, building e-readiness, improving service delivery, and service transformation. The key elements permeating the three phases revolve around building an institutional framework that would assist in the governance of the strategy, addressing the funding challenges related to implementing what could be a highly costly strategy, developing the skills necessary for a highly technological environment, and implementing 83 identified ICT related projects (the projects were prioritised in terms of strategic importance and perceived level of feasibility) that would enable improved service delivery and government efficiency through the use of ICT (Limpopo Provincial Government 2003).

In addition to the e-Government Strategy noted above, the Limpopo Province of Local Government and Housing has, through the Municipal Capacity Building Programme, developed a Local Government and Housing e-Government Strategy focussing on the local sphere of government, to be implemented by municipalities, however nowhere in the document is the date of publication stated. The Local Government and Housing Strategy document proposes four high level strategies and a number of consolidated initiatives. (Limpopo Department of Local Government and Housing N.d.: 95-98). A detailed reading

of the document indicates that it was completed after 2005[7] and despite this the document does not seem to have any relationship to the Provincial e-Government Strategy. The fact that the province has two e-government strategies which appear not to be aligned with each other suggests that their implementation will not be synchronised.

The implementation of national-led projects and programmes in the Limpopo Province does contribute to the implementation of the information society in the province. The following are some of the key projects related to the information society that are implemented in the Limpopo Province by national departments and entities:

- Public Internet Terminals (PITs) are implemented by the Department of Communications and South African Post Office. PITs are custom made publicly accessible kiosks which provide cost effective access to the internet. The Limpopo Province has almost 90 PITs located at selected Post Offices and Thusong Service Centres[8] (Department of Communications 2006: 7; 15-17).

- Telecentres, provided by the Department of Communications and the USAASA, are described as facilities to provide a broad range of information and communication services to disadvantaged and rural communities. These typically provide internet connectivity, telephones, a printer, fax facilities, as well as printing facilities. During 2006 about 28 telecentres were operating in

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[7] On page 43, the heading of figure 4.54 (investment income) refers to the Municipal Investment Regulations of 2005 which were issued in line with the Municipal Finance Management Act.

[8] Thusong Service Centres (these were previously referred to as Multi-purpose Community Centres) are facilities located within communities to provide access to services from different government departments and agencies. They are further discussed below.

Limpopo Province (Department of Communications 2006: 25; 36-40). It is noted that no updated provincial figures were found.

- The South African Post Office, together with the Department of Communications is hosting a Citizen Post Office in Elim Hospital – a government hospital situated in the Vhembe District of Limpopo Province about 25 Km South-East of Makhado (formerly Louis Trichardt) and 65 Km South-West of Thohoyandou. A Citizen Post Office hosts a few computers, a scanner, printer and photocopier, as well as TV and VCR; these facilities are often placed within a Post Office located in a disadvantaged community (Department of Communications 2006: 49).

- Multi-purpose Community Centres/Thusong Service Centres very often host a PIT, telecentre, or a cybercentre together with other services and community ventures. The Government Communications and Information Services (GCIS), which is situated within the Presidency, is responsible for the establishment of Thusong Service Centres. Currently the Limpopo Province hosts 14 Thusong Service Centres (GCIS 2008).

- The Digital Doorway project is a project aimed at implementing a minimally invasive computer literacy programme in remote and rural communities and is initiated by the Meraka Institute of the Council for Scientific and Industrial Research (CSIR) and the Department of Science and Technology. The project makes available robust multi-terminal computer systems that are connected to the Internet (Meraka Institute 2007: 1-2). Currently there are three Digital Doorways in Limpopo situated in the Sekhukhune, Mopani, and Capricorn Districts (Limpopo Department of Agriculture 2010a).

- In order to support e-education, the Department of Communications and the USAASA have implemented cyberlabs at schools and colleges situated within disadvantaged communities, especially in rural communities. Each of the cyberlabs contains at least 20 networked computers with internet access. The Limpopo Province had at least 12 of these during 2005 and 21 planned

for 2006 (Department of Communications 2006: 67; 69). It is noted that no updated provincial figures were found.

In addition to the IT and internet related projects noted above, the Department of Communication and the Independent Communications Authority of South Africa (ICASA) are ensuring that all communities have access to broadcast facilities; these may be in the form of community radio and television stations, private radio stations, as well as South African Broadcasting Corporation (SABC) radio and television stations (Department of Communications 2006).

One initiative which has provincial and local government involvement is the Mogalakwena HP iCommunity Project established by the Limpopo Provincial Government, the Mogalakwena Municipality, and the Hewlett Packard Corporation as a legacy project of the World Summit on Sustainable Development held in Johannesburg in 2002 (Hassan 2005; World Business Council for Sustainable Development 2005). The Project is aimed at developing models for sustainable socio-economic development by utilising ICT. The Project was based in the Mogalakwena Municipality and consisted of a number of ICT and sustainable livelihoods projects which were successfully established and run (Hassan 2005). The iCommunity Project seems to be the only project within the Limpopo Province that has integrated various aspects that are more aligned to the information society concept. For example, the project aims to achieve the following objectives within the Mogalakwena community:

• Create new job and income opportunities;

• Enhance educational opportunities, information access and communication flows;

• Develop new services and technology solutions;

- Build leadership and capacity in the community;

- Ensure the broadest possible active inclusion of relevant community constituencies; and

- Establish an IT platform and development context to attract investors and partners in the field of sustainable socio-economic development (Hassan 2005).

Reading the case study of Hassan gives one a sense that the Mogalakwena iCommunity appears to be the development of an information society on a small scale.

In addition to the projects that are implemented by national departments and entities within provinces there are other projects that have a bearing on the information society. These may be in the form of donations of computers to schools or other departmental projects. Departmental projects are often aligned to the departmental mandate and to the peculiar interest of the department such as a project by the Limpopo Department of Agriculture to train farmers in the use of ICTs (Limpopo Department of Agriculture 2010b). Because some of the projects are often not coordinated one may end up with undesirable outcomes such as the receipt of outdated computers as donations (Motsoaledi 2005). The Limpopo Department of Education, as part of the implementation of the E-education White Paper (Department of Education 2004), is undertaking a number of projects such as the building of computer laboratories and centres, the training of educators in ICT, and the provisioning of Circuit Offices with computers centres, that will ensure that pupils, teachers, education administrators, as well as members of the community will have access to ICT (Motsoaledi 2005; 2008). This research hopes to unearth similar projects in the Limpopo Province, the exposure of which would enhance the analysis of the implementation of the

information society in the Province and expose the challenges related thereto. The policy goal stated in the E-education White Paper is to ensure that:

> Every South African learner in the General and Further Education and Training bands will be ICT capable (that is, use ICTs confidently and creatively to help develop the skills and knowledge they need to achieve personal goals and to be full participants in the global community) by 2013 (Department of Education 2004).

One cannot discuss any initiative to implement the information society in the Limpopo Province without reference to the Information Society Strategy Programme in the Republic of South Africa referred to as INSPIRE, which is regarded as an overarching project to coordinate and facilitate the development of the information society in the Limpopo Province (Appel 2008). However, as indicated above, this project has only recently commenced and literature on the initiative is yet to emerge. The report by Appel (2008) during February 2008 stating that the Government of Finland is funding the INSPIRE in the Limpopo Province suggests that the development of the provincial information society strategy envisaged in the PGDS could only effectively have commenced during the Financial Year 2008/09. The conclusion that is drawn from this situation is that, if the province had only commenced with the preparation of the information society development strategy in 2008/09, then there would not have been significant progress with regards to the information society by then.

Taking into consideration the above discussion, this study acknowledges that the Limpopo Province does consider the development of the information society as part of its development strategy through, among other things, the INSPIRE programme. However this development is still at a very superficial level (this will be further argued in Chapter 5) and there still appears to be a number of challenges that need to be overcome.

There appears to be little research published on the information society as well as the challenges related thereto in the Limpopo Province or in any other province of South Africa. There has been some research however on some aspects relevant to the information society such as the research by Amedzo (2007) who undertook a study of the integration of ICT in rural schools. The focus of Amedzo's study was on five schools in the Malamulele - a rural area within the Province.

The three main objectives of Amedzo's study were to assess the state of ICT particularly in rural schools, to analyse major factors that hinder the diffusion of ICT in rural settings, and to provide a framework for the introduction of ICT in rural schools (Amedzo 2007). The key findings of this study do provide some indication of the challenges of ICT diffusion within rural and poor communities. For example, schools in rural areas have less access to ICT infrastructure and resources, ICT infrastructure and resources are not affordable to the community, there is poor awareness of government policy in relation to ICT, there are insufficient skills to deal with the ICT requirements within the educational system, there are insufficient guidelines to schools on ICT, and the e-education programme is not well managed (Amedzo 2007: 59-64).

Chapter Summary

This chapter commenced with a profile of Limpopo Province in order to ensure that the reader has a background on the province. The chapter then discussed the concept of development and how it is applicable in Limpopo Province. It was argued that development has to be defined by the community that itself is seeking development. Following on this discussion the chapter elaborated on

the concept of the information society and discussed the initiatives to build such an information society in the province. The chapter provided a platform to understand the various role-players in the development of the information society in Limpopo Province.

Chapter 3: The Research Design and Methodology

Introduction

The chapter will outline and discuss how the research was structured as well as the tools, methods and approaches utilised to respond to the research problem and answer the research questions. The chapter also outlines the process which was followed to select the sample, collect, code, and analyse the data, as well as highlight the shortcomings and limitations of the study.

Approach to the Study

The aim of the research was to determine the challenges that Limpopo Province faces in becoming an information society. In answering this question the following three research questions were responded to:

- Is the Limpopo Province ready to be an information society?

- What is being done in the Limpopo Province to build an information society?

- What needs to be done in the Limpopo Province to build an information society?

Rather than undertake a prohibitively expensive study of all the stakeholders regarding the above questions in the province it was decided to take the views of a selected group of leaders in the province as well as analyse key documents. The framing of the population was thus restricted to the individuals who were in some sense formally responsible for the information society implementation at the provincial and district municipal level.

To complete this study, mixed qualitative and quantitative designs were utilised. Whilst quantitative and qualitative approaches are often treated as separate, it is possible to apply them in one study and Creswell (1994: 174-176) has provided an acceptable rationale for the combination based on the differentiation between designs and methods. In this regard a research design is a plan or blueprint of how the research will be conducted (Mouton 2001: 55) whereas a research method refers to the steps, procedures, techniques, tools, and instruments that will be followed and used to conduct the research and answer the research problem (Hofstee 2006: 107-111; Chadwick, Bahr & Albrecht 1984: 36-37). Other researchers (for example, Lee 1999: 5), however, utilise a different framework which considers method and design to be referring to the same concept which in turn is different to the concept of technique or tactic – the latter defined as referring to specific details and actions for gathering and analysing data. Furthermore, Mbambo (2002) who combined the qualitative methods of observation and interview with quantitative techniques of surveys in her study of the Internet as a tool for developing countries to reduce the development gap between developing countries and developed ones by analysing the World Wide Web usability among small and medium textile enterprises in Botswana, argues for the acceptability of combining qualitative and quantitative methods in the information studies field by citing numerous studies within the field.

The nature of the research question dictated that broadly the research was a case study and thus qualitative. Welman & Kruger (2001: 182) describe a case study as a qualitative method through which a researcher analyses a limited number of units, usually one, intensively. In terms of this research the unit being studied was the Limpopo Province. Leedy & Ormond (2005: 134-135) state that among other things a qualitative approach allows researchers "to test the validity of certain assumptions, claims, theories or generalisations within real world situations" which was what this study aimed to accomplish in relation to the relevance and feasibility of implementing an information society for a rural province such as the Limpopo Province.   Furthermore, qualitative studies, like this research, do not identify cause and effect relationships.   An important limitation of case studies is that it is often very difficult to generalise the results and the potential for interference by the subjectivity of the researcher is higher (Mouton 2001: 150; Hoftsee 2006: 123). However, it has been stated that by providing sufficient context, such as history, economy, and social context, to the case being studied – which this research has provided – those who use the research would be better able to draw conclusions about the extent to which the findings might be generalised (Leedy & Ormond 2005: 134-135). The value of the research would not in any way be diminished given that it is a case study and thus the results are not generalisable. However, they will still be of value for the development of the Limpopo Province. Welman & Kruger (2001: 184) advocate that by employing different approaches to corroborate the findings, the potential bias by a researcher will be minimised. The utilisation of different approaches, methodologies, or data collection methods frequently referred to as triangulation. A loose definition of triangulation that is presented is that it is the use of two or more theoretical perspectives, methodologies, data sources, analytical methods, investigators, or observers within the same research study (Ammenwerth, Carola, & Mansmann 2003: 239; Jick 1979: 602; Olsen 2004; Thurmond 2001: 253). Wendy Olsen argues that triangulation is not only aimed at validation but also at deepening and widening the understanding of the subject of research.

She also argues that triangulation has been effectively practiced much earlier than the later justification by Denzin in the early 1970s. In her view there is evidence of the practice of triangulation as early as the late 1890s (Olsen 2004). By employing two main data collection techniques in the proposed study – survey and content analysis – and the manner in which they will be conducted (described below), the bias of the researcher will be mitigated.

An informal telephonic interview, that was not initially planned, was held at a very late stage of the research, early in 2011. The interview was with Molaku Petje, who is the Provincial GITO, based in the Office of the Premier, and responsible for ICT in Limpopo since 1994. Petje has been the driver for the e-Government Strategy for the Limpopo Province and the INSPIRE Project but did not respond to the initial questionnaire. When the opportunity arose, given the important position of the person with regard to the study and the difficulties that were faced to get a higher participation rate (see the section on limitations of the study later in this chapter), it was decided to interview Mr. Petje. While the results of the interview were noted these results have not been listed in the results section but have been incorporated at relevant places throughout the dissertation.

The Survey Questionnaire

The survey is a method that acquires information about the characteristics, opinions, attitudes, or experiences of one or more groups of people by asking the group or part of the group questions and using the answers to describe the group (Leedy & Ormond 2005: 183-184; Creswell 1994: 117). This technique was utilised to extract information relating to the perception of key stakeholders on the

utility, feasibility and challenges of building an information society as outlined above. The data was primarily collected at a point in time via questionnaires which were e-mailed to the intended recipients. The rationale for the choice of the self-administered questionnaire was that, compared to other possible techniques, it is economical in time, cost, and effort. This is especially true if the data collection does not involve a lot of telephone calls or travelling to conduct face-to-face interviews (Maree & Pietersen 2007: 157-8; Neuman 2003: 289-290). The questionnaire was based on the modified Harvard University's "Readiness for the Networked World" framework (Readiness for the Networked World N.d.: 5-6) that, among other things, solicited respondents' views on the following issues:

- Their understanding of the information society.

- Their views on the relevance of the information society to the development of the Limpopo Province.

- Their views on the challenges that the Province is experiencing with regard to implementing the information society.

- Their views on the effectiveness of the current strategies and plans for promoting the competitiveness of the Limpopo Province within the current global scenario.

- Their views on how the Limpopo Province can implement the information society for development.

The questionnaire was structured to provide information about the respondent. This information deals with the key biographical data that relates to the gender, role, age, as well as the access that the respondent has in relation to ICT. The

next section of the questionnaire addressed the respondent's knowledge and perception of the information society and development. This was followed by a section that sought to assess the respondent's views on the readiness of Limpopo province to the information society. The section was grouped into four areas, namely, network access, networked learning, networked society and networked economy. The final section of the questionnaire enquired of the respondents their views on whether Limpopo was in place to become an information society as well as what needed to be considered in the current plans for the province to be a successful information society. The questionnaire as distributed to the respondents is attached to this report as Appendix 1.

Sample Design and Sampling Methods

To choose the group of people that were to be subjected to the survey, the researcher had opted to utilise a purposive sampling method. According to Babbie & Mouton (2001: 166-167) and Nieuwenhuis (2007b: 79) the selection of participants utilising purposive sampling is based on their possession of characteristics which makes them holders of the data needed for the study. Another way of looking at the sampling approach utilised for this study is that the generation of a sample was convenient, although in general, the degree of generalisability of convenient sampling is questionable. In this case the fact that the population and the sample are the same makes the sample fully representative of the population (Salkind 2006: 93). However, the lack of generalisability of the research will remain on the basis of the narrowness of the population selected as well as the fact that the study is a case study for Limpopo Province.

The population consisted of formal leaders responsible for information society implementation at the provincial and district municipal level; these are political heads, administrative heads, as well as managers responsible for ICT (see Table 5 below). The choice of this grouping to the exclusion of others was that they played or would play a key role in dealing with the implementation of the information society aspects that are identified in the Harvard University's "Readiness for the Networked World" framework. In addition to the above the type of leader in Limpopo Province purposefully selected was easily identifiable and relatively accessible. Due to the fact that the population was so small, the researcher was of the view that all the members of the population would be sampled. Thus the population and the sample was the same, and the sampling could be referred to as non-probability sampling. Table 5 below summarises the population and thus the sample selected for the survey. The total targeted population of respondents was 45.

Table 5: The Population

Grouping	Number
Provincial Level Political Heads (Members of the Executive Council)	10
Municipal Level Political Heads (Mayors)	5
Provincial Level Administrative Heads (Heads of Department)	10
Municipal Level Administrative Heads (Municipal Managers)	5
Provincial Level Heads of ICT (GITO[9])	10
Municipal Level Heads of ICT (CIO[10]/IT Manager)	5
Total	**45**

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[9] CIO refers to a Chief Information Officer, a designation for an official responsible for information resources (inclusive of ICT) within an organisation. Within the national and provincial sphere of government this official is often referred to as a Government Information Technology Officer (GITO).

[10] See note above.

The individuals occupying the above positions would be responsible for driving any programme to build the information society within the Limpopo province. More specifically, at a political and policy level the Members of the Executive Council would be responsible for approving such a programme and "selling" it to the population at large. The administrative heads would be responsible for driving the implementation of the programme and the heads of ICT, recognised as experts in the field, would be responsible for giving advice and for the daily running of the information society projects within their department's mandates. It is thus argued that the sample proposed above was sufficient to represent what can be described as the leadership within Limpopo province who would be responsible for driving the information society programmes.

An important source of bias in survey research is the non-response (Bryman 2008: 168-169; Leedy & Ormond 2005: 209). In this study non-response and other non-sampling error was of concern. The nature of the sample selected lends itself to be grouped in a number of different ways; firstly it may be the six groupings as per Table 5 above; secondly, it may be the provincial level and the municipal level groups, and lastly it may be the three functional categories of political heads, administrative heads, and heads of ICT. Any categorisation creates a potential that the response rates for the different categories may be vastly different and thus the views of a specific category may skew the findings of the study. Thus the researcher made a concerted effort, via reminders, to try and ensure that respondents completed the questionnaire (see Data collection below).

Data Collection

The data collection process commenced initially with a request, through the Provincial Government Information Technology Officer during 2007, to conduct the study. This request received a verbal acknowledgement and approval. By the end of 2009, the province had established a research coordination office through which this researcher sent an e-mail requesting approval to conduct the research. This was approved through e-mail response from the senior manager responsible for research coordination in the province.

The Office of the Director General Limpopo Province was requested to provide the contact details, e-mail and telephone, for all the identified respondents. The contact details provided indicated that all the target respondents had access to e-mail. Once the information was received, the questionnaire was sent to all the respondents starting on 15 March 2010. The questionnaire was embedded in the e-mail so that the respondents had to simply use the reply functionality of their e-mail application in order to access the questionnaire, complete it, and send it back to the researcher. A few of the respondents had a challenge with this approach and the questionnaire was resent as a Microsoft Word attachment.

Reminder e-mails and Short Message Service (SMS), using the provided mobile numbers, were sent to all those who had not responded within three weeks. A questionnaire was resent with every e-mail reminder. If after two reminders a respondent had not responded or promised to respond there was no further follow up. It should be reported that for some of the respondents the e-mail address provided by their office was not sufficiently reliable and they had to

provide the researcher with an alternative address from Yahoo or Gmail. This is an indicator of the lack of capacity in relation to ICT support. In addition to the SMS and e-mail reminders the respondents were phoned to remind them of the questionnaire, only one respondent (a Mayor) could not be reached by their cell phone.

Of the 45 respondents who were targeted 27 participated, these are outlined in Table 6 below. Two respondents replied via fax, 12 completed the Word attachment, and 13 responded via the embedded questionnaire. The majority of respondents were Heads of Department and out of a population of 10, eight responded. The group that that had the lowest response was that of Municipal Managers; of the five Municipal Managers only one responded. Having taking all the steps described above, the number of responses could not be increased.

Table 6: Number of Respondents who Participated

Grouping	Number	Number Responded
Provincial Level Political Heads (Members of the Executive Council)	10	5
Municipal Level Political Heads (Mayors)	5	2
Provincial Level Administrative Heads (Heads of Department)	10	8
Municipal Level Administrative Heads (Municipal Managers)	5	1
Provincial Level Heads of ICT (GITO)	10	7
Municipal Level Heads of ICT (CIO/IT Manager)	5	4
Total	**45**	**27**

Due to the fact that the total population to which the questionnaire was sent and based on the number who actually responded the researcher concluded that the best approach to grouping the respondents was by their three functional

categories of political heads, administrative heads, and heads of ICT. This is further discussed in Chapter 4.

Data Management

On receiving a response, the document was given a number against which it was saved electronically in a separate folder. The responses of each respondent were captured in a Microsoft Excel spreadsheet according to the coding sheet outlined in Table 7 below. Each column in the spreadsheet represented the responses for each of the respondents and each row, the respondents. Where there was no response it was captured as such rather than leave a gap in the data. The response sheet was checked against the spreadsheet to ensure that that there was no error in capturing the data from the sheet to the spreadsheet. It should be noted that the number 25 with regard to the question numbers as stated in the questionnaire was duplicated and thus the researcher deliberately decided not to correct the error after the fact.

Table 7: Questionnaire Coding Framework

Question	Question Code	Remarks
Not Applicable	Case_Number	This is sequential and relates to the respondent
Not Numbered	District	As per response
Not Numbered	Org_Type	As per response
Not Numbered	Role	Captured as Political, Administrative, or ICT Head
Not Numbered	Age	As per response
Not Numbered	Gender	As per response
Not Numbered	WorkPC	As per response
Not Numbered	WorkINet	As per response
Not Numbered	HomePC	As per response
Not Numbered	HomeInet	As per response
Not Numbered	Broadband	As per response
Not Numbered	UseInternet	As per response
Not Numbered	FamilyUseInternet	As per response
1	KnowInfoSec	As per response
2	ICT4D before	As per response
3	ShouldLPInfoSoc	As per response
4	Involved_in_IDP	As per response
5	Involved_in_PGDS	As per response
6	IDPFamiliar	As per response
7	PGDSFamiliar	As per response
8	Dev_Goals	Captured number of goals presented
9	ICT_Supp_Dev_Goals	As per response
10	Current_Strat_Succeed	As per response
11	No_of_Projects	As per response
12	Comments_on_Projects	Captured number of comments presented
13	Access_Fixed_Line	As per response
14	Access_Mobile	As per response
15	Access_Internet	As per response
16	Internet_Cost	As per response
17	ICT_Service_Availability	As per response
18	Telecom_Supp/Service	As per response
19	ICT_School_Access	As per response
20	ICT_Enhance_Edu	As per response
21	ICT_Workforce_Level	As per response
22	Number_Online	As per response
23	Local_Content	As per response

Question	Question Code	Remarks
24	Everyday_ICT_usage	As per response
25	Workplace_ICT_Usage	As per response
25	ICT_employment_opportunities	As per response
26	B2Consumer	As per response
27	B2B	As per response
28	E-gov	As per response
29	LP_InfoSoc	As per response

Utilising the Microsoft Excel datasheet with the data captured above, the section on the information about the respondents was summarised by utilising Microsoft Excel Pivot table function to generate frequency tables, bar charts, and pie charts. According to Bryman (2008: 322) frequency tables can be utilised in relation to all the different types of variables, including nominal variables. The bar charts and pie charts were specifically used to ease the interpretation of the data presented. With the exception of the age of the respondents all the responses expected here represented nominal data. The Microsoft Excel data-analysis plug-in was also activated and utilised to conduct the descriptive statistics on the age of the respondents.

The remainder of the questionnaire was analysed one question at a time using frequency tables. The tables were generated using the free online statistical software called BrightStat (Brightstat.com 2010). Daniel Stricker, in an article published in the *Computer Methods and Programs in Biomedicine* journal, argued that the capabilities of the functionality of the BrightStat software were comparable to that of commercial software such as SPSS (Stricker 2008). All the responses captured in the Microsoft Excel spreadsheet were exported to the BrightStats software and a single output file generated for further analysis and inclusion in this report.

Analysis of the data followed a predetermined process which commenced with the determination of the response bias and a respondent/non-respondent check (Creswell 1994: 124). This was followed by an analysis of the variables using descriptive statistics. In addition, the data analysis included an analysis of the responses according to the respondent and the role the specific respondent played in the development of the information society, with the final results being related to the research questions.

Content Analysis

To address those responses of the survey that could not be quantitatively analysed as well as to evaluate the current approaches, policies, and strategies of the province (as contained in a variety of documents), the study utilised the content analysis technique. According to Bryman (2008: 274) content analysis is not, strictly speaking, a research method; it is however treated as one because of its distinctive analysis can be done within a qualitative or quantitative design. Whilst this technique has a number of strengths such as the possibility to gather information unobtrusively, it is sensitive to the choice and availability of data source which sometimes can be manipulated by the researcher's approach to analysis. Content analysis is described by Babbie & Mouton (2001: 383), Bryman (2008: 274-275), Neuman (2003: 36, 311-18) and Nieuwenhuis (2007a: 101) to be as a systematic examination or analysis of the contents of a particular body of material or document for the purposes of identifying patterns, themes, or biases. The material could include annual reports, speeches, policies, and videos (Leedy & Ordmond 2005: 142-143; Mouton 2001: 165-166).

The documents that were subjected to content analysis were grouped into the following two categories:

- Responses to the open questions in the questionnaire.

- Official planning documents of the provincial departments and the municipalities, specifically, the PGDS, the Annual Performance Plans of the provincial departments and the Integrated Development Plans of the municipalities. These documents were chosen because it is common knowledge within the public service that they represent the cornerstones of government planning at the provincial and the municipal level. The selection and time frame of the documents is discussed later in this chapter.

On analysing the responses to the open questions in the questionnaire, the researcher categorised the trends and themes according to clearly defined qualities, using keywords and phrases, such that anyone could translate the explicit and implicit meanings of the text into the categories. On completion of the categorization the data was analysed and interpreted based on appropriate statistical tools (namely, frequencies and percentages). This approach has been classified by Bryman (2008: 276) as qualitative content analysis because it allows the categories to emerge out of the data being analysed. The challenge with this approach may be that another researcher may not be able to discern the same themes when reading the same content.

The raw responses were captured on a Microsoft Excel spreadsheet similar to the one outlined in Table 7 above. This enabled an easy application of the filter function of Microsoft Excel. All the responses to the same open item in the questionnaire were then read repeatedly to identify any similar themes. Where

the comment was simply to reaffirm the scoring in relation to the closed answer the comment was ignored. Furthermore, where there seemed to be no themes and each respondent's comments were unique they were reported individually.

The process for analysing the government planning documents followed a classical content analysis approach. The content analysis of these documents was more quantitative, structured, and repeatable.

Each document was examined to identify any reference to the information society or ICT related projects. All references to the information society or ICT related projects were grouped in terms of the categories identified in the Harvard Readiness for the Networked World Guide. Frequencies for these relationships were reported upon. Projects which related to the effective functioning of a department were only counted once under the category of e-government (e-government can be defined as government's use of ICT to better inform citizens, communicate with them, and make administration more transparent, open, and efficient (Fuchs 2008: 296)). This ensured that the many efforts in which departments engaged to improve their own ICT operations were not double counted. This analysis was planned to assist in determining which areas, if any, the provincial departments and district municipalities were contributing towards the development of the information society. This analysis was geared to assist in answering the research questions, specifically in relation to what was being done in Limpopo Province to build an information society.

Selection of the planning documents was based purely on two criteria, firstly on the basis of their legitimacy as the official plans for the various organisations

departments, and secondly on the basis of their availability. For provincial departments the documents selected were the Annual Performance Plans for the financial year 2009/10, and for the District Municipalities, the documents selected were the Integrated Development Plans for the financial year 2009/10. Despite the fact that the Annual Performance Plan and the Integrated Development Plan are supposed to include projects undertaken by the department or municipality, there is a possibility that some projects were not reported in the document due to the manner in which the document was structured. The researcher only focused on the most recent documents for content analysis despite the fact that some initiatives, planning, policy and the like relating to the information society which have taken place in the preceding 10 years for example, have been "captured" in earlier documents.

While the number and category of projects or programmes which were identified in the planning documents is recorded in Chapter 4 the study did not evaluate the extent or quality of the projects identified. Some of these projects or programmes may not have been successful. For example, the Digital Doorway project has been perceived by Nxumalo, Chuzu, Mamabolo, Selepe, and Nindi (2008) as being not successful in achieving its objectives. The key finding of this study was that the good idea of providing access to agricultural information to small scale farmers was not well executed due to the fact that the users did not utilise the service for the purpose intended despite the training and support provided.

Limitations of the Study

Having taken all the efforts to ensure that the study will contribute towards excellent scholarship, the researcher is aware that there still exist some shortcomings and limitations that need to be highlighted to the reader of this report. Some of these shortcomings and limitations, such as the fact that the study did not evaluate the extent of the quality of projects identified, have been hinted at above; this section will, however, explore those that are significant.

According to Fowler (2002: 12), a researcher should evaluate among other things whether a sample is comprehensive. In other words, all the units that the researcher would like to study should be found in the sample. In the case of this study, leaders who are not based in Limpopo but would have a key responsibility for delivering the information society in the province have been excluded and their views regarding the challenges of implementing the information society in the province were not represented by this study. This is particularly important to note taking into consideration the fact that in South Africa the information society is, technically speaking, a national competence and thus there would be programmes being run in the province by agencies operating from the national level. The reason for not including leaders outside the Province related to the fact that these would have had to respond to totally different questionnaires, each tailor-made for a respondent, as they would not have necessarily dealt with the full scope of the building of the information society in Limpopo.

Another non-sampling error resulting from the sample is the response/non-response bias. Of the 45 questionnaires that were distributed 27 were returned.

Eight had promised to respond but due to the time limitations to finalise the report, their responses could not be waited for. The response rate for the questionnaire was 60%. According to Tredoux and Durrheim whilst samples of between 30 and 100 are commonplace, in some social sciences samples of above 20 can be acceptable (Tredoux and Durrheim 2002: 246). It is noted that there is no magic formula to determine the minimum sample size; the acceptable number is dependent on a number of factors including the margin of error the researcher will tolerate, the topic, discipline, and critical effect size (Salkind 2006: 95-96; Tredoux and Durrheim 2002: 246).

Politicians change, thus the views of this group are valid until the next "crop" of politicians is elected. This study focuses on the leaders with a formal responsibility regarding the leadership and implementation of the information society in Limpopo Province. The research could benefit from other non-formal leaders within the community; these could include leaders in business, politics, and civil society.

As stated in the section above, the documentation selected for content analysis were for the financial year 2009/10 and thus there is a valid limitation that some initiatives, planning, and policies relating to the information society which have taken place within any of the preceding 10 years for example, have been "captured" in earlier documents. Whilst this may be the case, the success of these projects and initiatives would have had a meaningful outcome regarding the level reached by Limpopo Province in the implementation of the information society.

All respondents, without exception, reported that they had a computer at work and had access to the Internet at work. This indicates that ICT are generally available at the workplace to people in leadership positions within the Limpopo Province. Furthermore, with the exception of one respondent, all reported that they had a personal computer and had access to the Internet at home. However, regarding access to broadband at home, only 50% of the respondents who reported having access to the Internet also reported having broadband at home. In relation to access to ICT the sample is very different from the rest of the residents of the province and their views tended to exaggerate the level of accessibility to ICT to reflect their privileged positions.

The researcher would like to emphasise that in dealing with the estimation of the level of readiness for Limpopo Province, the results do not purport to represent the actual stage where Limpopo is, but rather the level of readiness as perceived by the respondents to the questionnaire and as reflected in the documents analysed.

Chapter Summary

In this chapter, the researcher explained the rationale for adopting the quantitative and qualitative research designs to investigate the challenges of building an information society in Limpopo Province. It also clarified that a self-completion questionnaire e-mailed to selected leaders in Limpopo Province were responded to via e-mail or fax.

The chapter clarified that the questionnaire was based on the Harvard Readiness Guide for the Networked Society and structured to survey the views of the political, administrative, and ICT heads for the provincial departments as well as district municipalities within Limpopo Province. The sample, as well as the sampling considerations, was exposed. The chapter also discussed how the data was collected and handled to minimise errors.

The chapter concluded by describing the process of content analysis that was followed in analysing the results. This was followed by a discussion on the shortcomings and limitations of the research in order to lay the foundations for the presentation of the research results in the next chapter.

Chapter 4: Research Study Results

Introduction

This chapter outlines the results as described in the previous chapter. It commences by outlining the sample profile that summarises the nature of the respondents. The chapter then presents the frequency tables and graphs for the responses provided by the sample. It also presents the content analysis of the open responses to the questionnaire where appropriate. The chapter closes by presenting the analysis of the planning documents for Limpopo Province to identify the programmes supporting the building of an information society in the Province.

Sample Profile

The survey questionnaire was distributed via e-mail between 15 March and 17 May 2010. In instances where respondents requested the questionnaire to be sent again, this was done. The respondents responded via e-mail or fax from the 16 March to 03 June 2010. Of the 45 questionnaires distributed, 27 were returned, giving an overall response rate of 60%.

The respondents, as grouped in terms of their role, are outlined in Table 8 and Figure 11 below. Due to the nature of the population, the size of the three groupings are the same and one would have expected their response rate to be proportional, however in their responses, the heads of ICT in their respective organisations represented 41% of the sample, heads of administration 33%, and political heads 26%.

Table 8: Respondents by Role

Role of Respondent	Population	Respondents	% Response
Administrative Head	15	9	60%
ICT Head	15	11	73.3%
Political Head	15	7	46.7%
Grand Total	**45**	**27**	**60%**

Figure 11: Respondents by Role
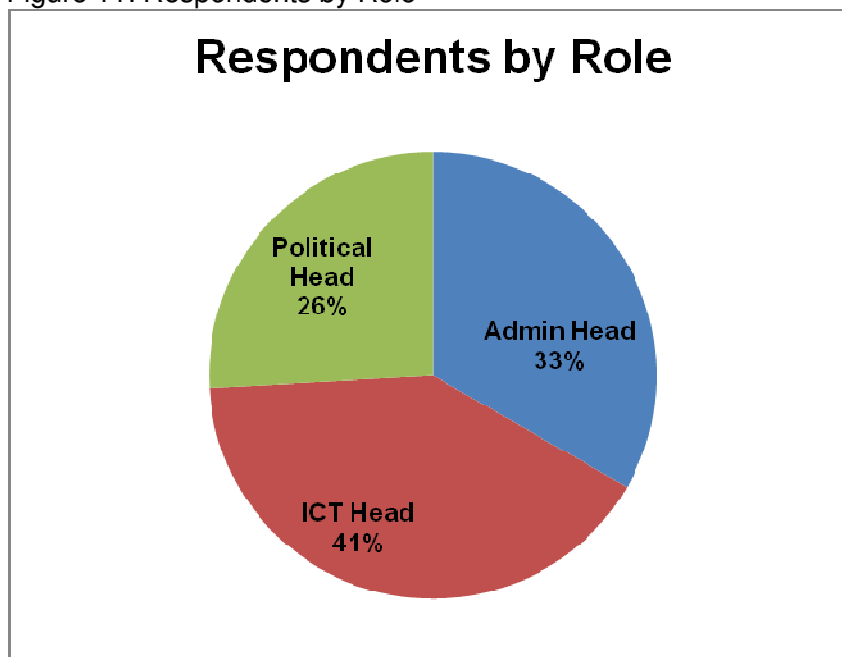
The age of the respondents is indicated in Figure 12 below. This shows that the majority of the respondents were between the ages of 30 and 50. The age profile is not necessarily as a result of the sampling but rather as a result of the population profile. One would have expected fewer individuals in the late twenties within a group of administrative and political heads of government organisations.

Figure 12: Age of Respondents
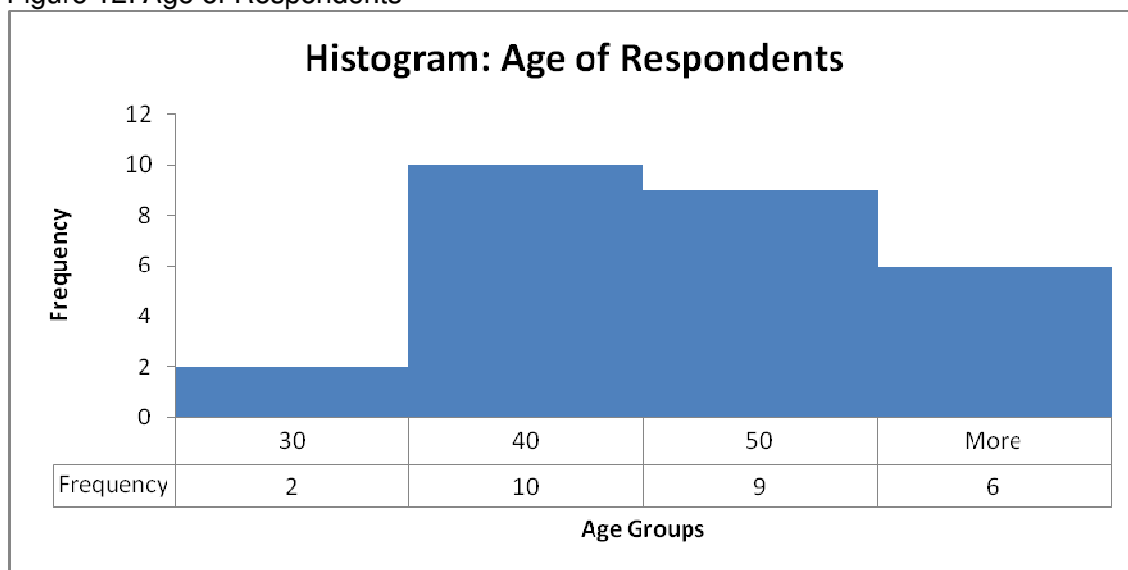
The gender profile of the respondents was skewed in favour of males, as shown in Table 9; this is also due to the structure of the population. On the information that is publicly available, of the 10 political and administrative heads of district municipalities, only one person there is a female. This situation may change in the future.

Table 9: Respondents by Gender

Gender	Total	Percentage
Female	7	25.9%
Male	20	74.1%
Grand Total	**27**	**100%**

Presentation of Survey Results

Section A of the questionnaire was aimed at determining if the selected sample had a vision, awareness and an understanding of the information society and development within the context of the Province. This also included their awareness of the information society related projects within the province.

In presenting the results, the response to each item in the questionnaire is presented in terms of a frequency table as well as the summarized comments of the respondents in relation to the item where necessary.

The frequency table for responses to the question on whether they had heard of the concept of the information society prior to receiving the questionnaire is presented hereunder. As indicated in Table 10, 92.6% (25 out of 27) of the respondents had heard of the information society.

Table 10: Awareness of the Information Society

	N	Percent	Valid Percent	Cumulative Percent
No	1	3.7037	3.84615	3.84615
Yes	25	92.59259	96.15385	100
Valid Total	26	96.2963	100	
Missing	1	3.7037		
Total	27	100		

Prior to receiving the questionnaire, 92.6% (25 out of 27) of the respondents had considered the use of ICT to enhance social development. The frequency table for the response to the question is in Table 11 below.

Table 11: Prior Consideration of Use of ICT for Social Development

	N	Percent	Valid Percent	Cumulative Percent
No	2	7.40741	7.40741	7.40741
Yes	25	92.59259	92.59259	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

Frequencies for responses on whether Limpopo should strive to become an information society as outlined in Table 12 below indicate that all respondents believe that Limpopo should indeed strive to become one.

Table 12: Limpopo Province Becoming an Information Society

	N	Percent	Valid Percent	Cumulative Percent
Yes	27	100	100	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

As shown below not all respondents were involved in the development of Integrated Development Plans (IDPs) for municipalities. Table 13 records that, of the 27 respondents, 59.3% (16 out of 27) reported that they were significantly involved.

Table 13: Participation in the Development of IDPs

	N	Percent	Valid Percent	Cumulative Percent
Marginally	6	22.22222	22.22222	22.22222
Not at all	5	18.51852	18.51852	40.74074
Significantly	16	59.25926	59.25926	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

In the same vein, the frequency table, Table 14 below indicates that 44.4% (12 out of 27) were significantly involved in the development of the Provincial Growth and Development Strategy of the province.

Table 14: Participation in the Development of the PGDS

	N	Percent	Valid Percent	Cumulative Percent
Marginally	10	37.03704	37.03704	37.03704
Not at all	5	18.51852	18.51852	55.55556
Significantly	12	44.44444	44.44444	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

According to Table 15 below 92.5% (25 out of 27) of the respondents were either marginally or extensively familiar with the IDP.

Table 15: Familiarity with IDP

	N	Percent	Valid Percent	Cumulative Percent
Extensively	14	51.85185	51.85185	51.85185
Marginally	11	40.74074	40.74074	92.59259
Not at all	2	7.40741	7.40741	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

As shown in Table 16 below, only one respondent, representing 3.7% of the sample, was not at all familiar with the PGDS of the Province. 70.4% (19 out of 27) of the respondents regarded themselves as being extensively familiar with the Provincial Growth and Development Strategy.

Table 16: Familiarity with PGDS

	N	Percent	Valid Percent	Cumulative Percent
Extensively	19	70.37037	70.37037	70.37037
Marginally	7	25.92593	25.92593	96.2963
Not at all	1	3.7037	3.7037	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

Whereas four respondents were not able to identify any goal or did not respond to the item on developmental goals in the questionnaire, 74.1% (20 out of 27) identified five such goals for their province or district as indicated by Table 17 below.

Table 17: Number of Developmental Goals Identified

	N	Percent	Valid Percent	Cumulative Percent
0	4	14.81481	14.81481	14.81481
1	1	3.7037	3.7037	18.51852
3	1	3.7037	3.7037	22.22222
4	1	3.7037	3.7037	25.92593
5	20	74.07407	74.07407	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

To extract more meaning out of the goals identified by the respondents a further analysis was done to determine what, in the views of the respondents, were the developmental goals of the Limpopo Province and consequently which ICT could contribute to their achievement. The outcome of the analysis is captured in Table 18 which was constructed without deciphering what the respondents meant by the goals identified. If a goal specified by a respondent referred to

more than one of the categories indicated below, all the referred categories were counted. Although some respondents differentiated between certain goals in a rural or urban setting for the purpose of this analysis all were treated as one goal. For example, rural infrastructure development and urban infrastructure development would be treated as infrastructure development.

The goals that were referred to by the respondents with words such as provision of housing, water, electricity, and sanitation have been grouped under a single goal of "basic services" in the frequency table. All the goals of service delivery relate to the effectiveness and efficiency through which government delivers all the services it is supposed to render and were thus grouped with the goal of institutional efficiency and effectiveness.

Table 18: Frequency Table for Identified Goals

Goals Identified	Frequency	Percentage
Employment Creation	14	12.3%
Education & Skills Development	13	11.4%
Grow the Economy	12	10.5%
Basic Services	10	8.8%
Infrastructure Development	8	7.0%
Health Services	7	6.1%
Institutional Efficiency & Effectiveness	7	6.1%
Crime, Fraud, & Corruption	6	5.3%
Regional Integration	5	4.4%
Rural Development	5	4.4%
Enterprise & SMME Development	4	3.5%
Roads & Transport	4	3.5%
Poverty Reduction	3	2.6%
Food Security	3	2.6%
Land Reform	3	2.6%
Social Development	3	2.6%
Priorities (for example, BEE, HIV/AIDS)	2	1.8%
ICT/Tech deployment & Broadband	2	1.8%
Industrial Development	2	1.8%
Improve Quality of Life	1	0.9%
TOTAL	**114**	**100%**

Table 19 below summarizes the responses to the question regarding whether the respondents are of the view that ICTs could contribute to the achievement of the development goals.

Table 19: Contribution of ICTs to Developmental Goals

	N	Percent	Valid Percent	Cumulative Percent
Marginally	1	3.7037	3.7037	3.7037
Significantly	26	96.2963	96.2963	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

Of the 12 respondents who provided some comments in relation to the view that ICT could contribute to the achievement of the development goals the majority (41.7% or five respondents) felt that ICT does improve the efficiency of government, and some even commented on the efficiency that ICTs contribute to the improvement of individual performance. The views as expressed by the respondents and summarized through the content analysis process are outlined in Figure 13.

Figure 13: ICTs Contribution to Achievement of Development Goals

91
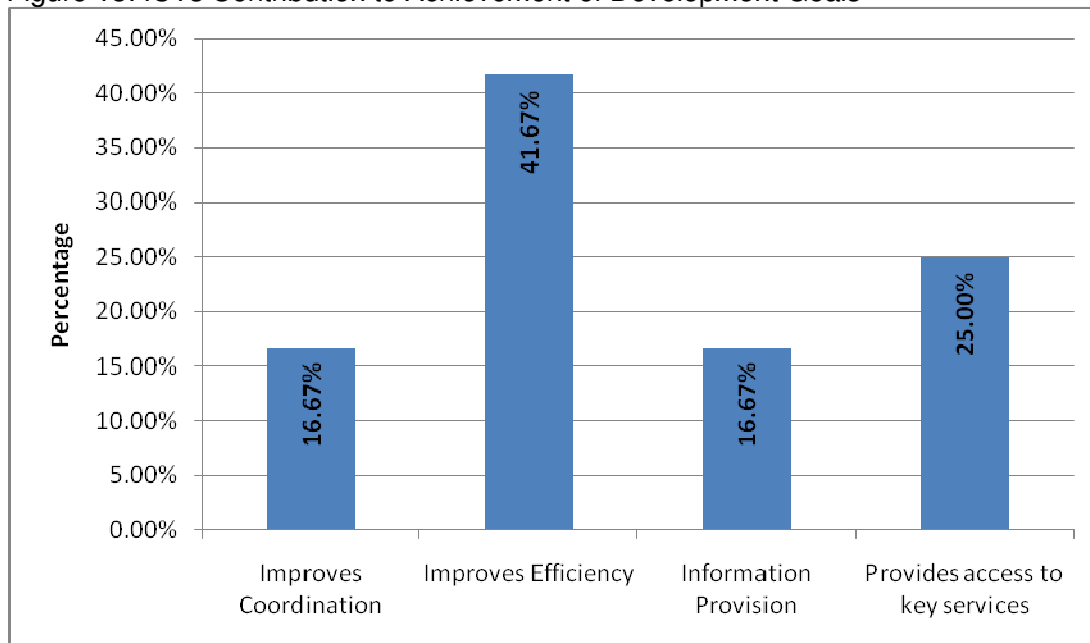
Table 20 below indicates that 59.3% (16 out of 27) of the respondents are of the view that the current government strategies and plans for ensuring that Limpopo Province becomes competitive and economically viable, will marginally succeed.

Table 20: Perception of Success of Current Strategies and Plans

	N	Percent	Valid Percent	Cumulative Percent
Marginally	16	59.25926	59.25926	59.25926
No response	1	3.7037	3.7037	62.96296
Significantly	10	37.03704	37.03704	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

The issues raised by the respondents in relation to the chances of Limpopo being competitive and economically viable are summarized in Figure 14. Of the 27 respondents, the 15 who responded raised five issues and each of the respondents raised one issue. The key issues raised related to collaboration and engagement of stakeholders as well as making a greater effort to achieve what is required. Most of these comments support the response above that the province will achieve marginal success.

In supporting their view that the success of the information society is dependent on increased effort and commitment a respondent stated that "If the plans are going to be implemented with vigour, then the Province can become competitive and viable." Another respondent supporting the view that there needs to be more cooperation and collaboration stated that "There is no central planning and a lot of duplication. Projects end up being just white elephants; everyone does their own thing for personal glory."

Figure 14: Perception on Competitiveness & Economic Viability
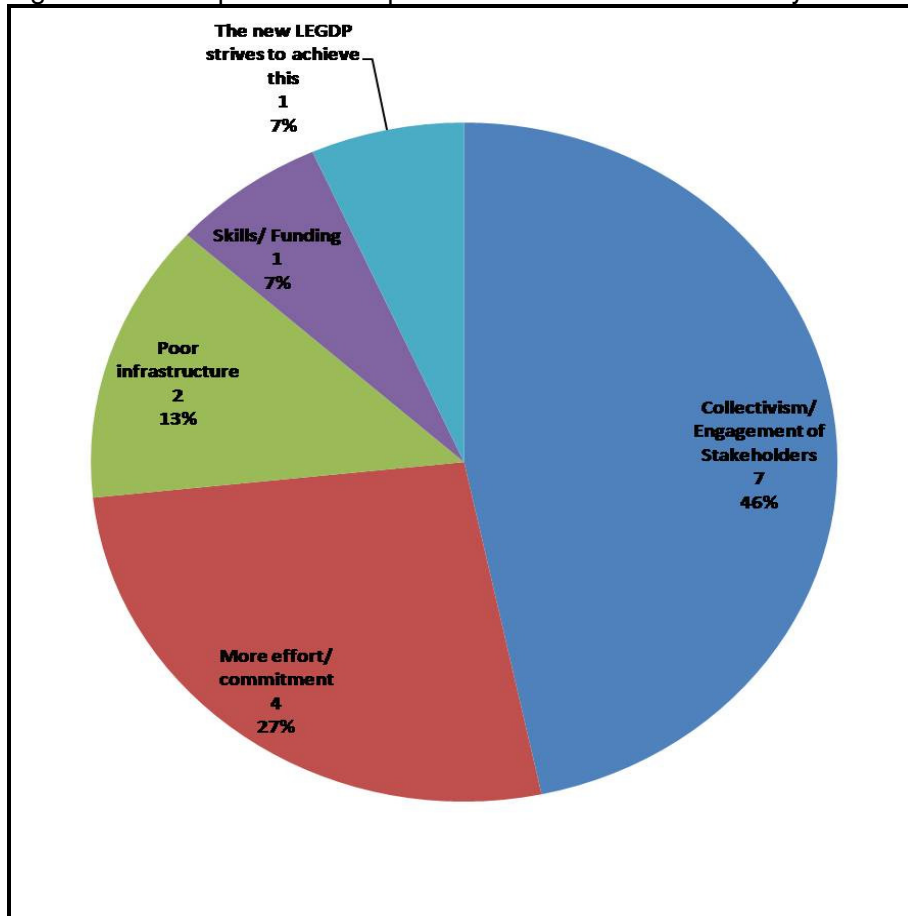
When asked to list the project in the municipality, district, or province which they perceive to be contributing to the information society the respondents listed the projects which are summarized in Figure 15 below. The summary has been grouped to simplify analysis. The groupings of the projects are clarified in Table 21 below.

Table 21: Summary of Projects Identified by Respondents

Project Group	Explanation
Proj_INSPIRE	This refers to the project funded by the Finnish Government and aimed at developing an information society strategy as well some strategy induced initiatives. Projects grouped here include the Limpopo Living Lab as well as the Limpopo ICT Institute.
Proj_Mogalakwena Icommunity	Whilst this project has now been subsumed into Project INSPIRE it is listed separately because it has its own history and background as discussed in Chapter 2.
Proj_Access	This refers to all projects excluding INSPIRE and the Mogalakwena Icommunity which deal with improving and extending access to ICT within the community.
Proj_Literacy (In Dept)	This refers to all projects excluding INSPIRE and the Mogalakwena Icommunity which are aimed at improving ICT literacy within government.
Proj_Literacy (In Community)	This refers to all projects excluding INSPIRE and the Mogalakwena Icommunity which are aimed at improving ICT literacy in the community.
Proj_Non-ICT	This refers to all projects excluding INSPIRE and the Mogalakwena Icommunity which are not directly aimed at ICT but which the respondents believe could contribute to building an information society.
Proj_Infrastructure (Govt)	This refers to all projects excluding INSPIRE and the Mogalakwena Icommunity which are aimed at improving ICT infrastructure within government.
Proj_Infrastructure (Community)	This refers to all projects excluding INSPIRE and the Mogalakwena Icommunity which are aimed at improving ICT infrastructure in the community.
Proj_ICT (Govt)	This refers to all other ICT projects that are implemented within government and are not included above.

Response to this item was very low; seven respondents did not respond to the question and 10 only listed one project whereas only three listed five projects. The response to this item on the questionnaire is outlined in full in frequency Table 22 below. The categories, 0, 1, 2, 4, and 5 relate to the number of projects listed by the respondent.

Table 22: Number of Information Society Projects Identified

	N	Percent	Valid Percent	Cumulative Percent
0	7	25.92593	25.92593	25.92593
1	10	37.03704	37.03704	62.96296
2	5	18.51852	18.51852	81.48148
4	2	7.40741	7.40741	88.88889
5	3	11.11111	11.11111	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

As reported through Figure 15, of those that responded, 22.2% of the respondents identified the INSPIRE project as a project that would contribute to the information society. Another 22.2% identified other projects that would enhance access to ICT. For the sample chosen, the level of awareness of different information society related projects was low.

Figure 15: Projects Identified by Respondents
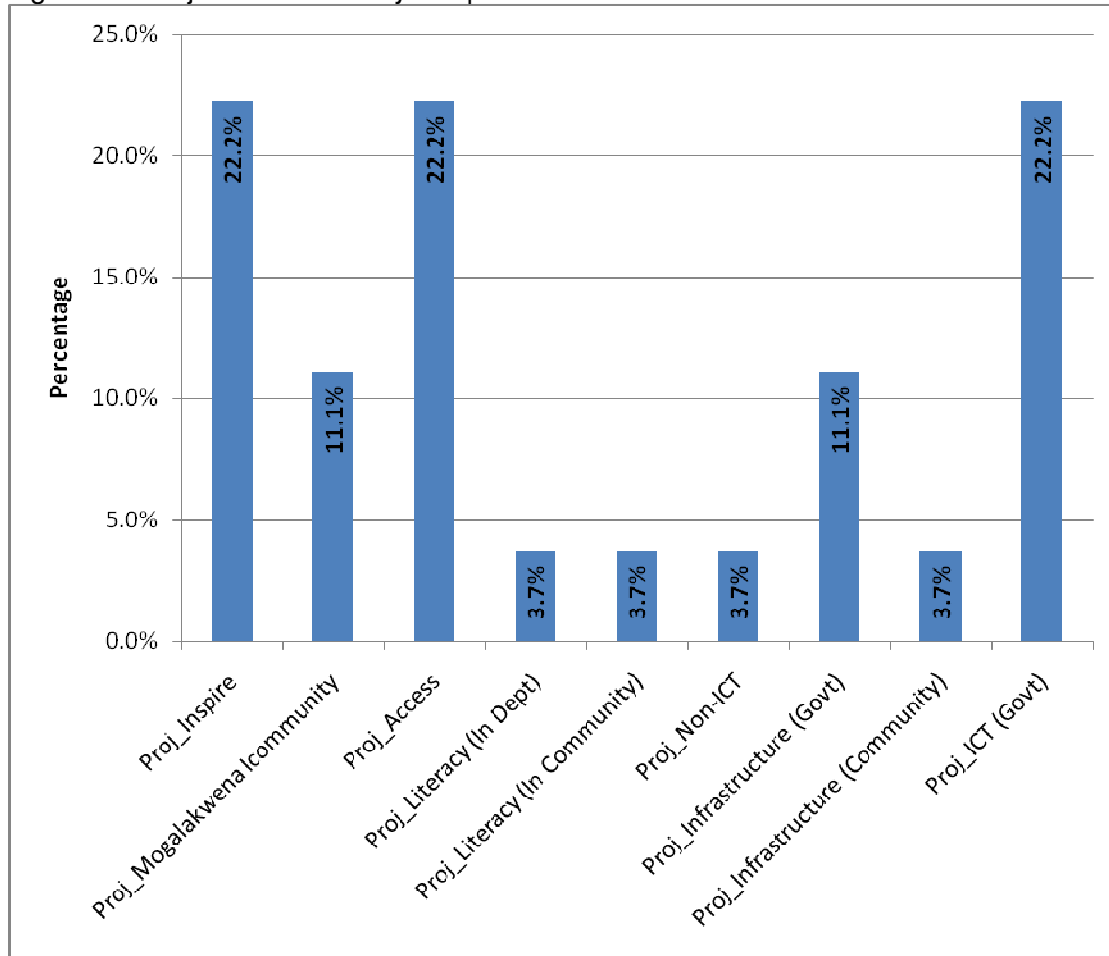
The next set of responses relates to section B of the questionnaire. This section focuses on the assessment of the respondents of the readiness of the province to become an information society. In presenting the results for this section, the response to each item in the questionnaire is presented in terms of a frequency table as well as the summarized comments of the respondents in relation to the item.

Table 23 outlines the respondent's views on the level of access to fixed line telecommunications infrastructure. Seventeen (62.9%) respondents viewed the level of access as being poor (15) or very poor (2). Only nine respondents, representing 33.3% of the total respondent perceived the level of access as being good (8) or very good (1).

Table 23: Level of Access to Fixed Line Communications Infrastructure

	N	Percent	Valid Percent	Cumulative Percent
Good	8	29.62963	29.62963	29.62963
No Response	1	3.7037	3.7037	33.33333
Poor	15	55.55556	55.55556	88.88889
Very Good	1	3.7037	3.7037	92.59259
Very Poor	2	7.40741	7.40741	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

Eight respondents commented on this item and of these five commented on the effect of mobile telephone expansion and access, three highlighted the urban-rural divide in relation to the provision of fixed line where the urban areas were being advantaged, and one who also commented about the urban-rural divide also raised a concern regarding the theft of copper cables indicating that "cable theft leave most households without access."

Frequencies for responses to the question of the level of access to mobile (for example, cell phone) telecommunications infrastructure are presented in Table 24 below. Twenty six (96.3%) respondents indicated that the level of access to mobile communication infrastructure was either good (16) or very good (10).

Table 24: Level of Access to Mobile Communications Infrastructure

	N	Percent	Valid Percent	Cumulative Percent
Good	16	59.25926	59.25926	59.25926
Poor	1	3.7037	3.7037	62.96296
Very Good	10	37.03704	37.03704	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

Of the five respondents that gave comments in relation to the above item in the questionnaire, four (80%) reiterated the accessibility of mobile telephony. Despite this unanimity by the respondents on the "Good" to "Very Good" access to mobile telecommunications infrastructure one respondent commented that "There is no network infrastructure for Internet in most of the villages and townships, in particular rural areas."

Table 25 provides the frequencies for responses to the question on the level of access to Internet. The majority responded that the level of access to the Internet is poor (12 representing 44.4 % of the sample), the second largest group of respondents indicated that the level of access to the Internet was good (seven respondents constituting 25.9% of the sample). If the respondent who did not provide a response for this item is excluded, there is no significant difference between the very good and good responses (these are 12 representing 46.2%) and the poor and very poor responses (which are 14 representing 53.8%).

Table 25: Level of Access to Internet

	N	Percent	Valid Percent	Cumulative Percent
Good	7	25.92593	25.92593	25.92593
No Response	1	3.7037	3.7037	29.62963
Poor	12	44.44444	44.44444	74.07407
Very Good	5	18.51852	18.51852	92.59259
Very Poor	2	7.40741	7.40741	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

Of the six comments that were made by the respondents, three revolved around the inequity of access to the Internet, with two of the three comments emphasizing that access is for the privileged and for government. Two comments referred to Internet access in the rural areas being mostly through wireless technologies. The final comment pointed to the effect of Facebook[11] on promoting the Internet to the youth.

Frequencies for responses to the question on the cost of access to the Internet are outlined in Table 26. Twenty five (92.6%) respondents stated that the cost of access to the Internet was either high (19 respondents constituting 70.4% of the sample) or very high (six respondents comprising 22.2% of the sample). Only two (7.4%) respondents were of the view that the cost of access was affordable.

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[11] Facebook is a social networking website that is utilised by predominantly young people to network with each other. The website is located at www.facebook.com.

Table 26: Cost of Access to Internet

	N	Percent	Valid Percent	Cumulative Percent
Affordable	2	7.40741	7.40741	7.40741
High	19	70.37037	70.37037	77.77778
Very High	6	22.22222	22.22222	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

The comments made by three respondents to this question were not duplicated and thus each comment will be mentioned separately. The first respondent (who had rated the cost of Internet access to be high) stated that compared to the cost of transport to the various places where services are rendered (for example, town) the cost of Internet would not be high. The second respondent suggested that if members of the community who can afford cell phones were technologically literate, they could access Internet services with ease. The third respondent was of the opinion that the Internet was more costly compared to cell phones and that the SMS facility was almost replacing Internet. The latter comment suggests that the respondent was of the view that if the population had access to SMS, there would be no need for them to have Internet.

Table 27 outlines the frequencies for responses to the question of the availability of hardware and software services. Seventeen (63%) of the respondents were of the view that the availability of hardware and software services were very good (3) or good (14), with the majority being of the view that these services were good (51%).

Table 27: Availability of Hardware and Software Services

	N	Percent	Valid Percent	Cumulative Percent
Good	14	51.85185	51.85185	51.85185
Poor	9	33.33333	33.33333	85.18519
Very Good	3	11.11111	11.11111	96.2963
Very Poor	1	3.7037	3.7037	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

Three respondents commented on the availability of hardware and software services. One responded that they were not aware of hardware and software service providers within their district, the other that, for rural households, the number of service providers is limited, and the last respondent commented that the provincial administration is consuming a lot of hardware and software services.

Frequencies for responses to the question on the level of service and support for telecommunications are presented in Table 28. The majority of respondents perceive the level of service and support for telecommunication to be good (44.4%), the combined number of those who regard these services to be good and very good is 14 (53.9%) and those who view the level of service and support for telecommunications to be poor and very poor is 12 (46.2%). These figures exclude the one person who did not respond to this item.

Table 28: Level of Service and Support for Telecommunications

	N	Percent	Valid Percent	Cumulative Percent
Good	12	44.44444	44.44444	44.44444
No Response	1	3.7037	3.7037	48.14815
Poor	7	25.92593	25.92593	74.07407
Very Good	2	7.40741	7.40741	81.48148
Very Poor	5	18.51852	18.51852	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

Two comments were made in response to the item on the level of service and support for telecommunications. The first was the reason as to why the service seemed to be very good was the fact that there was little household demand for telephone services. A second comment (from a respondent who supported the view that the service is very poor) related to the existing infrastructure being old and that there was a list of people who had requested telephone services and had filled forms which were "collected five years ago" and had still not received any feedback.

Table 29 outlines the frequencies for responses to the question on access of schools to ICTs. What is noteworthy is the fact that 25 (92.6%) of the respondents were in agreement that access of schools to ICTs was poor whereas the remaining two (7.4%) were of the view that it was very poor.

Table 29: Access of Schools to ICTs

	N	Percent	Valid Percent	Cumulative Percent
Poor	25	92.59259	92.59259	92.59259
Very Poor	2	7.40741	7.40741	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

Of the six comments made in relation to the access of schools to ICT, three emphasised the impact of being rural on the lack of access of schools to ICT. The other comments reiterated challenges related to lack of skilled supervisory staff and the non-availability of maintenance support.

Frequencies for responses to the question on the level of enhancing education with ICTs are presented in Table 30. Twenty two (81.5%) respondents indicated that the level of enhancing education with ICTs was poor; in addition two (7.4%) respondents indicated that this was very poor. Three (11.1%) respondents indicated that the level of enhancing education with ICTs was good.

Table 30: Level of Enhancing Education with ICTs

	N	Percent	Valid Percent	Cumulative Percent
Good	3	11.11111	11.11111	11.11111
Poor	22	81.48148	81.48148	92.59259
Very Poor	2	7.40741	7.40741	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

The key point raised by four (57.1%) of the seven respondents was that education cannot be enhanced with ICT when many educators do not have the requisite ICT skills. Of the three remaining respondents, one commented on the impact of theft of computers at schools, the other noted the challenge of lack of access to the Internet in rural schools, whereas the last one stated that there was a need for donated PCs for learners and schools.

Table 31 presents the frequencies for responses to the question on the level of developing the ICT workforce. The views of the respondents are almost equally split between poor/very poor and good with 13 (48.1%) responses for the former and 14 (51.9%) for the latter.

Table 31: Level of Developing the ICT Workforce

	N	Percent	Valid Percent	Cumulative Percent
Good	14	51.85185	51.85185	51.85185
Poor	12	44.44444	44.44444	96.2963
Very Poor	1	3.7037	3.7037	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

Of the six respondents that commented, four stated that the ICT workforce leaves their communities to go to urban centres or to outside the province or they have to undertake training outside the Province. One respondent stated that there are no opportunities for training in ICT whereas another simply mentioned that training facilities are available.

The frequencies for responses to the question on the number of people and organisations online are outlined in Table 32. Nineteen (70.4%) of the respondents are of the view that people and organizations that are online are between moderate (51.9%) to high (18.5%). Six (22.2%) responded that the number of organizations and people online is low whereas two (7.4%) are of the view that the number is very low.

Table 32: Number of People and Organisations Online

	N	Percent	Valid Percent	Cumulative Percent
High	5	18.51852	18.51852	18.51852
Low	6	22.22222	22.22222	40.74074
Moderate	14	51.85185	51.85185	92.59259
Very Low	2	7.40741	7.40741	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

All the six comments made in relation to the number of people and organizations online highlighted the lack of access to the Internet or the relevant infrastructure. A typical response is that organizations and people who are online are "mainly in government and business organizations. Very few individual people have access."

The frequencies outlined in Table 33 represent the responses to the question on the level of locally relevant content. Eighteen (66.7%) respondents are of the view that the level of locally relevant content was either low (40.7%) or very low (25.9%) whereas nine (33.3%) perceived it to be moderate.

Table 33: Level of Locally Relevant Content

	N	Percent	Valid Percent	Cumulative Percent
Low	11	40.74074	40.74074	40.74074
Moderate	9	33.33333	33.33333	74.07407
Very Low	7	25.92593	25.92593	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

All six comments on locally relevant content related to inadequate information on government websites and information not being regularly updated.

Frequencies for responses to the question on the degree to which members of the community utilise ICTs in everyday life are presented in Table 34. Twenty (74.1%) respondents replied that the degree to which members of the community utilise ICTs in everyday life is poor (59.3%) or very poor (14.8%).

Table 34: Degree of Utilisation of ICTs in Everyday Life by Community

	N	Percent	Valid Percent	Cumulative Percent
Good	5	18.51852	18.51852	18.51852
Poor	16	59.25926	59.25926	77.77778
Very Good	2	7.40741	7.40741	85.18519
Very Poor	4	14.81481	14.81481	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

Of the five comments made, three related to the lack of access to ICTs and two, the lack of ICT knowledge.

Table 35 presents the frequencies for responses to the question on the degree to which members of the community utilise ICTs in their workplace. There is an almost equal number of respondents stating that the degree to which members of the community utilise ICTs in their workplace is poor and good being ten (37%) and nine (33.3%) respectively.

Table 35: Degree of Utilisation of ICTs in Workplace by Community

	N	Percent	Valid Percent	Cumulative Percent
Good	9	33.33333	33.33333	33.33333
Poor	10	37.03704	37.03704	70.37037
Very Good	6	22.22222	22.22222	92.59259
Very Poor	2	7.40741	7.40741	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

For this item five persons responded and three highlighted the fact that government is providing access to ICTs for its employees who are utilizing it in the workplace. However, a respondent suggested that this access is mostly benefiting senior management. One respondent emphasised the fact that most people only have access to ICT at their workplace. The other hinted that despite the fact that there is poor utilisation of ICTs at the workplace, one can access the Internet through one's cell phone.

Frequencies for responses to the question on the number of ICT employment opportunities are presented in Table 36. Sixteen (59.3%) respondents were of the opinion that the number of ICT employment opportunities was low.

Table 36: Number of ICT Employment Opportunities

	N	Percent	Valid Percent	Cumulative Percent
High	2	7.40741	7.40741	7.40741
Low	16	59.25926	59.25926	66.66667
Moderate	6	22.22222	22.22222	88.88889
No Response	1	3.7037	3.7037	92.59259
Very Low	2	7.40741	7.40741	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

Except for emphasizing the lack of employment opportunities for ICT, the four comments that were received stated that government does have a few positions for ICT skilled personnel. An unexpected comment made by a respondent was that "There is a small ICT industry in the province and this among others is limited by the lack of access to government tenders which are handled from SITA[12] and mostly satisfied from Gauteng based companies. Without tender activity at provincial level the growth is stifled."

Responses to the question on the level of business-to-consumer (B2C) electronic commerce are presented in Table 37. The respondents who rated the level of B2C electronic commerce low were 17 (63%) and those who rated it moderate were five (18.5%).

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[12] SITA refers to the State Information Technology Agency which is a state-owned company established to provide ICT related services to government.

Table 37: Level of Business-to-Consumer Electronic Commerce

	N	Percent	Valid Percent	Cumulative Percent
High	2	7.40741	7.40741	7.40741
Low	17	62.96296	62.96296	70.37037
Moderate	5	18.51852	18.51852	88.88889
No Response	1	3.7037	3.7037	92.59259
Very Low	2	7.40741	7.40741	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

Four respondents commented on the level of B2C electronic commerce. Two respondents emphasised the fact that that there is little Business to Consumer electronic commence except for big businesses. One respondent stated that private companies did utilise ICT to conduct business by, for example, marketing, whereas a second respondent indicated that he/she was not familiar with businesses within the Province that utilised the ICTs for their business.

Frequencies for responses to the question on level of business-to-business (B2B) electronic commerce are presented in Table 38. Fifteen (55.6%) respondents were of the view that B2B electronic commerce was low and eight (29.6%) stated that it was moderate.

Table 38: Level of Business-to-Business Electronic Commerce

	N	Percent	Valid Percent	Cumulative Percent
Low	15	55.55556	55.55556	55.55556
Moderate	8	29.62963	29.62963	85.18519
No Response	3	11.11111	11.11111	96.2963
Very Low	1	3.7037	3.7037	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

There were three comments related to this item. One respondent stated that government pays its suppliers electronically. Another comment stated that the bigger companies that utilised ICT had their headquarters outside the Province and that those SMMEs that were based in the province made minimum usage of ICT. A respondent who rated this item moderate stated that they would not know much on the issue.

The frequencies presented in Table 39 are for responses to the question on the level of e-government. Sixteen (59.1%) respondents were of the view that the level of e-government was low followed by eight (29.6%) respondents who were of the view that it was moderate.

Table 39: Level of e-Government

	N	Percent	Valid Percent	Cumulative Percent
High	1	3.7037	3.7037	3.7037
Low	16	59.25926	59.25926	62.96296
Moderate	8	29.62963	29.62963	92.59259
No Response	2	7.40741	7.40741	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

Three of the four comments on e-government emphasised the fact that government institutions in the province are not exploiting ICT sufficiently. One of these three also added that there were competing priorities and that the province was mostly rural. A view by the fourth respondent was that e-government services are largely focused on providing information and government forms and policies as "there are very few transaction-based e-government services."

Table 40 outlines the responses to the question of whether Limpopo Province is in the process of building an information society. Nineteen (70.4%) respondents were of the view that it was, and seven (25.9%) had the opposite view.

Table 40: The Process of Building an Information Society in Limpopo

	N	Percent	Valid Percent	Cumulative Percent
No	7	25.92593	25.92593	25.92593
No Response	1	3.7037	3.7037	29.62963
Yes	19	70.37037	70.37037	100
Valid Total	27	100	100	
Missing	0	0		
Total	27	100		

One of the items in the questionnaire that elicited a significant amount of comment was whether in the view of the respondents Limpopo Province was in the process of building an information society. Considering that there was one respondent who did not respond to this question, 50% (13) of the respondents to this item in the questionnaire commented. The results are summarized in Figure 16 below.

Most (38.5%) of the comments stated that Limpopo was building an information society as there were initiatives such as the INSPIRE project being undertaken. Another view of two (15.4%) respondents was that Limpopo would not succeed as there was still too much to do. The remaining four respondents each raised the following issues; the need for improved ICT infrastructure; more acceptance of ICT; breaking the resistance to ICT; as well as the need to fast track the efforts to build the information society.

Figure 16: Comments on Limpopo Building an Information Society
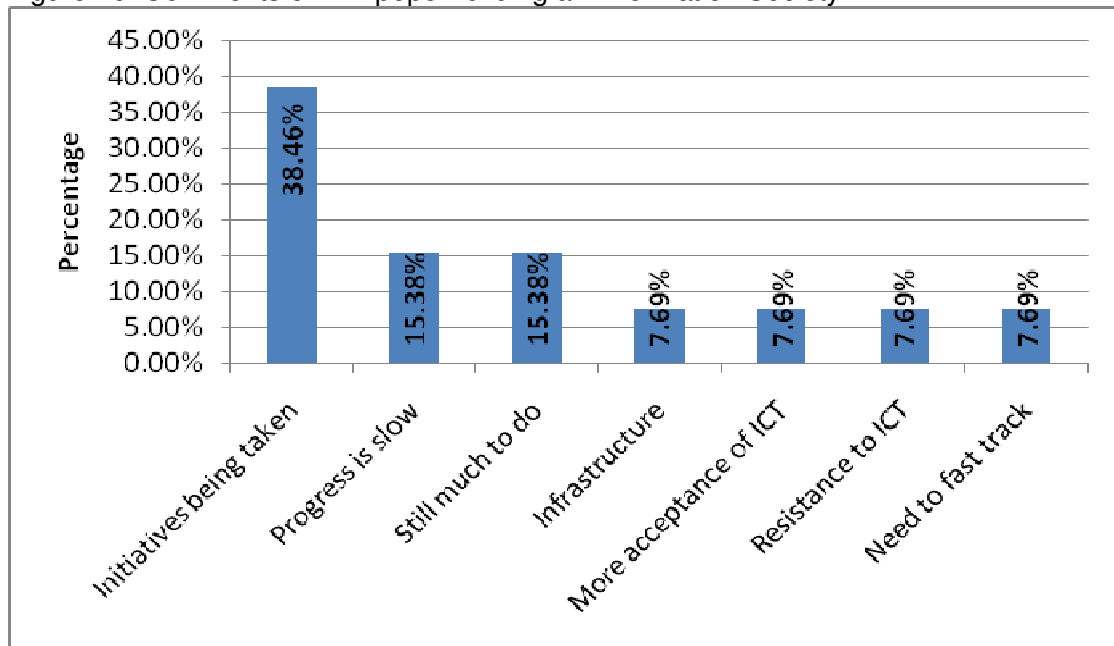
Item 30 in the questionnaire was an open question for the respondents to identify what in their view was missing in the approach to building an information society in the Province. This item received 25 responses and these were categorized into five themes. The five themes that were identified to be missing in the approach to building the information society in the province were commitment and political will (6), stakeholder engagement/communication/coordination (10), a better plan (6), funding (2), and ICT infrastructure (5). These themes and their frequencies are shown in Figure 17 below.

Figure 17: Missing in the Approach to Building the Information Society
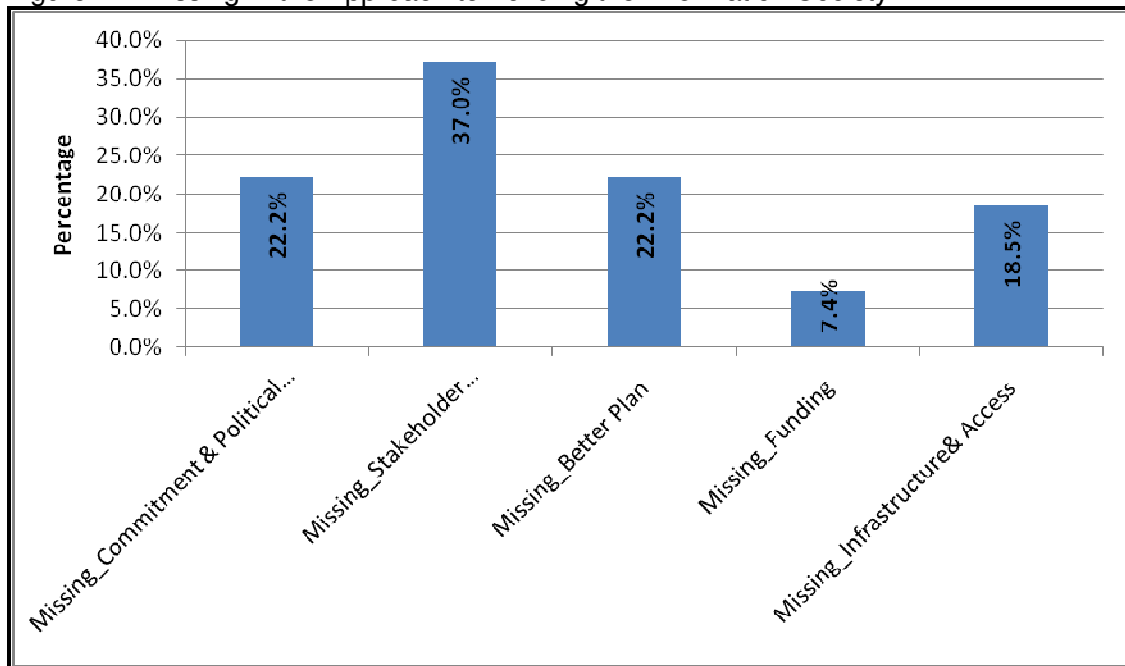
Item 31 in the questionnaire asked respondents to identify the most important challenges that they considered to be facing Limpopo in becoming an information society. The responses have been grouped according to the themes that emerged from the content analysis. These are outlined in Figure 18 below. Of the 27 respondents only three did not respond to this item, and from the responses, seven themes were identified. Some respondents identified more than one challenge.

The challenges that were identified most frequently related to knowledge and skills as well as ICT infrastructure which were both identified by seven (25.9%) respondents. Although the nature of the challenge related to knowledge and skills was not spelled out by the respondents, the general context of the responses suggested that this referred to the generalised lack of knowledge and

skills with the respondents indicating that this had an impact on the implementation of the information society.

The next set of challenges identified by the five (18.5%) respondents was the lack of affordable access to ICTs and the lack of leadership and vision for building the information society. Although grouped separately to the lack of ICT infrastructure, the lack of affordable access to ICTs is related to the latter. Four (14.8%) respondents identified the challenge related to funding of information society initiatives. The coordination and consultation required to implement the information society development programme, as well as the prioritisations of other objectives were both identified by three (11.1%) respondents. A surprising result was the fact that only one (3.7%) respondent identified ICT literacy as an important challenge for Limpopo Province in building the information society.

The issues raised in response to both item 30 and item 31 are those which if adequately addressed, the respondents believe would improve the chances of Limpopo Province being an information society.

Figure 18: Challenges to Building an Information Society
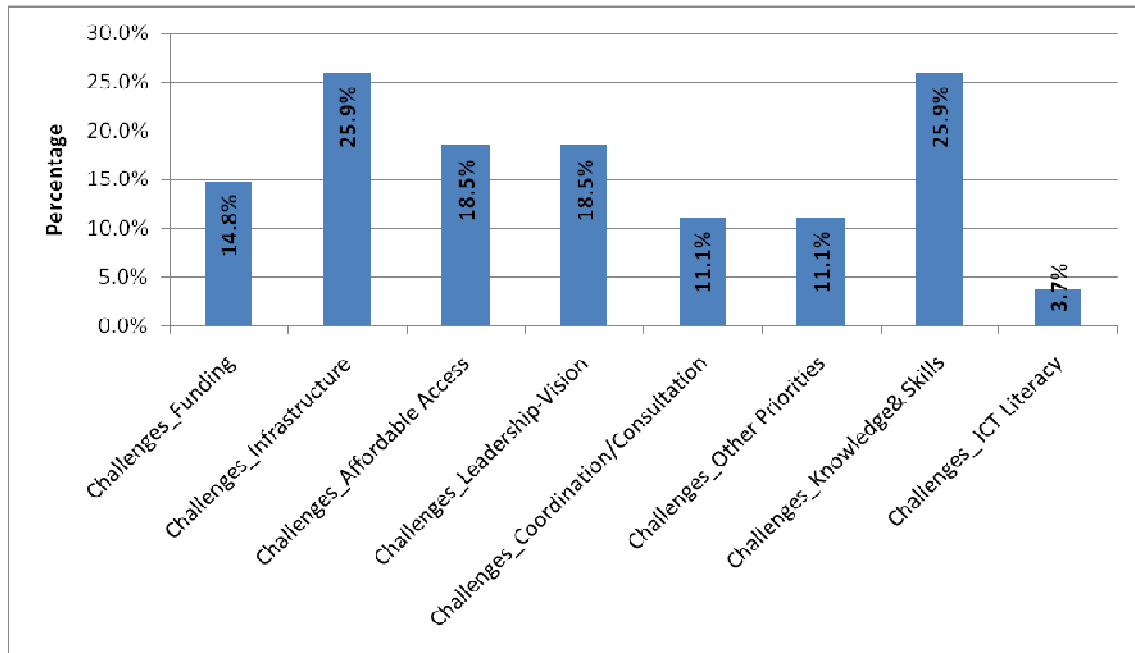
The outcome of the content analysis of the Annual Performance Plans and the Integrated Development Plans of the five District Municipalities in the province is reported in Table 41. The output of the analysis indicates the number of projects or initiatives against the areas identified in the selected Harvard Guide as the key areas that indicate the readiness of a community to be part of the information society. These are presented in the rows. The columns in Table 41 are the provincial departments as well as the district municipalities that were included in the research. Each number in the table represents the number of projects or programmes that a specific organisation (that is, a provincial department or district municipality) has specified in their Annual Performance Plan (for the provincial department) or their Integrated Development Plan (for the district municipality). The information presented is that all the departments and municipality have at least one project that is related to e-Government; in fact, the Department of Health as well as the Office of the Premier have identified two projects in this regard. Projects related to e-Government constitute 19 (67.9%) of

all the 28 projects mentioned by the departments. Six (21.4%) of all the projects identified are in the Office of the Premier. This is double the number of projects listed for the institutions with the next highest number of projects in the Department of Agriculture and the Department of Education respectively. The Department of Health and that of Local Government and Housing both have two projects whereas all the other departments have one project listed. There are no identified projects in nine out of 16 (56.3%) e-readiness indicator categories selected from the Harvard Guide as the areas that indicate the readiness of a community to be part of the information society.

Table 41: Programmes/Projects in the Planning Documents[13]

E-readiness Indicator Categories	Agriculture	Economic Development	Education	Health	Local Govt & Housing	Public Works	Premier	Roads & Transport	Safety & Security	Social Development	Sport, Arts & Culture	Treasury	Capricorn DM	Mopani DM	Sekhukhune DM	Vhembe DM	Waterberg DM	*Total*
Information Infrastructure																		
Internet Availability							1				1							2
Internet Affordability																		
Hardware and Software																		
Service and Support																		
Schools' Access to ICTs																		
Enhancing Education with ICTs			1															1
Developing the ICT Workforce			1				1											2
People & Organizations Online	1						1											2
Locally Relevant Content	1																	1
ICTs in Everyday Life																		
ICTs in the Workplace																		
ICT Employment Opportunities							1											1
B2C Electronic Commerce																		
B2B Electronic Commerce																		
E-Government	1	1	1	2	1	1	2	1	1	1	1	1	1	1	1	1	1	19
Total	**3**	**1**	**3**	**2**	**1**	**1**	**6**	**1**	**1**	**1**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**28**

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[13] This table has been generated from the analysis of the documents that are separately listed in Annexure 2 to the dissertation (List of Provincial Annual Performance Plans and Municipal IDPs). The departments and district municipalities are all within the Limpopo Province. These documents are also included in the list of references to facilitate a full citation.

Chapter Summary

This chapter focussed on the research study results. It commenced with the profile of the sample that responded indicating that the ICT heads had the highest response rate followed by the administrative heads, and then the political heads. The chapter then continued to present the frequency tables and figures for the responses to the items in the survey questionnaire. This, together with the content analysis was used to provide the basis for the discussion and interpretation of results which constitutes Chapter 5.

Chapter 5: Discussion and Interpretation of Results

Introduction

This chapter discusses the results as presented in the previous chapter. The discussion as well as the interpretation is couched within the framework of the problem statement and the research question posed in Chapter One. The chapter is presented in line with the research questions as well as the themes as per the Harvard Readiness Guide.

The Readiness of Limpopo Province for the Information Society

This section outlines the readiness of the Limpopo Province for the information society, as per the first research question, through the analysis and discussion of the responses to the questionnaires as well as the documents analysed.

Vision and Understanding of the Information Society

Whilst the questionnaire did not ask questions that would determine if the respondents really understood what the information society was, it did ask them if

they were aware of the concept. Almost all the respondents reported that they were aware of what the information society is. As illustrated by the results only one respondent was not aware of the concept and 92.6% of the respondents stated that they were aware of the concept prior to their receiving the questionnaire. Furthermore, 25 (92.6%) of the respondents reported that they had considered the use of ICT to enhance social development before receiving the questionnaire. All the respondents, without an exception, believed that Limpopo Province should strive to become an information society. Considering the fact that 26 respondents (96.3%) believed that ICTs could significantly contribute to the achievement of the development goals of their province or municipality, and that the remaining respondent (3.7%) believed that ICTs could marginally contribute to the developmental goals, it could be concluded that the respondent's attitude toward the information society was very positive. In fact one could conclude that all the respondents perceived the information society as something that Limpopo Province should strive to achieve.

Considering the fact that IDPs are conducted at municipal level and the PGDS at the provincial level and that the respondents are at a leadership level is it not surprising that, less than 7% of the respondents were not familiar with the relevant IDP or PGDS. This confirms that the leaders in the sample were appropriately aware of what the developmental plans for the province are, and that their views regarding the implementation of the information society should, arguably, be informed ones.

The developmental goals identified by the respondents and reported in Table 18 are very much aligned to those specified in the Provincial Growth and Development Strategy as well as the priorities identified in the National

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Information Society and Development Plan (See Chapter 2 and Table 4). This then means that in relation to developmental goals that the information society is supposed to support, there is a common perspective.

In order to determine the level of readiness for the network society this report next considers the different aspects that comprise readiness for the information society as perceived by the respondents to the questionnaire.

Network Access

The two items in the questionnaire that deal directly with access to telecommunications infrastructure are items 13 and 14. Item 13 enquired about access to fixed line infrastructure and 14 about mobile telephone infrastructure. There seems to be consensus by the respondents that although access to fixed line is poor (55.6%) or very poor (7.4%) access to mobile is good (59.3%) or very good (37%). There is however a significant proportion (29.6%) of respondents who reported that access to fixed line is good. On the average it can be stated that the view of the respondents in relation to information infrastructure in the Limpopo province when plotted in terms of the Harvard framework would be between stages 2 and 3, that is the level of access is, on average, between poor and good (the tendency to consider network access to be good is influenced more by the level of mobile telephone access), with more respondents inclined to consider it poor.

Forty four point four percent of the respondents stated that access to the Internet in Limpopo is poor and 7.4% that it is very poor. 25.9% reported access to the Internet being good. This suggests that Limpopo is at stage 2 on this aspect.

In relation to the affordability of the Internet, the responses are indisputably skewed towards the costs being high (70.4%) to very high (22.2%) rating the province to be at stage 2.

Fifty one point nine percent of the respondents have rated the ICT service availability to be good whereas 33.3% have rated it poor. In line with the process of selecting the level of the province, it can be rated at stage 3.

Whereas the highest percentage (44.4%) of the respondents rated the level of telecommunication service to be good, the combination of those who reported the level of service to be poor (25.9%) and very poor (18.5%) add up to the same level, namely, 44.4%. On the basis that there is an additional 7.4% who have rated telecommunications service at "Very Good" it would be prudent to rate this aspect as good and thus at stage 3 of the Harvard framework. At face value, Figure 19 suggests that there is a relationship between the role of the respondent and the response to the item relating to access to the Internet. Analysing the figures, shows that the p-value at 0.11 is greater than 0.05 and thus the null hypothesis (that is, there is no relationship between role of the respondent and the response provided) should be accepted; however relationship between the role of the respondent and the response as indicated by Cramér's V at 0.489 appears to be strong. Figure 19 also shows that the nature of the relationship is

that, compared to the rest of the respondents, the political heads tend to rate the level of access "Good", whereas the other respondents tend to rate it "Poor".

Figure 19: Relationship between Role and Access to Internet

Role			Access_Internet					
			No Response	Poor	Very Poor	Good	Very Good	Total
Role	Political Head	Observed		1		5	1	7
		Expected	0.26	3.11	0.52	1.81	1.30	7.00
	Administrative Head	Observed		6	1		2	9
		Expected	0.33	4.00	0.67	2.33	1.67	9.00
	ICT Head	Observed	1	5	1	2	2	11
		Expected	0.41	4.89	0.81	2.85	2.04	11.00
Total		Observed	1	12	2	7	5	27
		Expected	1.00	12.00	2.00	7.00	5.00	27.00

12.93 chi-square
8 df
.1143 p-value

.489 Cramér's V

The responses of the respondents in relation to network access are summarised in Figure 20 below. This area represents a fundamental building block of the information society. If there is no network access, then the possibility of participating in the networked world or the information society does not exist (Readiness for the Networked World N.d.: 8). The results represented so far are skewed by the fact that there is the view that mobile access is good or very good whereas this form of access does not, as yet, lend itself to ease of Internet access and to other useful aspects related to the use of personal computers and fixed line access. To illustrate the point, it is not a common practice to connect a printer to a mobile phone and thus the actions that could be considered easy with a personal computer connected to a printer and a network do not become possible for someone with a mobile phone. The same is true with regards to fax communication unless the mobile user has advanced ICT skills. It is in the light of that reality that despite the fact that information infrastructure seems to be high there is a low level of Internet availability. Another possible explanation for this

low level of availability may simply be the cost factor – the cost of network access being very high.

Figure 20: Rating of Limpopo's Network Access
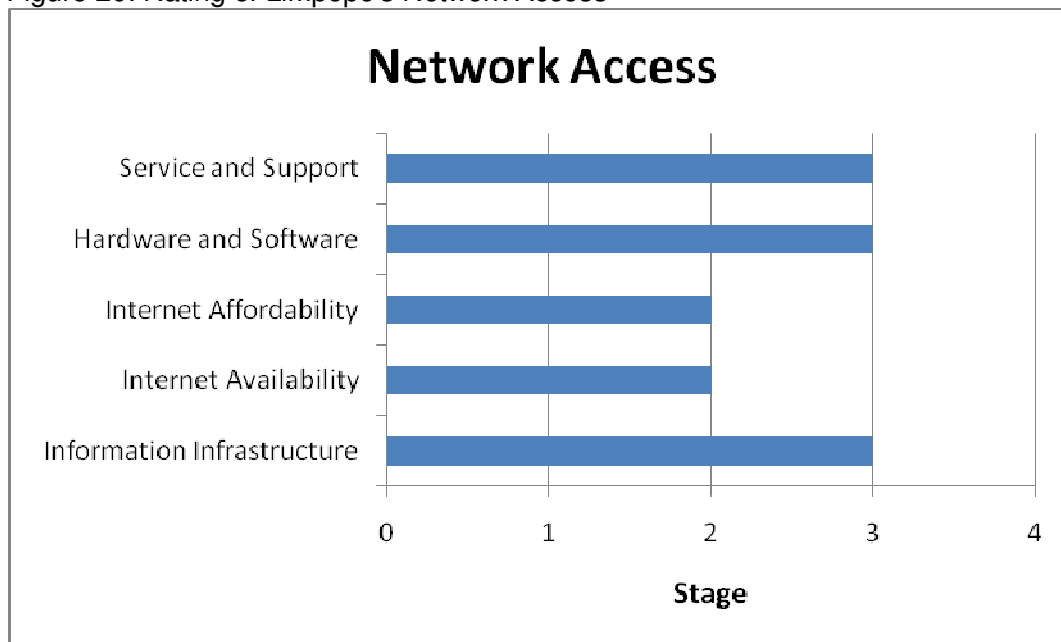
Additional comments by the respondents reiterate the observation that since mobile access has become ubiquitous in the province, the demand for fixed line has remained low. On the other hand, the respondents' views are that the level of internet availability is low, its cost is high, and there is a low level of locally relevant content. The researcher's personal communication with Molaku Petje (2011) reinforces the view that Internet availability is low and access costs are high due to the fact that there is poor telecommunications infrastructure and that the level of poverty within the community is high. In the same communication with the author, Petje (2011) stated that the living standards of most of the residents of Limpopo Province are such that they have to depend on social grants. The lack of Internet availability and Internet affordability may also be a

direct result of the fact that the literacy levels in the province are poor as reported in the Community Survey 2007.

Networked Learning

Ninety two point six percent of the respondents responded that schools' access to ICT was poor and the remainder (7.4%) reported that it was very poor suggesting that the province was definitely at stage 2 in this score.

On the aspect of enhancing education with ICT, the vast majority (81.5%) of the respondents responded that the level was poor.

In developing the ICT workforce 51.9% of the respondents reported that the level was good. There was a dissenting 44.4% who responded that the level of developing the ICT workforce was poor. As Figure 21 attests there is no relationship between the role of the respondents and the response to the item on the level of developing the ICT workforce. Because the p-value at 0.807 is much greater than 0.05, the null hypothesis (that is, there is no relationship between role of the respondent and the response provided) should be accepted; furthermore the strength of the relationship between the role of the respondent and the response as indicated by Cramér's V at 0.173 is very weak.

Figure 21: Relationship Between Role and Development of ICT Workforce

| | | | ICT_Workforce_Level | | | |
			Poor	Very Poor	Good	Total
Role	Political Head	Observed	3		4	7
		Expected	3.11	0.26	3.63	7.00
	Administrative Head	Observed	4		5	9
		Expected	4.00	0.33	4.67	9.00
	ICT Head	Observed	5	1	5	11
		Expected	4.89	0.41	5.70	11.00
Total		Observed	12	1	14	27
		Expected	12.00	1.00	14.00	27.00

1.61 chi-square

4 df

.8071 p-value

.173 Cramér's V

Even though there is an almost even split between the level of developing the ICT workforce being perceived as good and perceived as being poor, the general view in relation to networked learning tends to be on level 2 as per Figure 22.

Figure 22: Rating of Limpopo's Networked Learning
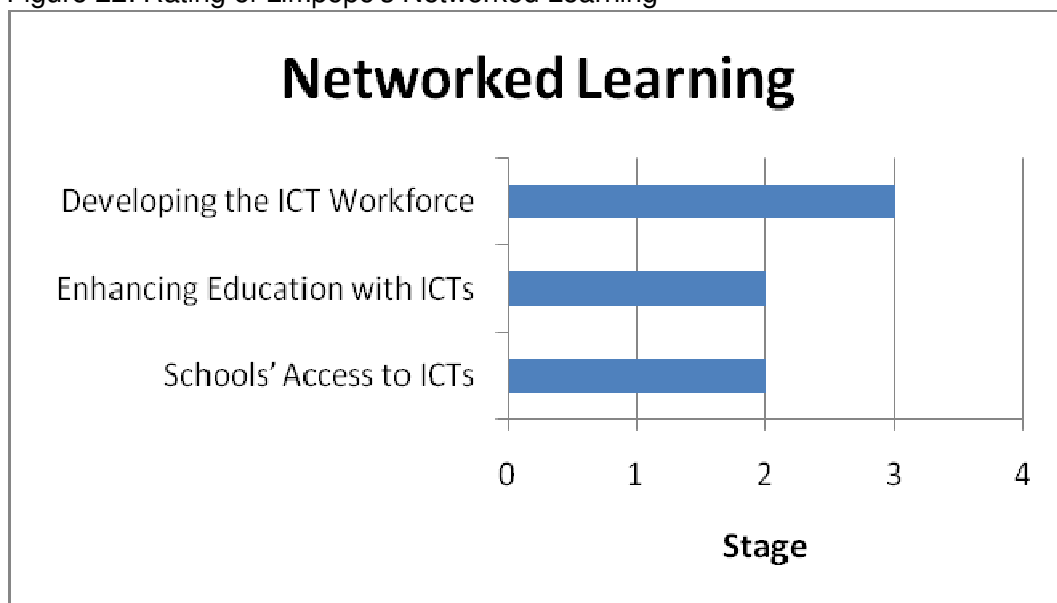
It may be trivial to argue that the lack of telecommunications infrastructure would be one of the factors having a direct bearing on the level of school's access to ICTs which would have a bearing on the potential to enhance education with ICT, yet the same point is raised by Petje (2011) in a personal communication with the researcher. He provides an example that the Provincial Department of Education has not succeeded in connecting schools in the province through the use of mobile connectivity as a result of technical challenges (Petje 2011). As stated in Chapter 2, the Department of Education has been making a number of efforts to connect schools and to utilise ICTs to enhance education (Motsoaledi 2005, 2008).

Networked Society

Whilst the majority (51.8%) of respondents have stated that there is a moderate level of people and organisations online, there are some (18.5%) who state that the numbers online is high and others (22.2%) who say low. Figure 23 below suggest that we must accept the null hypothesis and accept that there is no relationship between the role of the respondents and the response to the question regarding the number of people and organisations online.

Figure 23: Role versus Number of People Online

		Number_Online				
		Very Low	Low	Moderate	High	Total
Role	Political Head	Observed		**1**	**5**	**1**	7
		Expected	0.52	1.56	3.63	1.30	7.00
	Administrative Head	Observed	**1**	**4**	**3**	**1**	9
		Expected	0.67	2.00	4.67	1.67	9.00
	ICT Head	Observed	**1**	**1**	**6**	**3**	11
		Expected	0.81	2.44	5.70	2.04	11.00
Total		Observed	2	6	14	5	27
		Expected	2.00	6.00	14.00	5.00	27.00

5.70 chi-square
6 df
.4580 p-value

.325 Cramér's V

Respondents did make the comment that government is the biggest employer in Limpopo Province and since many government offices have access to ICTs, there is the possibility that the level of ICTs in the workplace may be high. On the other hand the majority of government employees, specifically teachers and nurses, do not necessarily have or use computers or have access to ICTs in the course of their work. Thus the perception that there are ICTs in the workplace and that people and organisations are online may be misleading. It is evident that ICTs in people's everyday lives are in fact few and far between. The summary view in relation to networked society is outlined in Figure 24 below.

Figure 24: Rating of Limpopo's Networked Society
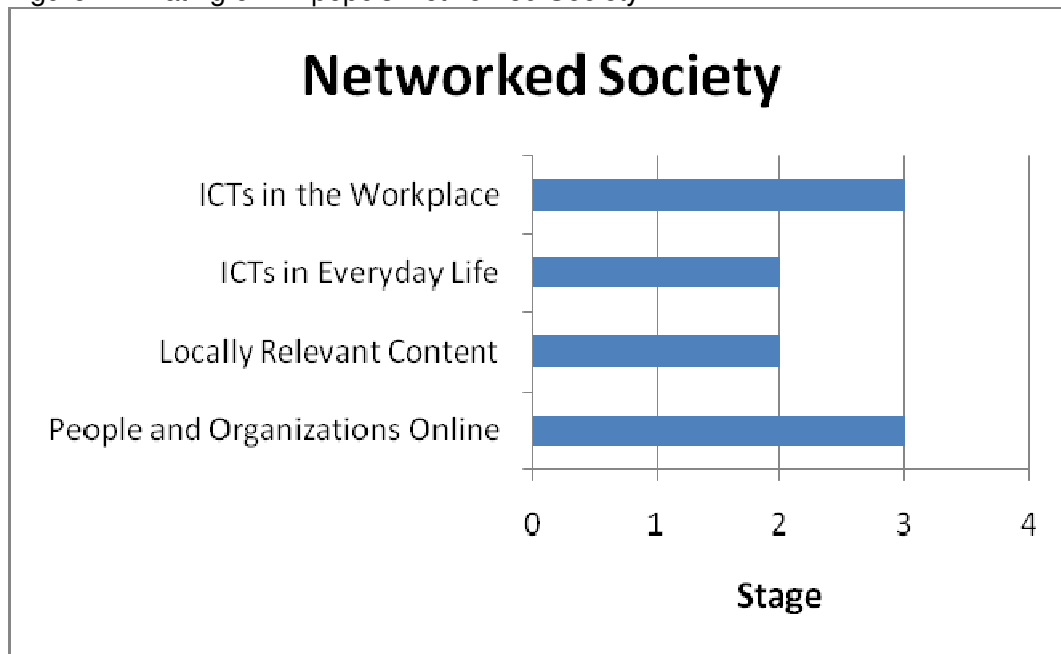
Networked Economy

Figure 25 indicates the perceived level of the Limpopo Province's participation in the networked economy. This is at level 2. It would have been a surprise given the lack of access to the Internet, the negligible development of ICT within the educational context, and little relevant content and everyday usage of ICTs to have found a high level of a networked economy. On the other hand, the fact that most government offices are connected to the Internet suggests that until the other issues, such as the community's ability to effectively utilise ICTs are in place, then the other aspects cannot prosper.

Figure 25: Rating of Limpopo's Networked Economy
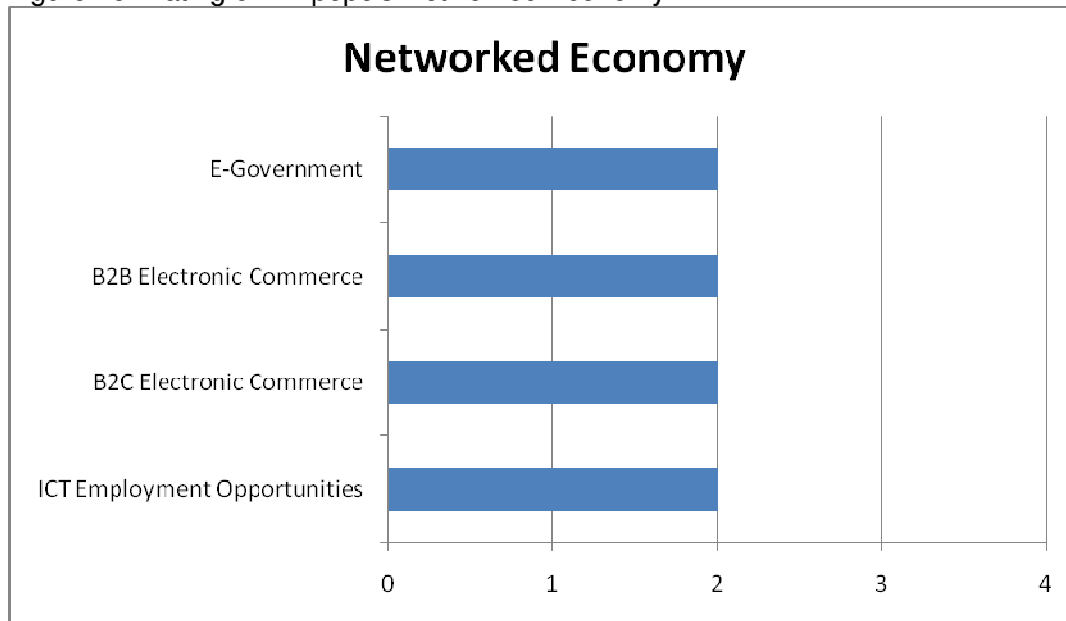
Figure 26 provides a consolidation of the ratings for all the e-readiness categories that were measured in this research. Taking into consideration that the Harvard E-readiness Guide does not provide an overall score for e-readiness, this consolidation provides a benchmark from where to measure progress or to compare other developing societies (Readiness for the Networked World N.d.: 5). According to the Harvard E-readiness Guide all the stakeholders should use the outcome to facilitate dialogue and determine the route that the specific community should follow to improve its readiness, and thus build the information society (Readiness for the Networked World N.d.: 18). As can be seen from Figure 26, of the 16 indicators that were measured, only six were rated at level three, the other ten at level two. With the level of Internet availability and affordability both rated at stage two, one would have expected the rating for "ICTs in the Workplace" and "People and Organisations Online" to be at most to be rated at level two rather than the level three it was actually rated.

Figure 26: Consolidated E-Readiness Ratings
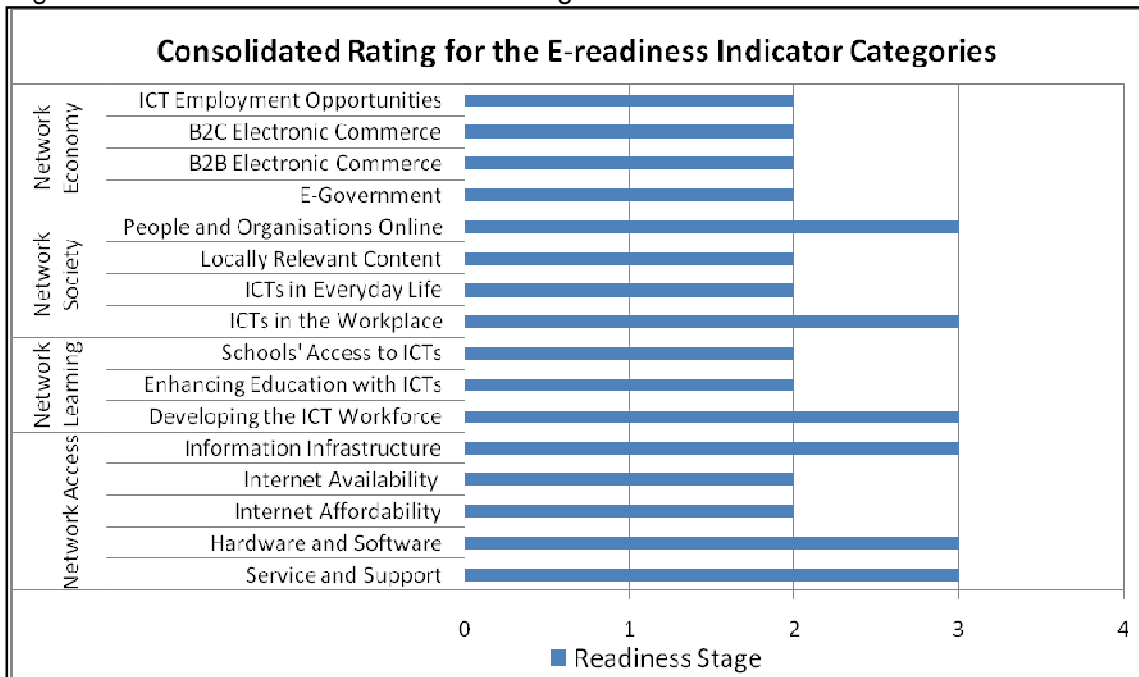
What is Currently Being Done to Build an Information Society?

The question of whether Limpopo Province was in the process of building the information society was one that received many comments with 19 (70%) respondents of the view that it was. This section responds to the question of what is being done in Limpopo Province to build an information society. It is noted that one of the earlier projects mentioned that may support the building of the information society was the provincial e-government strategy of 2003 as well as the iCommunity project. The iCommunity project seems to have been absorbed into the INSPIRE project and the e-government strategy to have been abandoned due to a lack of sufficient funds (Petje 2011).

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A new development with regard to the information society is the recently published Limpopo Employment, Growth and Development Plan (LEGDP) 2009-2014 (Limpopo Provincial Government 2009). It is full of references to the information society and has elevated the INSPIRE project to one of the High Impact Initiatives (See Chapter 2) for the province and thus refers to the building of an information society as a key developmental priority. In addition to the LEGDP, Petje in personal communication with the author, highlighted that the ruling party, the African National Congress (ANC) has, through its economic strategy covering the period up to 2030, bought into the concept of the information society thus bringing the necessary political will (Petje 2011).

Twenty six (96.3%) respondents believe that ICTs could assist in achieving the development goals above and there is consistency between the respondents and the PGDS about what the goals are. However, when it comes to what Limpopo is doing to promote the information society, seven (25.9%) respondents were unable to identify a single project, and of those that did identify projects or programmes that could contribute to building the information society, 10 (37%) referred to e-government and other projects applicable to their departments or municipality seem to be making the department or municipality function better with ICT (See Figure 15).

With regards to the observation made above concerning the awareness of the respondent of the Limpopo Province government projects contributing to the building of the information society, it is noteworthy that 16 (59.3%) respondents believed that the current government strategies and plans for ensuring that Limpopo Province becomes competitive and economically viable, will marginally succeed. This implies that the respondents believe that there are aspects of the

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current government strategies and plans that will need to be improved in order to ensure that the objective of a successful information society is achieved. By comparing the roles of the respondents with their response to the item, Figure 27 indicates that there is a strong relationship between the roles of the respondents and the response provided.

Figure 27: Relationship between Role and Success of Current Strategy

| | | Current_Strat_Succeed | | | |
		Marginally	No response	Significantly	Total
Role	Political Head	Observed	**2**		**5**	7
		Expected	4.15	0.26	2.59	7.00
	Administrative Head	Observed	**4**	**1**	**4**	9
		Expected	5.33	0.33	3.33	9.00
	ICT Head	Observed	**10**		**1**	11
		Expected	6.52	0.41	4.07	11.00
Total		Observed	16	1	10	27
		Expected	16.00	1.00	10.00	27.00

9.99 chi-square
4 df
.0405 p-value

.430 Cramér's V

Twenty two (81.5%) respondents listed less than two projects that they were aware of and that they believed could contribute to the province being an information society. The figure of 81.5% includes the seven (25%) respondents who did not respond to the item on the questionnaire and thus listed no project/s that they were aware of. A possible explanation for this situation could be that the respondents were reluctant to list all the projects they were aware of due to their lack of additional information regarding the nature of the project they could have listed (such as where the project was located or who was funding the project) or for other reasons unknown to the author. Alternatively the respondents were not aware of projects aimed at delivering an information society. If the latter were to be true, it would suggest that there is a dire need to

coordinate and communicate more on the efforts by the province and the respective districts to build an information society.

From the responses to the questionnaire it is clear that the projects that most respondents believe are related to the information society are, by level of awareness, the INSPIRE project, then departmental/municipal ICT initiatives (these may be classified as e-government), then the iCommunity project, and lastly ICT projects within the community (See Table 21 and Figure 15 in Chapter 4). This observation is in line with that made through the content analysis as depicted in Table 41. The latter indicates that all departments and municipalities have at least one e-government related project. Of the 16 identified areas there are seven areas for which projects are mentioned in the documents and nine areas for which there is no reference at all. Those areas with fewer references have less to do with e-government. The analysis of the areas identified in Table 41 suggests that the areas associated with the INSPIRE and the iCommunity projects are not fully accounted for in the APP of the Office of the Premier, this may be the case with regard to other departments' APPs. Despite the fact that there seems to be a lot of activity in relation to e-government, the view of the majority (close to 60%) of the respondents is that the level of e-government in the province is low. This suggests that the province is not succeeding even in implementing e-government. That being the case, the next logical question would then be, "What should the Province do or focus on in order to build an information society?" The next section will respond to this question.

Considering the example of Mopani District Municipality (For the location of Mopani District Municipality see Figure 2), it is found that the municipality is

acutely aware of the benefits of ICT in relation to its contribution to socio-economic development as well as the level of access to telecommunications infrastructure as indicated by the following extract from its IDP:

> Telecommunication is an information infrastructure that plays a crucial role in the development of society. The telecommunication sector is an indispensable backbone for the development of other socio-economic sectors. Thus, an effective telecommunication infrastructure, that includes universal access, is essential to enable the delivery of basic services and the reconstruction and development of deprived areas. The district is fairly well provided with a public telephone system with more than 53% of all households having access to a public telephone at a nearby location. As much as 21.6% of households in the area have access to a cell phone but the proportion of households with an in-house telephone within their dwelling is limited to just over 6%. Generally, the availability of telecommunication infrastructure is very similar across the various local municipalities. The proportion of households with telephones in their dwelling in the Ba-Phalaborwa municipality are, however, higher than in the other four municipalities. With respect to cell phones operation, there are three service providers (MTN, Vodacom and Cell C) whose network covers a sizeable area in the district. There are, however, some areas where there is no network coverage (Mopani District Municipality 2009).

Despite this comment, the Mopani District Municipality IDP does not in any way refer to a project or activity that addresses the serious lack of ICT infrastructure. Whilst there is no basis for any other reasonable explanation for this apparent anomaly, the most reasonable conclusion that can be drawn is that the failure to address the lack of access to telecommunications infrastructure is because it is beyond the capacity of the municipality. The same could be said regarding the lack of sufficient number of projects to address the identified areas of weakness in terms of network access, networked learning, networked society, and networked economy as per the Harvard Readiness Guide.

What Needs to be Done to Build an Information Society?

An important aspect that is required to successfully build an information society is the existence of a common vision (shared by, amongst others, the political and administrative leadership, business, and civil society) that supports the development of the information society and that will ensure all role players pull in the same direction. As stated in Chapter 4 and outlined in Table 12 all the respondents were of the view that Limpopo Province should strive to become an information society and thus the actions recommended by the respondents as discussed in this section are necessary endeavours in the respondents' views.

The National Information Society and Development Plan recognise the necessity for a centre whereby the development of the information society is coordinated (PNC on ISAD 2007). The respondents to the questionnaire were of the view that there is a great need for cooperation and collaboration. As stated in Chapter 4, there is the view by some respondents that, because there is little central planning for the information society in Limpopo Province, there is a lot of duplication. An example of this duplication is the existence of two e-government strategies within the province, one developed for the provincial government and the other developed by the Department of Local Government and Housing (See Limpopo Provincial Government 2003 and Limpopo Department of Local Government and Housing N.d.). The Limpopo Province, by establishing the INSPIRE programme in the Office of the Premier, is already on the path towards developing the information society. However, this is not sufficient as it appears that departments and municipalities still follow their own different paths. With government not sharing the same understanding, one would expect a worse situation with regards to other stakeholders. As stated above, and supported by

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Petje's view that the information society is not only about government or e-government, the government's role is that of providing vision and leadership and for that reason there is a need to establish a multi-stakeholder forum (Petje 2011).

Would it be correct to suggest that Limpopo Province is not ready to become an information society? Some actions have been identified in line with the Harvard Readiness Guide, the results of the responses to the questionnaire, as well as the priorities in the National Information Society and Development Plan.

According to the Harvard Readiness Guide "The minimum necessary condition for Readiness is access to adequate network infrastructure" (Readiness for the Networked World N.d.: 6). It has been shown that Limpopo Province has not yet achieved an adequate level of network access. Figure 20 shows that in the view of the respondents the Internet is neither adequately available nor affordable in that the cost of the Internet is high and the level of access is poor. This suggests that despite the apparent widespread availability of mobile access to telecommunications infrastructure, Limpopo Province has to focus on making the Internet both available and affordable.

In addition to network access being both available and affordable, it is necessary for the community to be ICT literate (Readiness for the Networked World N.d.: 10). The National Information Society and Development Plan (PNC on ISAD 2007: 12-13) also correctly emphasise the prioritisation of education, skills development and training in relation to ICT. The respondents have identified that in Limpopo Province the level of access to ICTs by schools as well as the

enhancement of education with ICTs is poor. This is thus an area that requires an additional level of focus in order to contribute towards making Limpopo Province an information society.

The level of a community's participation and involvement in ICT is both an outcome and a necessary condition for e-readiness. The number of people and organisations online, the use of ICTs in the workplace and in everyday life, as well as the availability of locally relevant content does contribute to e-readiness as per the Harvard Readiness Guide (Readiness for the Networked World N.d.: 12). In this area the use of ICTs in everyday life and the availability of locally relevant content have been reported as poor by the respondents. On the other hand, the National Information Society and Development Plan (PNC on ISAD 2005: 15; Vosloo 2005) prioritised the development of local content to support information society development. The development of local content is an area that provinces do have significant potential for and that Limpopo Province should be working on.

The four categories identified by the Harvard Readiness Guide as constituting key elements for the networked economy, employment opportunities, B2C e-commerce, B2B e-commerce, and e-government, (Readiness for the Networked World N.d.: 14) as well being prioritised by the information society and development plan (PNC on ISAD 2005: 14-15) have been perceived by the respondents as poor. These categories identify the areas that Limpopo Province would also have to address in order to build its information society.

The challenges identified by the respondents can be grouped into two areas: firstly, those related to the organisation of the information society development programme such as funding, leadership and vision, coordination and consultation, as well as other priorities for the province; secondly, it is the challenges that are aligned to the conceptual groups in the Harvard Readiness Guide (these are network access, networked learning, networked society, and networked economy). The latter challenges relate to the lack of ICT infrastructure, lack of affordable access to ICTs, as well as lack of sufficient knowledge, skills, and ICT literacy. Further analysis of the challenges aligned to the conceptual groups in the Harvard Readiness Guide show that they fall into network access and network learning groups. One can surmise that these two groups are enablers of the information society.

One would have expected that the response to the question requesting the respondents to identify what was missing in the approach of Limpopo to build the information society would in some way be related to the challenges as discussed above. This expectation is reasonable in that the respondents' views regarding what was missing in the approach were almost in line with the identified challenges. These views could also be grouped in terms of the information society development programme and the conceptual groups in the Harvard Readiness Guide. A key difference is that for the conceptual group in the Harvard Readiness Guide, the respondents only identified network access as an element that was missing in building the information society. The other issues that were perceived as missing in the approach by Limpopo Province in building the information society were commitment and political will, stakeholder engagement/communication/coordination, a better plan, as well as sufficient funding. It appears, according to the author's personal communication with Petje, that one of the significant issues that leads to the lack of sufficient progress in the implementation of the e-Government Strategy for the Limpopo

Province was the lack of sufficient funding (Petje 2011). Of these issues identified, the author was most surprised by the inclusion of commitment and political will as issues that still require more attention, this is especially so after statements that could be perceived as supportive of the building of an information society were made by successive Premiers of Limpopo Province (see Moloto 2010; Moloto 2004; Phillipe 2005).

The other issues identified by the respondents that they believe should make Limpopo Province succeed in building an information society are issues not specifically related to the information society. It appears logical that having commitment and political will, a better plan that is well funded, and ensuring that all the relevant stakeholders are fully engaged is a way of ensuring that a government programme is successfully implemented.

Chapter Summary

The discussion and interpretation of results presented in this chapter have shown that the leadership in Limpopo Province has an interest in making the province an information society; it contributes towards the achievement of the development goals, and there are some actions being taken to build such a society. However, the majority of the respondents believe that the strategies and plans being undertaken by the provincial government will only marginally succeed. In this light, there would be some gaps and challenges that would need to be addressed.

The chapter also discussed and concluded that in relation to network access, networked learning, networked society, and the networked economy the province is between level 2 and level 3 and thus would have to address all four areas in order to achieve the information society in Limpopo. The chapter identified what is being done in Limpopo Province to build an information society, challenges that the Province is facing in becoming an information society, as well as what still needs to be done to successfully build an information society in the province.

Chapter 6: Conclusions and Recommendations

Introduction

This chapter will, on the basis of the research conducted and reported upon in the preceding chapters, round off the dissertation and present the conclusions arrived at. The chapter commences by providing a broad summary of the research findings followed by a discussion of the key problems that may have affected the conclusions arrived at by the author. The bigger portion of the chapter presents the detailed conclusions as they relate to the research questions posed. The chapter is concluded by providing recommendations for policy and implementation as well as suggestions for future research.

Summary of Findings

The main objective of this research was to determine the key challenges that poor and rural provinces face in building an information society utilising Limpopo Province as a case study. The study was set out to answer the following three research questions:

1. Is Limpopo Province ready to be an information society?

2. What is being done in the Limpopo Province to build an information society?

3. What needs to be done in the Limpopo Province to build an information society?

In dealing with the objective stated above, Limpopo Province has been confirmed as a province which is rural, poor, and faces specific challenges to build an information society.

The research did not fully clarify whether the information society is achievable in Limpopo Province or any other similar place. It did however provide a sense of the limited progress that has been made by the Province in achieving the information society. It also provided a perspective of what, in the view of the selected group of individuals who play a key role in the implementation of the information society, are the key challenges and the interventions that should be undertaken to successfully build the information society in Limpopo Province.

This study has concluded that, based on the Harvard Readiness for the Networked World Guide, the Limpopo Province is not ready to be an information society. With regard to what is being done to build an information society, the study has found that there are numerous uncoordinated projects that are being implemented within the Limpopo Province, the most significant one being the INSPIRE project. Furthermore, the study concludes that the key to successfully building an information society in Limpopo Province is better planning and organisation as well as the prioritisation of key information society enablers such as access to affordable telecommunications infrastructure that will, amongst other things, enable Internet access.

Discussion of Problems

In determining whether a poor, rural province such as Limpopo could build an information society and identifying the relevant challenges and possible interventions the study surveyed a select group of individuals based on their role in building the information society. It needs to be borne in mind that because the selected group of individuals were of a certain view, it does not mean that the view is correct. In interpreting the results of this study it should be noted that challenges identified as well as the required actions to successfully build an information society were simply the views of those individuals surveyed.

The selected population represented only individuals who were currently holding positions as political and administrative heads as well as heads of ICT, at both the provincial department and district municipal level, and thus may not be considered sufficiently comprehensive. The population could have included individuals within national organisations and entities who were responsible for implementing information society related projects in Limpopo Province. Whilst this may be considered a valid limitation to the study, the individuals who were not included in the population were not responsible for the full scope of implementing information society and would have thus added an additional level of complexity to the study as discussed in Chapter 3.

The policy dimension of the Harvard Readiness Guide was excluded from the study on the basis that due to the constitutional mandate, provinces are not responsible for information society related policies. This aspect is however still extremely relevant for the effective implementation of the information society in

any province or community. The non-inclusion of the networked policy dimension in this study does not invalidate the results of the study. Furthermore, and interestingly, none of the respondents had raised issues related to this area as challenges to the implementation of the information society.

In relation to access to ICT and to the Internet as perceived by the respondents, it should be noted that almost all the respondents reported that they had access to the Internet both at work and at home whereas, as shown in Figure 5 and the follow-on paragraphs, Limpopo has the lowest level of internet penetration in the country which was less than 2% of the population in 2007. In 2009 a paltry 8.3% of households had at least one member who had access to the Internet compared to 23.5% for the whole country. This indicates that the population that was targeted to provide information regarding the implementation of the information society in Limpopo Province was advantaged in relation to access to ICTs. On the other hand, they could be considered the most suitable because they are the people responsible for the implementation of information society programmes within the Province.

Conclusions

Whilst there may be studies that suggest that there is no causal link between the information society and development, none of the studies encountered during this research suggests that the information society should not be pursued by any developing community. This study supports the view that the achievement of the information society is likely to contribute to development and thus improve the lives of the communities where it is implemented.

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Limpopo Province has not been successful and has a marginal chance of success in building an information society, in other words, it is not ready to build an information society due to a number of reasons, among others, the following:

- Lack of affordable access to infrastructure that supports the information society. The apparent high level of access to mobile telephony, as argued in Chapters 2, 4, and 5, is not sufficient for participation in the information society. Limpopo Province has been shown to have the lowest level of Internet access in the country. This lack of access to the Internet is also due to the poor levels of access to electricity, computers and other assets useful in the information society, adequate relevant information, as well as adequate disposable income.

- A high level of illiteracy and a poor level of skills availability in both ICT related aspects as well as general aspects. As pointed out in Chapter 2, when considering the educational status of the population in Limpopo Province in relation to a number of key indicators, the province ranks in the bottom three for most indicators.

- The Province has not adequately organised itself to implement the information society. There seems to be no coordination of the initiatives that are supposed to contribute to the building of the information society. The INSPIRE project appears to be in a nascent stage, and has yet to finalise a provincial information society development strategy or plan (Petje 2011).

- Limpopo Province has other priorities that cloud the requirements for information society related initiatives. These priorities are necessitated by the poor level of access to basic services such as water, sanitation, electricity, and road infrastructure. Furthermore, the province has one of the highest levels of unemployment in the country. These issues were raised in Chapters 2 and 4. All these conspire to generate less interest in information society

initiatives. In supporting this view, one respondent stated that "the rural areas still don't have the basic services like access to water and electricity. So focus may be there rather than on information society". This apparent divergence between the need to address other developmental priorities and the bridging of the digital divide has been addressed by Roode *et al* (2004) who argue that both the technological and the socio-economic aspects need to be addressed.

Policy documents and statements issued by the political leadership in Limpopo Province suggest that the province is committed to building the information society. However, there seems to be less in terms of activities and programmes that are aimed at building the information society. As stated above, the research has found that there are a number of uncoordinated projects that could contribute towards the building of the information society in Limpopo Province. These projects are not enough and will not likely achieve the objective of creating an information society within the Province unless a different course is followed. It has been argued in Chapter 5 that there are aspects of the current government strategies and plans that will need to be improved in order to ensure that the objective of a successful information society is achieved.

Having said that the province needs to take a different course, it is necessary to report that not all respondents to the questionnaire were of the view that the chances of success for the current course of action are minimal. The political heads tended to be more inclined to be optimistic than the administrative heads and the ICT heads. For instance, with regard to the likely success of the current strategies of the Province, the heads of ICT tended to be more sceptical than the political heads. Furthermore, with regard to the perceived level of access to the

Internet, the political heads tended to be more inclined to suggest that there was more access to the Internet as compared to the other groups. The clarification of this divergence in opinions may be a source of future research.

The research found that there is poor collaboration and cooperation between the stakeholders engaged in building the information society in Limpopo Province (See Chapters 4 and 5). It also found that the Province and district municipalities are focussed on their own ICT requirements; whilst these may contribute specifically to e-government and therefore indirectly to the information society there are no specific plans to build an information society that were discernible from the IDPs and the APPs. The only meaningful reference to the information society could be found in the INSPIRE project which, as indicated above, is still new and thus not yet developed. The fact that there is little direct reference to the information society in the IDPs and APPs explains the view by some of the respondents that there are little funds allocated by the Province towards the information society.

In support of the key role of collaboration with other stakeholders, Mansell & Steinmueller (2000: 433-8) argue that information society initiatives that involve stakeholders in the regions have a greater chance of success than those that do not. These stakeholders include local authorities, trade associations, consultants, and citizen's groups. The implication for this in South Africa is that the national information society programme has to focus on ensuring better and improved interaction between stakeholders within the provinces. It also implies that in pursuing the building of the information society in Limpopo Province, there should be a concerted effort to engage more stakeholders with the planning and implementation of the information society programmes and projects.

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As stated above, one of the key challenges and weaknesses for the Limpopo Province that affected the implementation of the information society was the lack of affordable access to ICT infrastructure as well the low level of knowledge, skills, and ICT literacy. In addressing network access, the readiness for the network guide recommends focussing on internet access, rather than access to either voice or data because of the growing importance and unique character of the Internet (Readiness for the Networked World, N.d.: 8). It has been argued that the success and extent of IT adoption depends on the presence of an educated workforce and well developed telecommunications infrastructure (Odedra, 1993: 24). The policy framework proposed by Odedra (1993: 27-33) is an implicit and explicit suggestion that government use of ICT as well as direction is the primary driver of ICT usage, diffusion and the successful developmental impact of ICT on the rest of society.

This study has shown that – on the basis of the alignment of the challenges, as well as the issues that need to be focussed upon – the Harvard Readiness Guide is a useful tool to measure the information society readiness for societies similar to the Limpopo Province. As an initial study of the building of an information society by provincial level organisations within South Africa, this research has laid a basis on which other similar studies can start from.

Recommendations and Suggestions for Further Research

In this final section both the recommendations that will assist Limpopo Province, in particular, to effectively implement an information society as well as suggestions for possible areas for further research will be outlined.

Recommendations

The research has indicated the need to build an information society that is expected to contribute to the socio-economic development of Limpopo Province. Given this, the following is recommended:

1. The Limpopo Province government should develop a provincial information society plan (or programme of action) that is aligned to the National Information Society and Development Plan, integrated with the provincial development plan and sufficiently funded. The provincial plan should encompass a clear information society vision or policy statement for the province. Municipalities should also develop similar plans that are in line with the above plan and aligned to their IDPs. These plans should be used to rally and coordinate the activities of all stakeholders relevant to the building of an information society within the Limpopo Province.

2. Since the information society cannot be driven by one set of stakeholders alone, the planning, coordination, and management of the information society programme has to, therefore, include all the key role players such as labour and business leaders, civil society leaders, leaders within educational institutions, as well as leaders within national structures that contribute to the building of an information society at a provincial level. Some form of participatory structure has to be created and linked to the INSPIRE project.

3. There should be one centre for the coordination of efforts to build the information society and at this stage it appears that the INSPIRE project infrastructure is the appropriate structure. In the light of the recommendation above, the INSPIRE project organisation will have to be adapted to ensure effective involvement of other stakeholders.

4. Limpopo Province has to prioritise key information society enablers rather than consequential factors. By information society enablers the dissertation refers to those aspects without which the information society is not possible; and by the consequential factors it refers to the aspects of the information society which, despite the fact that they are a necessary indication of the existence of the information society, are a result of the enablers. The two most critical areas relate to access to affordable and appropriate ICT infrastructure as well as a knowledgeable population.

5. The information society initiatives can be and should be done constructively together with other developmental programmes. As argued in Chapters 2 and 4, because of the contribution of an information society towards improving efficiency, including that of government, as well as its ability to provide access to key services, the seeming competition between programmes that are aimed at delivering basic services and those that are aimed at building the information society is meaningless.

6. Figure 28 proposes a framework for implementing an information society at the provincial level within the South African context. This framework places the provincial information society plan (or programme of action) within the government programme of action and linked to the pillars of the National Information Society and Development Plan, aligned with the relevant integrated planning framework, and cognisant of the five National Information Society and Development Plan areas. The framework proposed in Figure 28 is further elaborated hereunder:

   • The information society initiatives can be and should be done constructively together with other developmental programmes. As argued in Chapters 2 and 4, because of the contribution of an information society towards improving efficiency, including that of government, as well as its ability to provide access to key services, the seeming competition between

programmes that are aimed at delivering basic services and those that are aimed at building the information society is meaningless. This approach supports the argument of Roode *et al* (2004) that both the technological aspects as well as socio-economic developmental issues, as stated in the conclusions above that the digital and the socio-economic divides relate to the same problem. The top node of the framework (coloured Green in Figure 28) proposes that building the information society should be part and parcel of development planning processes, linked and aligned with the Millennium Development Goals (MDG), the World Summit of the Information Society (WSIS) Outcomes, the Medium Term Strategic Framework[14] (MTSF), PGDS, IDP, and APPs within the relevant province.

- At the centre of the framework (see Figure 28) should be a Provincial Information Society and Development Programme of Action which brings together all the provincial projects and is conceptually part of the Provincial Government Programme of Action. The Limpopo Province equivalent of a Provincial Government Programme of Action is the LEGDP that was discussed in Chapter 2. The LEGDP or a programme of action is expected to put the PGDS (or its equivalent in other provinces) into a practicable programme. The reason that the programme of action should be at the centre, is that the Provincial sphere of government is expected to translate national government policy into action. The municipal IDPs as well as the provincial department APPs, which are not illustrated in the framework, are based on the provincial programme of action.

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[14] The Medium Term Strategic Framework is a "statement of intent, identifying the developmental challenges facing South Africa and outlining the medium-term strategy document … meant to guide planning and resource allocation across all spheres of government" (The Presidency 2009).

- The bottom two nodes (coloured blue and yellow) represent the five priority areas and the ten pillars of the National Information Society and Development Plan as discussed in Chapter 2 (PNC on ISAD 2007). Both these issues should be fully addressed in the Provincial Information Society and Development Programme of Action as applicable within the applicable mandates of the province (This is because some aspects of the priorities and pillars fall outside the mandate of the provinces, as mentioned in Chapter 2).

- The lines in the framework indicate that all the nodes influence each other and are influenced by the other nodes.

Figure 28: Framework to Implement an Information Society
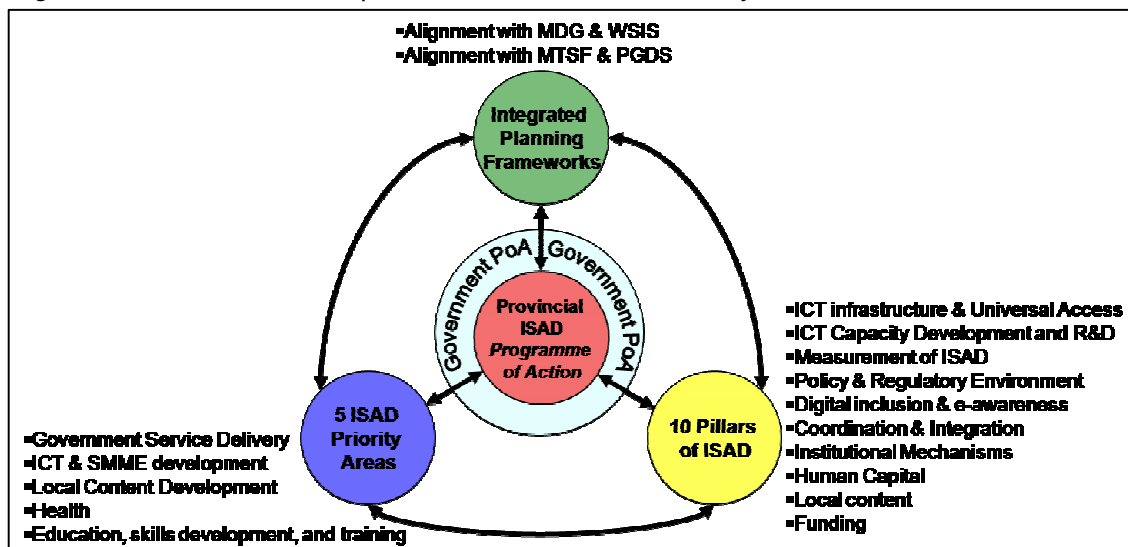
Suggestions for Further Research

A number of potential areas for further research in the future can be identified. These are outlined below:

1. To further validate the conclusions arrived at in this study, inclusion of all stakeholders responsible for building the information society in a province is advisable; these stakeholders should include not only leaders in government related entities formally responsible for building the information society, but should also include labour and business leaders, civil society leaders, leaders within educational institutions, as well as leaders within national structures that would contribute to the building of an information society at a provincial level.

2. Ordinary members of society that are affected by the information society and to whom the information society programme is directed should be subjects of a study similar to this. This will address not only the technical and policy issues but also identify practical challenges as perceived by the community that is affected by the information society.

3. This study has not considered the networked policy dimension of the information society. This dimension has been identified by the Harvard Readiness for the Networked World Guide but was not included in this study due to the fact that provisions in the Constitution of South Africa have placed the responsibility for communications with the national sphere of government. However, it is evident that the Constitution, national legislation, and other national policy documents have an impact on the implementation of the

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information society within provinces and at municipal level. Further research on the impact of national policy as directed by the Constitution and other national policy instruments on the implementation of the information society would be advisable.

4. Having identified some challenges related to implementing the information society in Limpopo Province as a case study, further research is advisable to determine whether the challenges and recommendations identified in this study can be considered unique to Limpopo Province, or whether they are applicable to other provinces that are socio-economically similar.

Chapter Summary

This, the last chapter of the dissertation, has provided an overview of the findings of the research. The lack of readiness of Limpopo Province to be an information society, as well as the meagre actions aimed at building the information society and what could be done to change the situation have been highlighted. Furthermore, some key challenges related to the study were discussed followed by the major conclusions of the study. The chapter was concluded by presenting recommendations directed at policy and implementation as well as suggestions for further research.

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WSIS Declaration. See United Nations, World Summit on the Information Society.

List of Annexures

1.   Questionnaire

2.   List of Provincial Annual Performance Plans and Municipal IDPs Analysed

Questionnaire

Dear Respondent

My name is Martin Sehlapelo; I am a student at the University of KwaZulu-Natal reading for the Master of Information Studies. The topic of my research is "*Building an Information Society in Limpopo Province, South Africa*". My supervisors for this study are Athol Leach and Patrick Maxwell.

The information society is a people-centred, inclusive and development-oriented society in which everyone can create access, utilise and share information and knowledge, enabling individuals, communities and peoples to achieve their full potential in promoting their sustainable development and improving their quality of life. It is the developments in Information and Communications Technologies (ICTs) that have made the Information Society possible.

I have chosen this topic because I believe that by choosing the correct development strategy, it will be possible to improve the lives of ordinary people in rural societies. The aim of this research is to identify the challenges, as well as to investigate the options, that a rural province such as Limpopo has to consider to build an Information society. This research is a response to the view that in the modern world ICT can be effective in promoting the Millennium Development Goals. The information society has definitely been achieved in the "developed world" more than the "developing world." This study will analyse the relevance and potential of the information society in rural societies using Limpopo Province as a case study, it will determine the level the province in relation to the information society, as well as whether the province can benefit from ICTs in a manner similar to the developed countries. You have been chosen to participate in this study either because of your role in society or because of your current position at work. You will not be financially or materially rewarded for your participation in this study, however, your participation will definitely enrich the lives of ordinary people which is in itself a worthwhile cause. . You will need less than 30 minutes to complete the questionnaire. Although we encourage you to participate in this study, you are under no obligation to participate. Should you wish to withdraw your participation you can withdraw at any stage. You do not have to disclose your identity and I commit myself not to disclose your identity should I become aware of it. The responses you provide to me will be kept confidential. Although the report may indicate the origin of a specific view in terms of Province, District, or Municipality, no one will know your specific responses (except my supervisors and me).

Please return the completed questionnaire via the same method that you received it. Use the prepaid self addressed envelope if necessary.

Should you require additional information or have any other query you can contact me, Martin Sehlapelo, at 0834571899 or my supervisor Athol Leach at 033 2605098.

Thank you.

M. Sehlapelo

INFORMATION ABOUT THE RESPONDENT

In which district do you reside?		*Capricorn*		*Mopani*		*Sekhukhune*		*Vhembe*		*Waterberg*	

In which Local Municipality do you reside?	

What is the name of your organisation?	

What is your organisation type?	*Local Municipality*			
	District Municipality			
	Provincial Department			
	Parastatal			
	Type not listed		*Provide type:*	

What is your role in the organisation?	*Provincial Political Office Bearer*		*Head/CEO of my organisation*		
	District Political Office Bearer		*GITO/CIO of my organisation*		
	Local Municipal Political Office Bearer		*IT/ICT/Information Manager*		
	Member of Executive Council		*Planning Manager*		
			Role not stated		*Give your role:*

What is your age in years?	

What is your gender?	*Male*		*Female*	

Do you have a personal computer at work?	*Yes*		*No*		Do you utilise the internet yourself?	*Yes*		*No*	
Do you have access to the internet at work?	*Yes*		*No*						
Do you have a computer at home?	*Yes*		*No*		Do other members of your family use a computer at home?	*Yes*		*No*	
Do you have any access to the internet at home?	*Yes*		*No*		If yes, who is your internet service provider at home?				
Is your internet access at home broadband?	*Yes*		*No*						

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INFORMATION ABOUT THE INFORMATION SOCIETY

Please make your assessment of the Municipality/District/Province in relation to the question posed and respond accordingly. Remember there is no right or wrong response - only your view in relation to a specific question. **Your comments are welcome**.

A	VISION AND UNDERSTANDING OF THE INFORMATION SOCIETY AND DEVELOPMENT						
1	Have you ever heard of the Concept of an Information Society before receiving this questionnaire?	*Yes*				*No*	
2	Have you ever considered the use of ICT to enhance social development before receiving this questionnaire?	*Yes*				*No*	
3	Do you think that Limpopo Province should strive to become an information society?	*Yes*				*No*	
4	Have you ever participated in the Integrated Development Planning (IDP) Process	*Not at all*		*Marginally*		*Significantly*	
5	Have you participated in the Provincial Growth and Development Strategy (PGDS) Process	*Not at all*		*Marginally*		*Significantly*	
6	Are you familiar with the current IDP of the Municipality /District	*Not at all*		*Marginally*		*Extensively*	
7	Are you familiar with the PGDS of Limpopo Province	*Not at all*		*Marginally*		*Extensively*	
8	What are the developmental goals/objectives for the Municipality/District/Province (Please list what you consider to be the five most important ones)						
	8.1						
	8.2						
	8.3						
	8.4						
	8.5						

9	Do you think that ICTs can contribute to the achievement of the development goals/objectives of the Municipal/District/Province?	*Not at all*		*Marginally*		*Significantly*	
Comment:							

10	Do you think that the current government strategies and plans, for ensuring that Limpopo Province becomes competitive and economically viable, will succeed?	*Not at all*		*Marginally*		*Significantly*	
Comment:							

11	List the projects within the Municipality/District/Province that you think may contribute to the Municipality/District/Province becoming an Information society (**You may add pages for more information or skip the information you do not know**)				
	Project	*Short Description*	*Where is it located?*	*Who funds it, for how much, and how long?*	*Any other information*
11.1					
11.2					
11.3					
11.4					
11.5					

12	Are there any other comments you would like to add in relation to the above set of questions?
Comments:	

B	READINESS ASSESSMENT								
B1	***NETWORK ACCESS***								
13	The level of access to **fixed** line telecommunications infrastructure in your Municipality/District/Province is…	***Very Poor*** *(Almost no household has access)*		***Poor*** *(a few households have access)*		***Good*** *(Many households have access)*		***Very Good*** *(Almost all households have access)*	
Comment:									
14	The level of access to **mobile** (for example, Cell phone) telecommunications infrastructure in your Municipality/District /Province is…	***Very Poor*** *(Almost no person has access)*		***Poor*** *(few people have access)*		***Good*** *(Many people have access)*		***Very Good*** *(Almost all people have access)*	
Comment:									
15	The level of access to **Internet** in your Municipality/District /Province is…	***Very Poor*** *(Almost no person has access)*		***Poor*** *(few people have access)*		***Good*** *(Many people have access)*		***Very Good*** *(Almost all people have access)*	
Comment:									
16	The cost of access to the **internet** in your Municipality/District /Province is …	***Very High*** *(very few people can afford internet access)*		**High** *(Some people can afford internet access)*		***Affordable*** *(Many people can afford internet access)*		***Competitive*** *(Almost all people can afford internet access)*	
Comment:									

17	Availability of hardware and software services within your Municipality/District/Province is …	**Very Poor** *(No ICT sale or service points)*		**Poor** *(Some off the shelf ICT solutions available)*		**Good** *(There a growing local ICT industry)*		**Very Good** *(ICT industry highly competitive and relevant)*	
Comment:									
18	The level of service and support for telecommunications in your Municipality/District/Province is …	**Very Poor** *(main telephone lines take years to install)*		**Poor** *(Main telephone lines take 6 months to install)*		**Good** *(Main telephone lines take at most a month to be installed)*		**Very Good** *(Main telephone lines are installed within days)*	
Comment:									
B2	**NETWORKED LEARNING**								
19	Access of schools to ICTs in your Municipality/District/Province is …	**Very Poor** *(No schools have PCs connected to the Internet)*		**Poor** *(Some Schools have PCs connected to the Internet)*		**Good** *(Many schools have PCs connected to the Internet)*		**Very Good** *(Most schools have PCs connected to the Internet)*	
Comment:									

20	The level of enhancing education with ICTs in your Municipality/District/Province is …	**Very Poor** *(Teachers & students don't use PCs)*		**Poor** *(Few teachers use PCs in limited fashion)*		**Good** *(Teachers and students use computers to support traditional work and study)*		**Very Good** *(ICTs are integrated into the curricula and are essential for learning process)*	
	Comment:								
21	Within the Municipality/District/Province, the level of developing the ICT workforce is …	**Very Poor** *(Training for ICT professional is non-existent)*		**Poor** *(Limited opportunities for training in ICT exist)*		**Good** *(ICT related programmes are available from various public and private facilities)*		**Very Good** *(There are many technical schools with specialised curricula in ICTs)*	
	Comment:								
B3	**NETWORKED SOCIETY**								
22	Within the Municipality/District/Province, the number of people and organisations online is …	**Very Low** *(Most of the people never heard of the Internet)*		**Low** *(Most do not know of anyone who uses the internet)*		**Moderate** *(Most of people know of internet few [<10%] use it)*		**High** *(Most people are interested in using the internet, > 10% use it)*	
	Comment:								

23	Within the Municipality/District/Province, the level of locally relevant content is …	**Very Low** (No website provides info on local topics)		**Low** (Few websites cover local topics)		**Moderate** (Websites carry information affecting different groups within the community)		**High** (Local information on the many websites is updated within days)	
Comment:									
24	The degree to which members of the community within my Municipality/District/Province utilise ICTs in everyday life is …	**Very Poor** (Community does not normally employ ICTs)		**Poor** (Telephones, faxes, PCs and other ICT are utilised by some)		**Good** (Public telephones are locally available and used heavily; some have internet at home)		**Very Good** (Many members of community utilise ICTs daily living for example, shopping, banking, etc)	
Comment:									
25	The degree to which members of the community within my Municipality/District/Province utilise ICTs in their workplace is …	**Very Poor** (Employees have limited access to phones)		**Poor** (Limited deployment of ICTs by some employers)		**Good** (Many computers in business offices are internally networked)		**Very Good** (Computers in many offices are networked and have internet)	
Comment:									

B4	NETWORKED ECONOMY							
25	The number of ICT employment opportunities within the Municipality/District/Province is …	**Very Low** (Few businesses hire workers on basis of their technical knowledge)		**Low** (Most workers with ICT experience must leave the community for a job in their field)		**Moderate** (Technical skills in the community are becoming a competitive advantage)		**High** (A significant number of employees in the community require technical skill for their job)
Comment:								
26	The level of business-to-consumer electronic commerce in the Municipality/District/Province is …	**Very Low** (No business in the community operate website)		**Low** (Some businesses operate static websites and accept orders placed by phone or fax)		**Moderate** (Many business post key information on a website, information may not be up to date)		**High** (Many businesses have incorporated the World Wide Web in their sales marketing, and customer service system)
Comment:								

27	The level of business-to-business (B2B) electronic commerce in the Municipality/District/Province is …	*Very Low* (B2B is carried out mostly in person or by paper based transactions)		*Low* (Faxes and telephones are frequently used to support orders and client support)		*Moderate* (Some B2B transactions are supported by electronic systems)		*High* (Number of B2B transactions bring noticeable efficiencies. Electronic order processing and delivery may be processed)	
Comment:									
28	The level of e-government in the Municipality/District/Province is …	*Very Low* (There are no government resources over the internet)		*Low* (Some government websites exists but are **not** updated frequently)		*Moderate* (Some government agencies post key information on the web sites. Transactions mainly in person, fax, or telephone)		*High* (Interactive government websites allow members of the public to conduct transactions with government)	
Comment:									
C	**TOWARDS THE INFORMATION SOCIETY IN LIMPOPO PROVINCE**								
29	In your opinion, is the Limpopo Province in the process of building an information society?					*Yes*		*No*	
Comment:									

30	What, in your view, do you think is missing in the approach that Limpopo is taking to build the information society?
31	What do you consider to be the most important challenges for Limpopo Province in building an information society?

I would really like to thank you for taking your time and effort to respond to this questionnaire. Please return the completed questionnaire to Martin Sehlapelo through one of the following:

Method	Details	Remark
E-mail	martin@wizeheadz.co.za	
Post	P.O.Box 315, Bendor Park, 0699	A postage paid self-addressed envelope can be arranged
Hand delivery	Office 430, 40 Hans van Rensburg street, Polokwane	Hand over to Ms. Sonti Maseko in a sealed envelope for the attention of Mr. Martin Sehlapelo
Facsimile/Fax	086 664 3239	
Collection	Phone Martin Sehlapelo at 0834571899 to arrange	This is possible if you are around Polokwane

Should you require additional information or have any other query you can contact Martin Sehlapelo at 0834571899 or his supervisor, Athol Leach, at 033 2605098.

List of Provincial Annual Performance Plans and Municipal IDPs Analysed

Serial	Department/Vote/Municipality	Document
1	Agriculture	Annual Performance Plan 2009/10
2	Economic Development	Annual Performance Plan 2009/10
3	Education	Annual Performance Plan 2009/10
4	Health	Annual Performance Plan 2009/10
5	Local Government and Housing	Annual Performance Plan 2009/10
6	Office of the Premier	Annual Performance Plan 2009/10
7	Provincial Treasury	Annual Performance Plan 2009/10
8	Public Works	Annual Performance Plan 2009/10
9	Roads and Transport	Annual Performance Plan 2009/10
10	Safety, Security, and Liaison	Annual Performance Plan 2009/10
11	Social Development	Annual Performance Plan 2009/10
12	Sport, Arts and Culture	Annual Performance Plan 2009/10
13	Capricorn District Municipality	Integrated Development Plan 2009/10
14	Mopani District Municipality	Integrated Development Plan 2009/10
15	Sekhukhune District Municipality	Integrated Development Plan 2009/10
16	Vhembe District Municipality	Integrated Development Plan 2009/10
17	Waterberg District Municipality	Integrated Development Plan 2009/10